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World Oral Health Day 20th March

'Live Mouth Smart'

Good oral hygiene habits, avoiding risk factors and having a regular check up from early in life, can help to maintain optional oral health. 'Live Mouth Smart', the theme for World Oral Health Day this year is an appropriate theme for this Day which is celebrated on 20 March every year.

The 2017 campaign takes this concepts forward in two ways: first, by emphasizing the mouth is essential for gestures people take for granted such as chewing, talking and smiling; and second, by highlighting oral health as a window to general health and freedom from preventable pain well into old-age.

'Live Mouth Smart' places emphasis on the smart decisions that people can take about oral health throughout life by preventive measures – good oral hygiene, regular dental check ups and by self managing oral disease risk factors – smoking, alcohol, sugar, etc which are identical to those for other non-communicable diseases such as diabetes or cardiovascular disease. Oral health is much more than a nice smile. Basic oral functions that are core to life-ability to speak, smile and convey a world of emotions through facial expressions – are affected and how this relates to their overall well-being.

Who can take part ?

Everybody can take part in this initiative: health associations, member organizations and partners, governmental groups, specialist groups, students, teachers, the general public etc. year we want to be sure that everyone is taking time to promote oral health in their communities and reach as large an audience as possible.

Adopt good oral hygiene habits from early in life and have regular dental check-ups. This helps you to maintain optimal oral health into old age and ensures you live not only a longer life, but also one free from the physical pain and often emotional suffering caused by oral disease. In future, all oral health care providers will use this forum and this day to develop oral hygiene messages for their patients and policy-makers. This land mark occasion in the dental community's calendar provides an opportunity to raise awareness of oral health issues so that governments, health associations and the general public can work together to achieve healthier mouths, and happier lives.

Edited by: **Dr. K. Nandakumar,** Hon. Editor • Published By: **Dr. Suresh Kumar G.** Hon Secretary • **For IDA, Kerala State Branch**
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Message from the Secretary

Dr. Suresh Kumar G

Dear members,

Wishes to you from the state office.

At the outset let me take this opportunity to congratulate all local branches, Office bearers and above all the members who have helped IDA cross the magical figure of 5000 members. As with any organisation the membership strength is the single most important factor that signifies its strength and influence of the association in the profession.

At the same time as we grow there is added responsibility that the association stands and acts in a manner that befits the profession more than ever before.

The increasing unemployment in the Dental sector has given us a lot to think about. Though a trifle late, do believe it's the time when we should act in a decisive manner to take decisions to safeguard the rights of a Dental surgeon be it in terms of work culture or pay structure. The situation of the faculties in the Private Colleges are equally or even more worrisome with little or no job security or decent salaries.

There needs to be a discussion going on and a sensitisation among our members and develop a consensus on the importance of a decent pay structure for Dental surgeons, for that single step can go a long way in encouraging more young Dentists to seek employment and gain experience before starting establishments on their own without understanding the ground realities.

We at the office are happy to note that members have accepted the online renewal of IDA and HOPE membership and has become a success. With activities of all branches at it's peak it promises to be a busy season ahead.

Thanking all for the support extended.

Dr. Suresh Kumar G.
Secretary, IDA Kerala State

Message from the President

Dr. Sabu Kurien

Dear members,

Our membership drive is very effective and we are about to cross the 6000 mark this year. Any association's strength lies in the number of members. With KDC crossing 18000 registrations, we should reach out more and add all those registered dentists as IDA members.

Our social security and professional protection scheme HOPE is entering a new era with all the amendments, made unanimously during the HOPE –EOGM at Calicut. It's the duty of existing HOPE members to spread the details, to our colleagues, regarding the unmatched advantages of the scheme, when compared to any other insurance/social security products, offered by anyone else in India. We have decided to increase the professional indemnity to four lacks from two. Regarding the fraternity contribution, instead of 10 lacks, it is decided to make 400 x number of HOPE members. At present we have 2588 members, so in case of an unfortunate event of death up to the age of 70, the scheme will provide 2588x400= 1035200.

As the membership grow the amount will also go up, so if 5000 members joins the HOPE the amount will be 5000x 400 = 20 lacks. The free legal aid (minimum 50 thousand is needed to fight a case in High Court) and the eligibility to join the HOPEMEDI with all the existing diseases, including parents, irrespective of their age, also come along with the membership at a very meager premium. So I urge all of you to take an earnest effort to make every Kerala state IDA member as HOPE member, doing so each of our members will be well protected against any unfortunate events and the fraternity contribution amount also will become more substantial.

Our state Govt: is seriously considering enacting the Clinical Establishment Bill. As a professional body we welcome the move by the Govt: to bring in standardization of treatments and its charges to a certain extent. We all agree that common man stands to benefit from such legislatures, but we have some apprehensions also. The draft bill proposes a committee to implement and monitor, but unfortunately the IDA, the sole association representing the dentists of Kerala, have no representation in that high powered committee. Even though the IMA, Ayurveda, Homeopathy & Nursing associations have their members in the committee. From dentists side only KDC, our regulator got a representative in the committee in Kerala, at the national level IDA is made as a special invitee, and here also we are trying to get a representation likewise. Without a representation in the said committee how can we agree for the standards and charges stipulated by someone who have no knowledge about challenges in the present dental scenario.

The reason for this situation is mainly because we have only one directorate for medical and dental education. So the Govt: considers one person can represent both, and whenever such situation arises it's always given to IMA, naturally that individual is more interested in protecting IMA's interests than ours, and dentists are left out without proper representation. It's high time we fight for a separate directorate for dentistry. Only less than 5% of the dental fraternity is working in the Govt: sector, they might lose some benefits if a separate directorate evolves, but 95% of the dentist's stands to benefit. It's true that setting up a new directorate will cost dearly and during the initial years we will have teething problems in the academic sector but that is the only way dentistry can grow to its full potential in the state. I believe we should be proud to be identified as dentists.

We are very delighted to note that all the branches have started to function with full steam. Our CDE chairman Dr Anil & CDH chairman Dr Rajesh need special applause for coordinating the state and local branch activities. Vice presidents, secretary and other office bearers need your encouragements and we all look forward to your whole hearted support throughout the year.

Thank you

Dr Sabu Kurien
President, IDA Kerala State

Editorial

Dr. K. Nandakumar

Prescribing the generic drug

In a recent speech made by the Prime Minister at Surat, he has referred to bringing a law to regulate doctors to prescribe generic names of drugs so that patients can access cheaper versions of branded ones. From then on, the merits of branded drugs versus generic drugs have attracted heated debate among physicians, dentists, pharma professionals, media and healthcare activists.

It is necessary to understand the distinctions between branded drugs and generics. A generic drug is a chemically equivalent, lower-cost version of a branded drug, costing 30-80% less. A branded drug and its generic version must have the same active ingredient, dosage, safety, strength, usage directions, quality, performance and intended use. After the patient takes the generic drug, the amount of drug in the bloodstream if measured, should be similar to that of the branded drug. If so they should work similarly. It is clear that the only difference between a branded drug and a generic is that branded drugs are very expensive, while generics are far cheaper. In the West, brand names are given to researched and patented first-in-market innovator drugs. After the expiry of patent period, other companies can launch generics of the innovator drug with just the pharmaceutical salt name at a hugely discounted price. In India we have been used to branded drugs especially the ones manufactured by reputed drug houses. Once the generic drugs have been insisted upon, two types of generics have come to the market- 1. branded generics manufactured by reputed manufacturers 2. generics manufactured by not so reputed manufacturers. Branded generics with a brand name may be a phenomenon present in India only. This helps the doctors to opt for a better quality generic drug. Our prevailing system cannot ensure quality of generics made by manufacturers who are not so reputed. These generics find a place in the government purchases where doctors have no other option. The sufferer will be the poor patient. When dentists prescribe a drug, the branded generic will be a safer option. While prescribing a drug with just the pharmaceutical salt name, make sure that the chemist dispenses the branded generic with assured quality and avoids generic drug of doubtful quality. The entire issue of cheaper generics is based on the premise of measurable and enforceable assurance about quality through bioequivalence tests and other globally mandated parameters. We are concerned about the poor and their affordability of treatment and at the same time we are morally bound to ensure cure for our patients.

Dr. K. Nandakumar
Editor, KDJ

ORIGINAL RESEARCH

A comparative evaluation of the properties of different base metal alloys after heat treatment- an invitro study

* Rajesh C., *Sandhya M. Raghavan, **T. Sreelal

Abstract

Aim: To evaluate and compare the mechanical properties viz. (a) Ultimate tensile strength (b) 0.2% offset yield strength (c) Percentage elongation (d) Hardness of Nickel-Chromium and Cobalt-Chromium alloys in the as-cast and heat-treated conditions.

Materials and Methods: The alloy systems used in the study were two proprietary nickel-chromium alloy types-Maxibond and Commend- and one cobalt-chromium alloy-Lithecast. 15 tensile bars of each alloy group to be tested were made according to ADA Specification No: 5 for dental casting alloys. All the tensile bars were to be tested on an Instron testing machine.

Results: One-way ANOVA of the mechanical properties studied showed superior tensile strength, 0.2% offset yield strength and hardness for Commend (Nickel-Chromium). The percentage elongation was higher for Maxibond (Nickel-Chromium) while the property was not able to record for Lithecast (Cobalt-Chromium) due to its brittle nature. For Maxibond and Commend no difference in the tensile strength was observed under the two treatment conditions. But for Lithecast the tensile strength under the as-cast condition was significantly higher than that in the heat-treated condition. The percentage elongation was significantly higher for Maxibond and Commend in the heat-treated condition with a higher value for the former. The hardness decreased with the heat treatment for Maxibond and Commend while for Lithecast, the value increased significantly with the heat treatment.

Conclusion: Within the limitations of the study better mechanical property was observed for the Nickel-Chromium alloy type (Commend) compared to the other two. Hence except in the nickel sensitive patients, the Nickel-Chromium alloys can be used without any concern in fixed prosthodontics.

Key Words: Ultimate tensile strength; 0.2% offset yield strength; Percentage elongation; Hardness; Base metal alloys

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Introduction

A variety of materials are available in the field for the metal ceramic restorations. This ranges from the so- called precious gold alloys to the non-precious (also called base-metal) nickel- and cobalt- based alloys. Among these,the base metal alloys have got better mechanical properties such as hardness, elastic modulus, sag resistance at high temperatures etc. and less expensive compared to the gold- based alloys. But they are more difficult to cast and presolder and the high casting shrinkage lead to ill – fitting castings. The greater hardness and the strength of the base metal alloys make it difficult to achieve a proper occlusion difficult by grinding and polishing. Even with all these limitations, the base- metal alloys are widely used for the metal-ceramic restorations. Relatively small compositional differences or certain base metal additions such as beryllium, silicon, boron, carbon, cobalt, copper, cerium, gallium, iron, manganese, niobium, tin, titanium and zirconium produce significant changes in the base metal alloy microstructure and properties which could affect the bond strength of the ceramics to the metal oxide layer that is required to achieve chemical bonding.

Of the two base metal alloy systems for the metal- ceramic restorations, the nickel-based alloys are advantageous in the aspect that they do not contain beryllium (in recent formulations) so that the biological hazard due to the element can be avoided.[2] The alloy is also less dense. But it cannot be used in nickel-sensitive patients, cannot be etched, produce poor castings and form more oxides that can disrupt the bonding of the ceramic applied on them. Cobalt-based alloys, in addition to the absence of the beryllium, do not contain nickel also. But they are difficult to process and the long term studies are in progress concerning its mechanical properties. It is difficult to ascertain the superiority of one material over another.

Reported problem areas include the working characteristics, accuracy, porcelain bonding and biocompatibility. Little information exists, however, concerning the effects of the simulated porcelain firing cycles (heat treated) on the mechanical properties of the base metal alloys. The present study was carried out to get a comparison of certain mechanical properties (ultimate tensile strength, percent elongation, 0.2% offset yield strength) between the two proprietary nickel-based and one cobalt-based alloy in the as- cast and heat treated condition and to compare the porcelain bond strength between the two systems.

The aims and objectives of the study are to compare and evaluate:

1. The mechanical properties viz. (a) Ultimate tensile strength (b) 0.2% offset yield strength (c) Hardness (d) Percentage Elongation of the Nickel-Chromium and Cobalt-Chromium alloys in the as –cast conditions.

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2. The aforementioned mechanical properties of the alloys after heat treatment.
3. The aforementioned mechanical properties among the as-cast and the heat treatment conditions for each alloy type.

► Methodology

A rectangular steel mold was made to create the wax patterns according to the dimensions given in ADA Specification No :5 for dental casting alloys. (Fig.1)

The steel mold consisted of two parts: an upper part and a lower part with a mold space in the center. The upper part consisted of two screws and the lower part contained the corresponding screw holes to accommodate the screws. When assembled together, a hole is seen on the topmost portion through which molten wax is poured.

Preparation of the test specimen

A dumb-bell shaped test specimen was made according to the ADA Specification No:5 for dental casting alloys. Utilising the steel mold and inlay casting wax, 45 test specimens were made (Fig.2)

The test specimens were divided to 3 groups of 15 test specimens in each group.

- GROUP A - Ni-Cr group MAXIBOND
- GROUP B - Ni-Cr group COMMEND
- GROUP C - Co-Cr group LITHECAST

Each group consisted of two sub-groups viz. A_1, A_2, B_1, B_2, C_1 and C_2. The first subgroup consisted of 5 as- cast specimens and the second subgroup consisted of 10 heat treated specimens. The heat treated specimens were treated according to the Vintage porcelain cycle.

► Sprue attachment

Three 3 mm sprues were attached to each test specimen: one each at the two thicker ends and at the central thin portion with a reservoir in each sprue. (Fig.3)

Investing

Phosphate bonded investments not containing carbon – Wirovest investment powder and Begosol investment liquid – was used for investing the wax pattern in a No. 9 casting ring. Three wax patterns were used in each ring. The powder: liquid ratio was made according to the manufacturer's instructions. To obtain a bubble –free uniform mix, the investment was mixed with a vacuum mixer and poured into the casting ring on a vibrator.

► Burn-out

Before taking to the hot air oven for wax burn out, the casting ring with the invested pattern was set-aside for 60 minutes for the proper hardening of the investment. The wax burn- out was done according to the instructions given by the manufacturer of each alloy. The burn- out began at the room temperature in the oven and the maximum temperature was as follows:

Group A - 930^0 Celsius for 60 minutes
Group B - 870^0 Celsius for 60 minutes
Group C - 982^0 Celsius for 60 minutes

Casting procedure

After reaching the proper burn-out temperature in the oven and complete wax burn-out, the casting ring was taken from the oven and placed in the appropriate location in the already adjusted induction casting machine- BEGO 10 to 12 pieces of alloy were put into the crucible for each casting ring containing three patterns. The lid of the casting machine is closed, the induction was in on position and when the appropriate melting of the alloy is reached as can be seen from the top glass portion, the centrifugation is started. The whole process took approximately three minutes.

► Retrieval of the casted specimens

When the centrifugation is completed, the molten casting ring is taken outside and after 60 minutes of cooling in the room temperature the casted specimens were retrieved with the sprues intact.

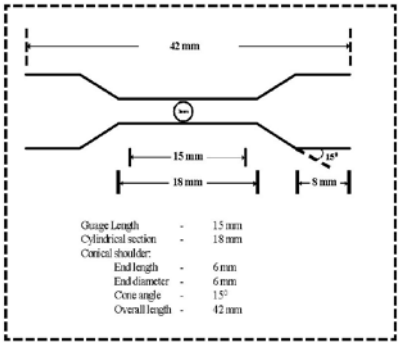

Fig 1 Sketch of test specimen

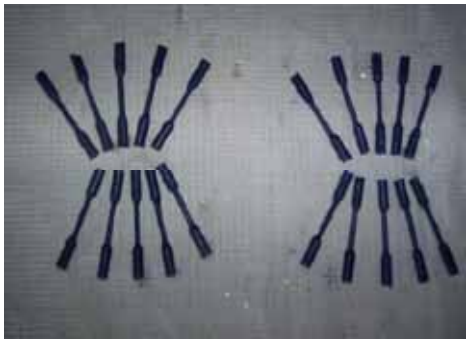

Fig 2 Wax patterns of the test specimen

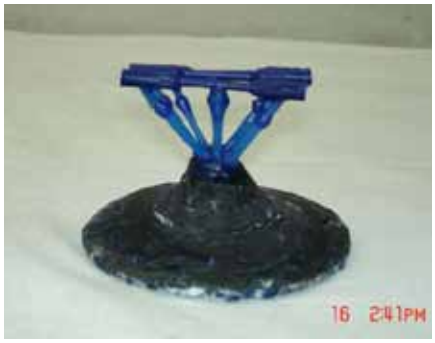

Fig 3 Sprued wax pattern

Individual test specimens were taken after cutting away the sprue in a high-speed lathe with No. 2507 cutting disc and were polished in a step- wise manner starting with 18- fluted carbide burs followed by fine and superfine diamond burs

Heat treatment of the test specimens

The heat treatment of 10 test specimens in each subgroup involved six steps in a ceramic furnace (Wizard-JELRUS INTERNATIONAL) and involved degassing (once), opaquing (twice), body bake (twice) and glazing (once). The degassing step was completed according to the instructions of the manufacturer of each alloy. The four remaining steps were performed according to the recommended Vintage porcelain cycle.

▶ Testing of the specimen

Before testing the specimen, the dimensions of the individual test specimens were measured and a gauge length of 15mm was marked on each specimen.

Each end of the test specimen was connected to a wedge action grip on the Universal testing machine (INSTRON CORPORATION). An electronic extensometer was mounted on to the gauge length portion of the test specimen. A tensile load was applied gradually by moving the cross head of the machine at a speed of 2.0mm/min. ultimately, the fracture of the test specimen occurred and the maximum load subjected was noted. The tensile strength was calculated using the formula:

$$\text{Tensile strength} = \frac{\text{Maximum load}}{\text{Cross-sectional area}}$$

Table 1: One way ANOVA of the tensile strength under as-cast and heat-treated Condition

Sources	Degrees of freedom	Mean square	F ratio
Among treatments	5	250429.8	91.2 **
Among A_1, B_1, C_1	2	276080.1	100.5**
Among A_2, B_2, C_2	2	346430.0	126. 1**
As-cast vs heat treated	1	7128.9	2.6ns
Error	39	2746.5	
Total	44		

** – significant at 1% level of significance
ns – non significant

The two broken pieces of the specimen was joined together and the extension was measured to calculate the percentage elongation according to the formula:

$$\text{Percentage Elongation} = \frac{\text{Change in length } (\Delta l)}{\text{Original length } (L)} \times 100$$

The 0.2% yield strength was calculated by plotting the stress-strain graph.

Data analysis:

The analysis of variance technique was applied to draw inferences from the experiment with the objective of comparing the different materials used as the coping material in metal-ceramic restorations. Wherever the effect of the treatment –3 materials under two different conditions- was found to be significant, the comparison of the treatments was made on the basis of the mean values and the critical difference (CD). (Snedecor and Cochran, 1967)[15].

Throughout the study the abbreviations and corresponding explanations are as follows:

A - Maxibond
B - Commend
C - Lithecast
A_1 - Maxibond in the as-cast condition
B_1 - Commend in the as-cast condition
C_1 - Lithecast in the as-cast condition
A_2 - Maxibond in the heat-treated condition
B_2 - Commend in the heat-treated condition
C_2 - Lithecast in the heat-treated condition

The data was analysed as follows:

The ultimate tensile strength of B_1 is significantly higher than that of A_1 and C_1 which were on par under as-cast condition. Under heat treated condition also the strength of

Table 2: The mean tensile strength of A, B, C

Mean tensile strength (MPa)

Material	As - Cast	Heat treated	CD
A	622.4	628.4	57.4
B	1039.4	995.9	57.4
C	643.2	760.8	57.4

CD = 66.3 46.9

(CD= critical difference)

B_2 was significantly higher than that of A_2 and C_2; the strength of C_2 was higher than that of A_2. With materials A and B no significant difference in tensile strength was observed under the two difference conditions, but for material C under heat treated conditions the tensile strength was significantly higher than that observed under as-cast condition.

The significance differences in mean yield strength were observed in the specimens made with materials A, B and C. However no significance difference was observed under as-cast and heat treated conditions when the specimens were made with materials A & C. The specimens made with material B under as-cast condition recorded higher yield strength than that made under heat treated condition. Under both conditions the specimens made of material B were stronger followed by C. The strength was less when they were made with material A.

Significant differences in hardness were observed among treatments. Under as-cast condition hardness of the test specimens was high when it was made with materials B and C and hardness are more or less same for B and C under this condition. But under heated condition the test specimens made with C was very hard in comparison to the test specimens made with A and B. Under both conditions hardness was low with material A. In case of B, test specimens made under as-cast condition was found to be harder than made with heated condition. But in the case of C test specimens made with this material under heat condition was found to be harder than that made under as – cast condition.

Table 3: One way ANOVA of 0.2% offset yield strength under as-cast and heat-treated condition

Sources	Degrees of freedom	Mean square	F ratio
Among treatments	5	210312.67	330.5**
Among A1, B1, C1	2	254347.82	399.7**
Among A2, B2, C2	2	260365.35	409.2**
As- Cast vs Heat treated	1	22137.02	34.8**
Error	39	636.32	
Total	44		

** significant at 1% level of significance ns – non significant

Discussion

The Egyptian fiancés are the first known effort to enamel a substructure with a ceramic veneer. The technique metamorphosed through the works of Fonzi (fused porcelain to metal to produce terrometallic teeth -1806), development of porcelain fused to gold systems in 1956, development of porcelain fused to base metal systems in 1970 and the introduction of titanium as a coping and framework metal in early 90's. Since its introduction, the metal ceramic restoration has been called by various names at different times like Ceramco crown, porcelain fused to gold, porcelain veneer crown etc. but metal ceramic is a more precise term scientifically. The metal ceramic restoration –MCR- combine the strength and the accuracy of cast metal with the esthetics of porcelain. But due to low ductility, the fracture of the porcelain or porcelain chipping is not a rare occurrence.

William J O'brien[16] has outlined five requisites for the selection of the casting alloy to porcelain bonding viz. (1)

Table 4: The mean yield strength of A, B, C

Mean yield strength (Mpa)

Material	As –Cast	Heat treated	CD
A	377.42	380.13	27.63
B	828.12	689.97	27.63
C	618.92	613.2	27.63
CD =	31.91		22.562

(CD= critical difference)

Table 5: One way ANNOVA of the percentage elongation under as-cast and heat-treated condition

Sources	Degrees of freedom	Mean square	F ratio
Among treatments	3	230.18	298.0 **
A1 Vs B1	1	162.41	210.3**
A2 Vs B2	1	425.96	551.5**
As-Cast vs Heat treated	1	102.18	132.3**
Error	26	0.77	
Total	29		

** significant at % level of significance.

Physical properties (2) Chemical properties (3) Biocompatibility (4) Laboratory workability (5) Porcelain compatibility.

The so called PFM alloys or the porcelain fused to metal alloys can be classified broadly into base metal and noble metal alloys. The base metal alloys include nickel-based (Ni-Cr,Ni-Cr-Be, Ni-Cr-B), cobalt based (Co-Cr, Fe-Cr) and titanium based (cp Ti, Ti-6Al-4V). The noble metal alloys include palladium –Pd-based (Pd-Ag, Pd-Cu, Pd-Co) and gold-Au-based (Au-Pt-Pd, Au-Pd-Ag, Au-Pd).

The compositions of the alloys in the present study were as follows:

A	Maxibond	63%Ni, 24%Cr, 11%Mo
B	Commend	77%Ni, 14%Cr, 4.7%Mo, 2%Al,1.8%Be, 0.5%other metals
C	Lithecast	63%Co, 29%Cr, 6%Mo, 1%Mn, 1%Si, less than 1% other metals

Table 6: The mean percentage elongation of A,B

Mean % elongation

Material	As- Cast	Heat treated	CD
A	11.88	16.38	0.99
B	3.82	7.15	0.99
CD		1.14	0.81

% elongation was significantly high in heat treated conditions for both materials. The material B was found to have resulted in reduced % elongation under both condition.

Table 7: One way ANOVA of the hardness under as-cast and heat – treated conditions

Source	Degrees of freedom	Mean square	F ratio
Treatments	5	29170.76	231.04**
Among A_1, B_1, C_1	2	12470.87	98.77**
Among A_2, B_2, C_2	2	59952. 70	474.84**
As-cast vs heat treated	1	1006.68	7.97**
Error	39	126.26	
Total	44		

A1, B1, C1 – As- cast specimens

A2, B2, C2 – Heat treated specimens

The present study compared the mechanical properties viz. ultimate tensile strength, 0.2% offset yield strength and percentage elongation among three proprietary base metal alloys viz.(A) Commend (Ni-Cr) (B) Lithecast (Co-Cr) (C) Maxibond (Ni-Cr) in the as-cast and the heat treated conditions.

The study showed a superior strength of B than that of A and C in both the conditions. This can be attributed to higher nickel content (77%) in B compared to A and C. It has been proved in earlier studies that nickel can increase the mechanical property of a material. A restoration would fail from permanent deformation before its ultimate tensile strength was exceeded. This makes the metal B a better option for use both as a full metal crown and as the metal sub-structure in the metal-ceramic restorations. But when the two treatment conditions viz. the as-cast vs heat-treated were compared no significant difference was noted between A and B; but for material C, the tensile strength under heat-treated condition was found to be higher.

The measurement of 0.2% offset yield strength was more for B followed by C and A in the as-cast condition. No significant difference was noted in the two treatment conditions. Even though a mechanically strong alloy is expected from a higher yield strength, it make the clinical manipulation difficult.

The percentage elongation was higher in the heat treated stage for A and B. This is supported by earlier studies of similar metals by Winkler et al[3] Since the alloy C is a brittle one, as evident from the higher yield strength value, its elongation was not able to record. This makes the clinical manipulation of the alloy C very difficult. This is supported by the earlier studies which revealed that the Co-Cr alloys are very difficult to cast in the dental laboratory[4,10]. The percentage elongation of the alloy A was about four times higher than that of metal B in the as-cast condition and two times than that of the alloy B in the heat treated condition. This offers a better burnishability for the alloy A clinically.

All the alloy showed a lower hardness in the heat treated condition except alloy C. This has been confirmed in earlier

Table 8: The mean hardness of A, B, C

Mean hardness

Material	As-cast	Heat treated	CD
A (Maxibond)	188.6	184.0	12.31
B (Commend)	274.8	246.9	12.31
C (Lithecast)	275.4	338.0	12.31
CD	14.21	10.05	

studies.[3] The hardness of Ni-Cr alloys was found to be less after heat treatment in the studies reported by Sheldon Winkler et al in 1984. Morris J et al (1990) 60 in his study reported a statistically non significant increase in the hardness of Co-Cr metal alloy after heat treatment. This supports the change in hardness value after heat-treatment for metal C. This high hardness value, eventhough advantageous from the metal ceramic point of view, is not advantageous for the full crowns since it cause wear of the opposing dentition.

A plethora of alloys are available in the market today for metal ceramic restorations. A number of factors have to weigh before selecting an alloy for good performance clinically. The most important of these factors are the cost of the metal and its mechanical properties.

In the present study, three alloy groups-two Ni-Cr alloys (Maxibond and Commend) and a Co-Cr alloy (Lithecast)-were examined for their mechanical and physical properties in the as-cast and heat treated conditions. The mechanical properties studied were the ultimate tensile strength, 0.2% offset yield strength, Percentage elongation and the hardness. The physical property tested was the porcelain bond strength for Commend and Lithecast.

Within the limitations of the study and in regard to the various treatment conditions, it can be seen that the mechanical properties and physical properties were affected by the various treatment variables.

The following conclusions were drawn from the study:

(1) In the as-cast condition and the heat treated condition, the ultimate tensile strength of Commend is significantly higher than the other two.
(2) For Maxibond and Commend, no significant difference was noted in the ultimate tensile strength in the as-cast and heat treated condition.
(3) For Lithecast, the ultimate tensile strength observed under the heat treated condition was significantly higher than that observed under the as-cast condition.
(4) Under both as-cast and the heat treated conditions, Commend recorded a higher value for 0.2% offset yield strength followed by Lithecast and Maxibond recorded the lowest value.
(5) No significant difference was observed under as-cast and heat treated condition with Maxibond and Lithecast.
(6) The percent elongation was not able to record for Commend due to its brittle nature.
(7) For Maxibond and Lithecast, the percent elongation was high in the heat treated condition.
(8) The hardness of Commend and Lithecast was more or less the same in the as- cast condition followed by Maxibond.
(9) The hardness of Lithecast was the highest in the heat treated condition.

From the study it can be concluded that the cobalt-chromium alloy used in the study does not offer any advantage over the proprietary used nickel-chromium alloys both in terms of cost and mechanical properties. Hence except in nickel sensitive patients, the nickel- chromium alloys can be used for metal ceramic restorations without any concern.

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Evaluation of changes in interincisal angle following incisor intrusion in treatment of deep bite by three different methods including mini implants, connecticut intrusion arches and three piece intrusion arches

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Abstract

Aims and Objectives: 1. To assess the correlation between overbite correction and changes in interincisal angle, and also the correlation between change in edge-centroid relation and change in interincisal angle, following incisor intrusion. 2. To compare mean post treatment values of interincisal angle, overbite and edge-centroid relation in the three methods of intrusion.

Materials and Methods: Sixteen patients with deep bite and increased upper incisal display were selected for the study and divided into three groups, Group 1, Group 2 and Group 3, which were treated by mini implants, Connecticut intrusion arches and three piece intrusion arches respectively. Pearson's correlation test and one way Anova test were done by using SPSS 16.0 for statistical analysis.

Results: A statistically significant negative correlation was observed between the overbite correction achieved and change in interincisal angle in patients treated by three piece intrusion arch. Similarly a statistically significant negative correlation was observed between change in edge-centroid relation and change in interincisal angle in patients treated by three piece intrusion arches. Following orthodontic treatment, a significant decrease was observed in overbite in all the three groups.

Conclusions: Changes in interincisal angle showed a negative correlation with changes in overbite as well as with changes in edge-centroid relation following intrusion with three piece intrusion arches. There was a significant decrease in overbite following intrusion in all the three methods.

Key-words: intrusion, deep bite, interincisal angle, edge-centroid relation.

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► Introduction

Smile, one of the most important facial functions, depends on the ideal position of the maxillary incisors on its apical base in all three planes of space. Increased incisor exposure at rest and gingival exposure at smile are seen in various types of malocclusions. Correction of deep bite with incisor intrusion is preferred in treatment of non growing patients. Although incisor intrusion can be carried out by various methods like utility arch, Burstone's intrusion arch, Ksir arch, implants etc, the present study deals with mini implants, Connecticut intrusion arch and three piece intrusion arch.

Interincisal angle influences overbite depth in cases where overbite correction is achieved. The stability of incisor contact is related to interincisal angle.

Houston[1] investigated on the hypothesis suggesting antero-posterior relationship between the upper incisor root centroid and the lower incisor edge as an etiological factor in overbite depth. These studies are of relevance in orthodontic treatment planning, especially in Class II cases, to enhance the stability of overbite reduction achieved.

► Aims and objectives

1. To assess the correlation between overbite correction achieved and change in interincisal angle following intrusion by three different methods.

2. To assess the correlation between change in edge-centroid relationship and change in interincisal angle following intrusion by three different methods.

3. To compare the mean post treatment interincisal angle and mean post treatment overbite in three different methods of intrusion.

4. To compare the mean post treatment edge-centroid relationship and mean post treatment interincisal angle in three different methods of intrusion.

► Materials and Methods

The present study was conducted in Department of Orthodontics, Government Dental College, Kottayam. The ethical clearance

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number given by Institutional Ethical Committee, Government Dental College, Kottayam, for the present study was IEC/M/11/2016/DCK, dated 19/3/2016. The sample of this study included 16 subjects, three male and thirteen female, aged 16 – 25 years, with deep overbite and with increased upper anterior gingival/incisal display, undergoing fixed appliance treatment with .022 Roth appliances. They satisfied the following inclusion criteria:

1. Cases that require incisor intrusion for deepbite correction
2. Patients with deep overbite of 4mm or more and increased incisal/gingival display.
3. Patients willing to participate in the study.

The exclusion criteria were:

1. Patients with active periodontal disease.
2. Severe craniofacial disorders, cleft lip and palate, or extensive prosthetic appliances.
3. Medically compromised cases.

An informed consent was taken and the patients were divided into 3 groups, Group 1, Group 2 and Group 3. Subjects in Group 1 were treated with mini implants (1.3 x 8 mm) (3M^{TM} ESP), positioned between maxillary lateral incisor and canines on both sides in the inter-radicular bone. Subjects in Group 2 were treated with Connecticut intrusion arches[2] (Ortho Organizers) and subjects in Group 3 were treated using Burstone's three piece intrusion arches.[3] After the initial alignment of the incisors, mini implants were placed in subjects in Group 1 and Connecticut arches and three

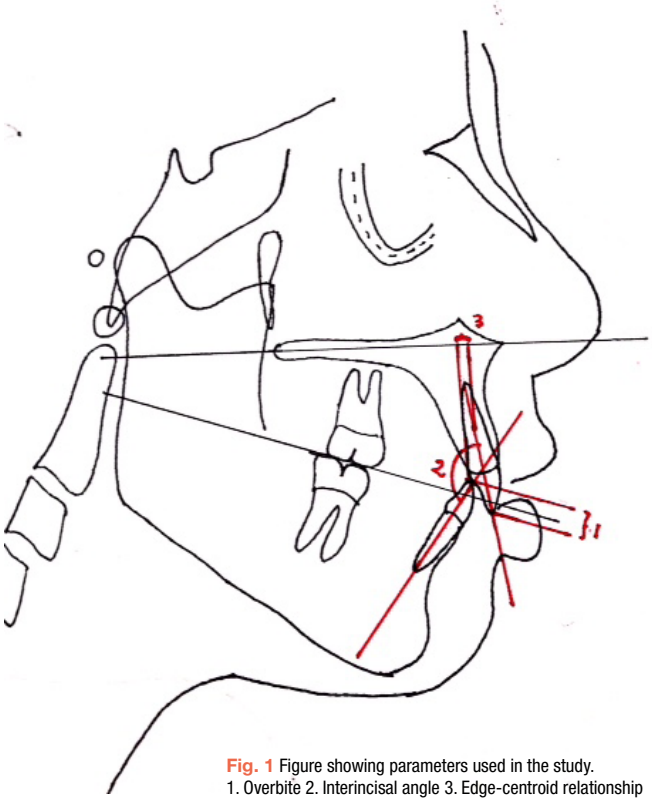

Fig. 1 Figure showing parameters used in the study.
1. Overbite 2. Interincisal angle 3. Edge-centroid relationship

Table 1 – Table showing correlation between overbite correction achieved, change in edge-centroid relation and change in interincisal angle in patients in Group 1 (mini implants).

Sl. no	Correlation parameter	N	r value	P value
1	Overbite correction – change in interincisal angle	5	-.604	.281
2	Change in edge-centroid relationship – change in interincisal angle	5	-.364	.547

Table 2 – Table showing correlation between overbite correction achieved, change in edge-centroid relation and change in interincisal angle in patients in Group 2 (Connecticut intrusion arch)

Sl. no	Correlation parameter	N	r value	P value
1	Overbite correction – change in interincisal angle	5	.115	.853
2	Change in edge-centroid relationship – change in interincisal angle	5	.104	.868

Table 3 - Table showing correlation between overbite correction achieved, change in edge-centroid relation and change in interincisal angle in patients in Group 3 (Three piece intrusion arch)

Sl. no	Correlation parameter	N	r value	P value
1	Overbite correction – change in interincisal angle	6	-.983**	.000
2	Change in edge-centroid relationship – change in interincisal angle	6	-.838*	.037

*Correlation is significant at the 0.05 level (2-tailed)
**Correlation is significant at the 0.01 level (2-tailed)

piece intrusion arches were placed in subjects in Group 2 and Group 3 respectively. A force of 150 gm was applied at the incisor region in each patient for intrusion.

Standardized lateral cephalograms were taken before the placement of mini implants, Connecticut intrusion arches and three piece intrusion arches, i.e. at the end of levelling (T1). Incisor angulation at the end of levelling was noted in terms of interincisal angle. After the placement of mini implants and intrusion arches in respective groups, activation was done periodically every 4 weeks to maintain the force level of 150 grams in all the patients. Standardized lateral cephalograms were taken at the end of intrusion (T2), i.e. after 4 months. A further change in upper incisor angulation associated with upper incisor intrusion was measured in terms of a further change in interincisal angle. Cephalograms were traced. Two linear and one angular measurement were selected for cephalometric analysis. Five cephalograms were retraced after 2 weeks and an interclass correlation of 0.9 with excellent agreement was observed. Parameters are defined as follows (Fig 1):

1. Overbite–linear distance between the incisal edges of the upper and lower incisors parallel to the occlusal plane.
2. Interincisal angle – inside angle formed by the intersection of long axes of upper and lower incisors.
3. Edge-centroid relationship – distance between the perpendicular projections of the lower incisor edge and the centroid of the upper incisor on the palatal plane. Upper incisor root centroid is located at the midpoint of the long axis of the root.

Pearson's correlation test and one way Anova test were done by using SPSS 16.0 for statistical analysis.

Results

Sixteen patients of age 16–25 years were included in the study and were divided into three Groups – Group 1(mini implants), Group 2 (Connecticut intrusion arch) and Group 3 (Segmental intrusion arch). The following results were observed (refer Table 1 - 9):

No statistically significant correlation was observed between overbite correction achieved and change in interincisal angle following intrusion in Group 1 and Group 2 (Table 1 and 2) and a statistically significant negative correlation was observed in Group 3. (Table 3)

Table 4 – Table comparing mean post treatment overbite, mean post treatment edge-centroid relation and mean post treatment interincisal angle in Group 1, Group 2 and Group 3.

Group	Method	Mean pre treatment overbite	Mean post treatment overbite	Mean pre treatment edge-centroid value	Mean post treatment edge-centroid value	Mean pre treatment Interincisal angle	Mean post treatment Interincisal angle
Group 1	Mini implant	4.1	2.2	0.7	1.5	121.9	121.1
Group 2	Connecticut intrusion arch	4.6	2.7	1.6	2.5	123	125.4
Group 3	Three piece intrusion arch	4.75	2.75	-0.33	1.66	125.5	119.25

Table 5 – Table comparing mean post treatment overbite in Group 1, Group 2 and Group 3

Group	Mean post treatment overbite	N	Standard deviation	Standard Error
1	2.200	5	.5701	.2550
2	2.700	5	.9747	.4359
3	2.750	6	1.6956	.6922

Table 6 – Table comparing mean post treatment interincisal angle in Group 1, Group 2 and Group 3

Group	Mean post treatment interincisal angle	N	Standard deviation	Standard Error
1	121.100	5	2.8373	1.2689
2	125.400	5	12.8131	5.7302
3	119.250	6	18.7450	7.6526

No statistically significant correlation was observed between change in edge-centroid relationship and change in interincisal angle following intrusion in Group 1 and Group 2 (Table 1 and 2) and a statistically significant negative correlation was observed in Group 3. (Table 3)

Mean post treatment overbite in Group 1, Group 2 and Group 3 was 2.2 mm, 2.7mm and 2.75mm respectively. Mean post treatment interincisal angle in Group 1, Group 2 and Group 3 was 121.1^0, 125.4^0 and 119.25^0 respectively. Mean post treatment edge-centroid value in Group 1, Group 2 and Group 3 were 1.5mm, 2.5mm and 1.66mm respectively. (Table 4, 5, 6, 7).

Table 7 – Table comparing mean post treatment edge-centroid value in Group 1, Group 2 and Group 3

Group	Mean post treatment edge-centroid value	N	Std. deviation	Std. Error
1	1.5	5	1.5411	.6892
2	2.5	5	1.2247	.5477
3	1.66	6	2.5626	1.0462

The difference observed between the pre and post treatment values for overbite, edge-centroid and interincisal angle in the three different groups are presented in Table 8. Among the three groups, there was no significant difference observed on comparing the changes in overbite, edge-centroid and interincisal angle achieved by incisor intrusion. (Table 9). Interobserver and intraobserver correlation showed excellent agreement with p value less than 0.05.

Discussion

This study included 16 subjects, 3 males and 13 females with deep overbite of 4mm or above and increased anterior gingival display, who were treated for intrusion with mini implants, Connecticut intrusion arches and three piece intrusion arches.

The interincisal angle is on an average 5^0 wider when overbite is greater than 2mm.[4] Ballard[5] had remarked the interincisal angle to be important in determining overbite

Table 8 – Table showing the difference observed between pre treatment and post treatment values for overbite, edge-centroid and interincisal angle in all the three groups

Group	Parameter	Mean	Standard deviation	t	P
1	post treatment overbite - pre treatment overbite	-1.9000	0.4183	-10.156	0.001
	post treatment edge centroid value - pre treatment edge-centroid value	0.8000	0.4472	4.000	0.016
	post treatment interincisal angle - pre treatment interincisal angle	-0.8000	5.8374	-0.306	0.775
2	post treatment overbite - pre treatment overbite	-1.9000	0.6519	-6.517	0.003
	post treatment edge-centroid value - pre treatment edge-centroid value	0.9000	0.6519	3.087	0.037
	post treatment interincisal angle - pre treatment interincisal angle	2.4000	8.1348	0.660	0.545
3	post treatment overbite - pre treatment overbite	-2.0000	1.0954	-4.472	0.007
	post treatment edge centroid value - pre treatment edge-centroid value	2.0000	1.3416	3.651	0.015
	post treatment interincisal angle - pre treatment interincisal angle	-6.2500	7.2921	-2.099	0.090

depth. Many authors supported this view in spite of limited number of investigations on this area. A positive correlation (r = 0.73) was reported by Popovich[6] who investigated into the association between overbite depth and interincisal angle. Backlund[7] (n=190), investigated into the correlation between inferior interincisal angle and overbite depth and found a negative correlation (r= -0.57) because the supplement of the angle that is usually reported, was measured in his study. Ludwig[8] found a positive correlation of r = 0.52 between the interincisal angle and overbite depth (n=100), and Solow[9] reported a positive correlation of 0.45 between these variables. Simmons and Joondeph[10] also found an association between interincisal angle and overbite depth (n=70, figures not given). In Ludwig's cases, 2 years post retention, the correlation observed between the interincisal angle and overbite depth was 0.31. Ten years post retention, Simmon and Joondeph observed no correlation between these variables. Berg[11] investigated into the stability of deep overbite correction and reported that an interincisal angle of less than 140^0 was an important factor for stability.

According to Ballard, the slope of the palatal surface of the upper incisors could be relevant to overbite depth. The angle between the lingual line, from the incisal edge to the amelocemental junction and the axis of the lower incisor was relevant in overbite depth of Class II div 2 cases, according to Backlund.

All these studies investigated into the correlation between the interincisal angle and overbite. In the present study, an attempt is being made to study the correlation between the changes in interincisal angle and the changes in overbite obtained by orthodontic tooth movement.

Interincisal angle and edge-centroid relationship is influenced by upper incisor angulation. Change in angulation associated incisor intrusion during bite opening will help to decide or control the final incisor angulation and edge centroid relation. Upper incisor angulation at the end of treatment influences post treatment esthetics. It also influences the post treatment interincisal angle and edge centroid relation and is the key in post treatment stability.

Maintenance of deep overbite correction is believed to be related to the inclination of incisors. According to Lewis,[12] long term success of orthodontic treatment is often judged by the maintenance of deep overbite correction. According to him, the over erupted tooth must be intruded and more

Table 9 – Table comparing the change in overbite, change in edge-centroid value and change in interincisal angle among all the three groups.

Parameter	Group	MEAN	Standard deviation	F	P
Change in edge centroid value	1	-0.800	0.4472	2.817	0.096
	2	-0.900	0.6519		
	3	-2.000	1.3416		
	Total	-1.281	1.0483		
Overbite correction	1	1.900	0.4183	0.029	0.971
	2	1.900	0.6519		
	3	2.000	1.0954		
	Total	1.938	0.7500		
Change in interincisal angle	1	0.800	5.8374	2.066	0.166
	2	-2.400	8.1348		
	3	6.250	7.2921		
	Total	1.844	7.6545		

ideal interincisal angle should be established in order to correct and maintain an excessive overbite.

Three different methods for intrusion were used in this study, and changes in interincisal angle achieved were evaluated in relation to overbite and edge-centroid.

The reduction in overbite, that is the intrusion achieved, is about 2mm in all the three different methods of intrusion.

The mean pre treatment overbite was 4.1mm and mean post treatment overbite was 2.2mm in Group 1. A reduction of 1.9mm was observed in overbite in Group 1 following intrusion. Group 2 also showed a mean reduction of 1.9mm in overbite, the mean pre treatment overbite value being 4.6mm and the mean post treatment overbite value being 2.7mm. Group 3 (three piece intrusion arch) showed a decrease of 2mm in overbite; the mean pre treatment value of overbite in Group 3 being 4.7mm and the mean post treatment value of overbite being 2.75mm. The changes were statistically significant in all the three groups (Table 8).

According to Houston, in adults where deep overbite is corrected by intrusion of incisors, the overbite may remain stable when upper incisor root centroid lies behind the lower incisor edge. Deep overbite correction achieved by extrusion of posterior teeth in adults may decrease over years, with incisors tending to slide past one another, rather than to intrude. For maximum chances of stability, centroid of upper incisor root should be atleast 2mm behind the lower incisor edge.

Correlation between overbite depth and interincisal angle observed by Houston in Class II div 2 cases was in agreement with the value of Ludwig and Backlund (0.52 and 0.57 respectively), and low when compared to Popovich's reports (r=0.73). Houston's study reports the edge-centroid relationship to explain significantly more of the variance in overbite, than the interincisal angle. According to Houston, other factors of relevance in overbite include slope of the palatal surface of the upper incisor at the contact with the lower incisor edge, anterior face height, eruptive potential of the incisor teeth, direction of facial growth and direction of eruption of the incisors.

Investigation of factors associated with overbite depth is important in defining tooth movements required to ensure stability of results of orthodontic treatment. There are studies by Ludwig, Simmons and Joondeph on overbite depth following retention, but these do not deal with the change in overbite depth that has occurred following treatment, i.e. difference between pre treatment and post treatment values of overbite. The edge centroid relation offers a simple method of evaluating treatment required for stable overbite reduction in Class II cases. In the present study, it is seen that there is no correlation between the change in edge centroid relationship and change in interincisal angle following intrusion using mini implants and Connecticut intrusion arch, but there is a negative correlation between these parameters when intrusion is done with three piece intrusion arch. Also there was a negative correlation between overbite correction achieved and change in interincisal angle when intrusion was done with three piece intrusion arch.

The ideal interincisal angle is 135.4^0 according to Down[13] and 130^0 according to Steiner.[14] In the present study, the mini implant group showed a decrease in interincisal angle of 0.8^0 and three piece intrusion arch group showed mean decrease of 6.25^0. The Connecticut intrusion arch group showed an increase of 2.4^0 in interincisal angle following intrusion. These changes were not statistically significant, but may be clinically significant (Table 8).

This may suggest that in Cases requiring a post treatment increase of interincisal angle, Connecticut intrusion arch can be used for intrusion. In non extraction cases, with a good profile and near to ideal values of IMPA, U1-SN and interincisal angle, where no further proclination of incisors is indicated, three piece intrusion arches can be avoided. (Because the mean change observed in interincisal angle following treatment in this study was a decrease of 6.25^0). In cases with deepbite where proclination of incisors is indicated, three piece intrusion arches can be the treatment of choice followed by mini implants. But this may be confirmed with further studies with higher sample number.

Different authors[15-26] have observed a reduction in overbite following intrusion by different methods like mini implants, Connecticut intrusion arch and three piece intrusion arch. Ohnishi et al,[15] Ozsoy et al,[16] Falahi et al[17] and Deguchi et al[18] observed 5.5mm, 2.25mm, 4.2mm and 3.6mm correction in overbite respectively by using mini implants. Amasyali et al,[19] Uribe and Nanda[20], Meha Verma et al[21] and Sharma et al[22] attained incisor intrusion of 3.80mm, 2mm, 3.5mm and 1mm respectively, using Connecticut intrusion arch. Weiland et al,[23] Pearson and Pearson[24], Prabhakar et al[25] and Dermaut and Munck[26] observed overbite correction of 3.56mm, 3mm, 3mm and 3.6mm respectively, by using segmental intrusion arch. In this present study, an increase in edge centroid value was observed in all the three different methods of intrusion; it ranged from 0.8mm to 0.9mm in Group 1 and 2 whereas the mean increase was 1.99mm in the three piece intrusion arch group and the change was statistically significant in all the three groups (Table 8). Group 3 showed the maximum decrease (6.25^0) of interincisal angle following intrusion. In

our attempt for improved occlusal relationships, a more ideal post treatment anterior overbite (2.2 ± 0.5, 2.7 ± 0.975 and 2.75 ± 1.696 in Group 1, 2 and 3 respectively) (Table 5), and a more towards ideal interincisal angle (121 ± 2.8, 125.4 ± 12.8 and 119.2 ± 18.7 in Group 1, Group 2 and Group 3 respectively) (Table 6) was obtained. Long term evaluation of post treatment results is needed to ensure the stability of corrected occlusal relationships over a long term after the elimination of retainers.

Conclusion

A negative correlation observed between change in interincisal angle and overbite correction achieved, and changes in edge-centroid relation, using three piece intrusion arch suggest that there is proclination of incisors associated with intrusion. This can be clinically used for benefitting patients who need proclination of incisors during intrusion in Class II Div 2 malocclusion. No correlation was observed in other groups (Group 2 and 3) suggesting an intrusion of incisors without a change in upper incisor angulation. All methods produced significant amount of intrusion. However the long term stability of overbite correction with respect to interincisal angle and edge-centroid relation needs further evaluation.

Maxillary incisor intrusion using three piece intrusion arches is associated with more incisor proclination when compared with Connecticut intrusion arch and implant assisted intrusion. This can be beneficial in treatment of Class II Div 2 malocclusion but detrimental in Class II Div 1 or bimaxillary protrusion cases.

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Immediate loading of bicortical implants using flapless surgery- A case series

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Abstract

Implant placement in maxillary anterior region is associated with a lot of aesthetic challenges. This is because tooth loss leads to bone resorption and collapse of gingival architecture. Usually there are two methods of implants surgery one involve mucoperiosteal flap elevation and second is without flap elevation. The trend of flap less surgery is increasing day by day. Conventionally implants are allowed to osseointegrate for a period of 4 to 6 months before the prosthetic phase. But in these days immediate loading of implant with flap less surgery is gaining popularity as flapless approach is having lot of merits. A flap less, immediate loading had successfully provided a valuable treatment option for patients, who appreciate the reduced treatment time and enhanced esthetic outcome. The following case series described a simple placement of implants with flap less surgery followed be immediate loading of implants.

Key words: Flapless surgery; implants; immediate loading.

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► Introduction

The loss of tooth/teeth in the aesthetic zone is not only a traumatic experience but also it affects the self-confidence of the patient. The two stage implant protocol with delayed loading achieved excellent results[1], but the patient had to tolerate the treatment period, which may last to about one years of duration which may cause psychological trauma. One of the treatment options is immediate loading of implant prosthesis that reduced the duration of treatment and builds the confidence in patients.

The immediate loading procedure reduced the number of clinical steps and is more comfortable and acceptable by the patient. The great advantage is an overall decrease treatment time and immediate prosthesis function. The following case series describes a simple technique to place implants using flap less surgery followed by the immediately loading.

Case 1

A 32-year old male patient reported to the department of prosthodontics, Government Dental College Thiruvananthapuram with chief complaint of missing upper anterior teeth. Clinically and radio graphically it was revealed that both upper central incisor were missing, but there was good presence of keratinized tissue and bone width was at least 5mm. After discussing the various treatment options, it was decided to restore with implant supported prosthesis.

► Procedure

Routine pre-surgical protocol was followed and the patient was prepared for surgery. The maxillary anterior area was anaesthetized with 2% lignocaine with 1:200000 adrenalines. Initial osteotomy was done with pilot drill of 2mm without flap elevation for the left central incisor and bone was expanded up to 5mm using osteotomes sequentially. Then implant (3.5*16mm, Gen-XT) placed in to the prepared site with torque of 35Ncm and given immediately after implant placement. Proper post- operative instructions were given to the patient and reviewed after 7 days, there was satisfactory healing with respect to the implants.

Case 2

A 26-year old, female patient referred from the dept. of orthodontics to the department of prosthodontics, Government Dental College Thiruvananthapuram with chief complaint of missing upper right lateral incisor. Clinically and radio graphically it was revealed that upper right lateral incisor was missing and mesiodistal length was only 4.8mm and width was only 3.5mm. All treatment options were explained to patient, and the patient opted for implant prosthesis. As length and width was comparatively less, it was decided that a bicortical implant (Gen-XT, 2.5*16mm) will be placed followed by immediately loading.

► Procedure

Routine pre-surgical protocol was followed for the patient. The surgical site was anaesthetized and Initial osteotomy was done with pilot drill of 2mm. Then a bicortical implant (2.5*16mm, Gen-XT) placed in to the prepared site with a torque of 35Ncm. Provisional composite prosthesis was given immediately after implant placement and splinted with

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adjacent teeth. Proper post- operative instructions were given to the patient and reviewed after 7 days, healing was satisfactory.

Case 3

A 20-year old male patient reported to the department of prosthodontics, Government Dental College Thiruvananthapuram with chief complaint of missing upper right lateral incisor tooth due to trauma. Clinically and radio graphically it was revealed upper right lateral incisor was missing and both upper central incisors were fracture and root canal treated. Due to traumatic avulsion of lateral incisor a concavity was formed in the labial surface of the edentulous

Case 1

Fig. 1 Pre-operative view

Fig. 2 Osteotomes used for bone expansion

Fig. 3 Implant placement done

Fig. 4 Immediately loaded after surgery with temporary crowns

Fig. 5 Post-operative IOPA

Fig. 6 Temporary crowns after 5 months

Fig. 7 Final post- operative view

Case 2

Fig. 1 Pre-operative view

Fig. 2 Implant placement done

Fig. 3 Immediately loaded with temporary crown

Fig. 4 Final post-operative view

Case 3

Fig. 1 Pre-operative view

Fig. 2 Implant placement done

Fig. 3 Immediately loaded with temporary crown

Fig. 4 Final post-operative view

Case 4

Fig. 1 Pre-operative view

Fig. 2 Implant placement done

Fig. 3 Immediately loaded after surgery with temporary crown

Fig. 4 Post-operative view after 5 months

region and the width of edentulous bone was compromised. Various treatment options were explained to the patient. The patient opted for implant prosthesis,so it was decided that a bicortical Gen-XT, 3*16mm will be placed followed by immediately loading protocol.

► Procedure

Routine pre-surgical protocol was followed for the patient. The surgical site was anaesthetized and initial osteotomy was done with pilot drill of 2mm. Then a bicortical implant (3*16mm, Gen-XT) was placed with torque of 35Ncm. Provisional acrylic prosthesis was given immediately after implant placement. Proper post- operative instructions were given to the patient and reviewed after 7 days,and there was satisfactory healing with respect to the implants.

Case 4

A 23-year old male patient reported to the department of prosthodontics, Government Dental College Thiruvananthapuram with chief complaint of missing upper right back. Clinically and radio graphically it was revealed that upper right first premolar was missing. Various treatment options were explained to the patient. The patient opted for implant prosthesis, so it was decided that a bicortical implant (Gen-XT, 3.5*14mm) will be placed followed by immediately loading protocol.

► Procedure

Routine pre-surgical protocol was followed for the patient. The surgical site was anaesthetized and initial osteotomy was done with pilot drill of 2mm. Then a bicortical implant (3.5*14mm, Gen-XT) was placed with torque of 40Ncm. Provisional acrylic prosthesis was given immediately after implant placement. Proper post- operative instructions were given to the patient and permanent prosthesis was given after five months.

► Discussion

The traditional two stage implant protocol with delayed loading achieved excellent results[1], but it requires a prolonged period of stress free submerged healing time. When compared with the submerged implants, implant stability and marginal resorption of bone were less for immediate loading implants. In conventional method implant placement is done after raising the flap and prosthetic phase is begun after 4-6 months. But now a day's flapless surgery and immediate loading protocol is gaining popularity as it's a faster technique and postoperative complications are less due to the fact that periosteal blood supply is not compromised in flapless surgery. The reduction in surgical trauma in immediate loading procedure using flapless surgery reduces the stress on the bone and soft tissue, there by reduces the marginal bone loss and improve esthetics (3,4,5.)

In general, the protocol of immediate loading requires a primary stabilization of the implants during the surgery between 35 and 60 N/cm[5]. When primary stability and a torque equal or superior to 35n/cm is reached, a predictable osseointegration could be expected. After the primary stabilization, the bone respond to local stimulus and bone healing occurs[11]. The main advantage is that the implant can be placed with minimum trauma and patient can be rehabilitated with a functional crown immediately.

► Conclusion

This case series described restoration of missing anterior teeth using flapless surgery. In all the cases patients were comfortable as the trauma was less and since these were immediately loaded the esthetics was satisfied.

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Soft tissue augmentation utilizing subepithelial connective tissue graft: report of two cases

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Abstract

Soft tissue augmentation has become an integral part of restorative and implant dentistry. Periodontal plastic surgery utilizing free connective tissue is an excellent means of achieving soft tissue volume three dimensionally. This article presents the utilization of connective tissue grafts in two different clinical situations, achieving root coverage and ridge augmentation.

Key words: subepithelial connective tissue, root coverage, ridge augmentation, gingival recession, pouch and tunnel technique

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► Introduction

Soft tissue augmentation has become an integral part of restorative and implant dentistry. Periodontal plastic surgery utilizing free connective tissue is an excellent means of achieving soft tissue volume three dimensionally.

Soft tissue recession defects were initially treated with various pedicle grafting techniques in which the adjacent keratinized tissue was used to cover the denuded root surface. In 1956 Grupe and Warren introduced the lateral pedicle flap[1] and later on in 1968, Cohen and Ross introduced the double papilla flap[2]. Both of these techniques, and their variations required sufficient keratinized tissue adjacent to the defect. Achieving root coverage with minimal adjacent keratinized tissue was becoming more challenging and hence there was a lookout for newer techniques which did not depend on neighboring tissue. The free gingival graft (FGG) introduced by Bjorn in 1963[3] demonstrated that donor tissue from the palate could be harvested and transplanted to a site where inadequate width of keratinized tissue existed. FGG was not originally intended for root coverage, but Miller[4] and Holbrook[5] modified the technique to successfully achieve root coverage. But there were many limitations of this procedure in producing predictable results. Harvey resolved the poor predictability of this procedure by first increasing the width of keratinized tissue apical to the defect with a traditional FGG procedure, followed by a coronally repositioned flap[6]. This techniques required a second surgical procedure, resulting in additional time, discomfort and expense to the patient. All FGG procedures also have the drawback of healing with a poor color match to the surrounding gingiva, resulting in compromised esthetics.

Sub epithelial connective tissue graft (SCTG) was first described by Alan Edel et al in 1974, to increase the width of the keratinized gingiva[7]. Langer and Calagna in 1980 used SCTG to augment concavities and irregularities in edentulous ridges where cosmetics was important[8]. In 1985 Langer and Langer used SCTG to treat recession defects successfully while meeting the growing demands of esthetic and cosmetic dentistry[9].

SCTG can be harvested from the palate with one (single-incision technique), two (angular-incision technique) or three (trapdoor technique) incisions. As the number of incisions increases a wider area of the underlying connective tissue is exposed making the harvest easier. But the blood supply to the covering flap will be compromised which can lead to postoperative necrosis of the overlying flap[10].

The objective which has to be considered when selecting the harvesting technique is a procedure that minimizes the postoperative pain, reducing the risk of complications and achieving primary wound healing at the palatal donor site. The single incision technique introduced by Hurzeler and Weng in 1999[11] can be recommended as the method of choice for harvesting the SCTG from the palate. The initial incision should be given perpendicular to the palatal surface in the superficial tissue with a depth of 1 to 1.5 mm and the remaining undermining incisions (successively parallel to the surface) below the surface[12]. Distance between the first incision and the cementoenamel junction is maintained at 2mm and the incision should not extend more apical than 10 mm from

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the cementoenamel junction of the maxillary posterior teeth. Due to the anatomic limitation of the palatal anatomy such as the palatine rugae (anteriorly), the neurovascular bundle emerging from the greater palatine foramen (medially) and greater palatine artery, the extent of the incision is limited from the mesial border of first molar to the lateral incisor[12].

Currently uses of SCTG have expanded to include root coverage in relation to teeth[13,14] and implants[15], soft tissue ridge augmentation around implants[16,17] and edentulous areas[18], socket preservation[19], papilla reconstruction around implant[20] and teeth[21]. SCTG has been used with open flap debridement in the management of periodontal supracrestal defects[22] and to minimize post-operative gingival recession[23]. It has also been used as biological barriers and membranes[24,25].

Here two case reports are presented in which SCTG is used for two different clinical situations: To achieve root coverage and for soft tissue ridge augmentation of an edentulous site.

Case report 1: SCTG used for root coverage

A 41 years male patient presenting with good general health reported to the department of periodontics, Annoor Dental College and Hospital, Muvattupuzha, Kerala with complaints of deposits on the teeth and receding gums. On examination there was Millers class III recession in relation to 41 and 31 (Fig 1.1). The distance from CEJ to the marginal gingiva was found to be 5mm in relation to 41 and 2mm in relation 31. The width of attached gingiva was inadequate in the region of 41. Following etiotrophic phase gingival augmentation coronal to recession was planned by means of a modified pouch and tunnel technique and a subepithelial connective tissue graft. Trauma from occlusion in relation these teeth were evaluated and corrected by means of coronoplasty.

After anesthetizing the area, sulcular incision was placed in relation to 41, 31 and 32 leaving the interdental papilla intact. A partial thickness pouch was then reflected undermining the intermediate papilla and extending beyond the mucogingival junction to facilitate the coronal positioning of the gingiva to cover the denuded root. Thus a pouch and tunnel was created and measured for harvesting the graft (Fig 1.2).

The SCTG was harvested from the palate extending from the distal aspect of canine to the mesial aspect of first molar using a single incision technique and the donor site was sutured using 3-0 silk sutures (Fig 1.3, 1. 4, 1. 5). Surgical stent was given to protect the donor site. The harvested graft was then trimmed to size of the recipient site and was passed underneath the tunnel (Fig 1.6). Once the graft was inside the tunnel the graft was sutured to the overlying flap with 5-0 vicryl (ETHIPRIME*TM) sutures. The flap with the graft underneath was then coronally pulled and sutured with sling sutures on to the teeth (Fig 1.7). The surgical site was compressed with a wet gauze for 5 minutes and a non eugenol periodontal pack was placed. Postoperative instructions were given and the patient was discharged with a prescription of antibiotics, pain relievers and chlorhexidine mouth wash.

Patient were recalled after 7 days for removal of periodontal dressing and sutures (Fig 1.8). The patient was followed up at intervals of one (Fig 1.9), three (Fig 1.10) and six months (Fig 1.11).

Fig. 1.1: Pre- operative, Millers class III recession in relation to 41,31

Fig. 1.2: Pouch and Tunnel preparation

Fig. 1.3: donor tissue harvested -Single incision technique

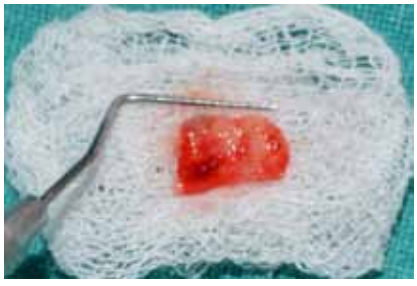

Fig. 1.4: Harvested graft

Fig. 1.5: Donor site sutured

Fig. 1.6: Graft placed in the recipient bed

Case report 2: soft tissue ridge augmentation

A 49 year old male patient presenting with good general health reported to the department of prosthodontics for replacement of missing maxillary left central incisor, which was extracted 5 months before, following an endodontic failure. The right central incisor was endodonticaly treated 30 years back following trauma. There was spacing between the upper anterior teeth and the patient was keen on maintaining the same during the prosthetic rehabilitation. Siberts class III ridge defect was present in relation to the edentulous area (Fig 2.1) which had the potential to compromise esthetics. Treatment plan consisted of ridge augmentation in relation to the left central incisor and fixed prosthesis in relation to the upper centrals and laterals with loop connectors.

The patient was referred to the Department of periodontics for ridge augmentation. It was decided to augment the ridge using a SCTG. It was also decided to do tooth preparation prior to surgery and fabricate a temporary prosthesis with a pontic specifically designed so that it will guide the soft tissue healing of the ridge.

Following Phase 1 therapy tooth preparation was done in relation to 12, 11, 22 (Fig 2.2) and 4 unit provisional prosthesis was fabricated prior to the surgery.

Surgical procedure consisted of a remote palatal horizontal incision and two papilla preserving vertical incision extending beyond the mucogingival junction. Initially a full thickness flap was elevated and later modified to be a partial thickness extending beyond the mucogingival junction (Fig 2.3).

Once the recipient site was prepared a free subepithelial connective tissue graft was harvested from the palate with a single incision technique (Fig 2.4). The initial horizontal incision extended from the distal aspect of the canine to the mesial aspect of the 1st molar and the remaining incisions were undermining incisions. The donor site was sutured with 3.0 silk sutures (Fig 2.5).

The harvested graft was placed in relation to the defect and sutured to the underlying periosteum using 5.0 vicryl (ETHIPRIME*TM) sutures (Fig 2.6). The reflected flap was mobilized to completely cover the graft and sutured.

Immediate post op revealed an increase in the volume of the defect in the bucco-lingual and mesio-distal dimensions (Fig 2.7). A provisional pontic was placed immediately after surgery (Fig 2.8) in such a way that there is no pressure exerted on the augmented tissue. Post-operative instructions were given and patient discharged with a prescription for medications. The patient was reviewed after 3 days (Fig 2.9) during which another provisional pontic (Fig 2.10) was given which exerted positive pressure on the site which will help in a definitive shaping and contouring of the soft tissue. Sutures were removed after 10 days (Fig 2.11). The healing was satisfactory and uneventful at the recipient site and sloughing was observed at the donor site. The patient was recalled after 3 months for fabrication of final prosthesis (Fig 2.12, 2.13, 2.14). Follow up after 6 months revealed maintenance of soft tissue thickness and colour stability (Fig 2.15)

Discussion

Autogenous subepithelial connective tissue grafts are

Fig. 1.7: Graft secure with the sutures

Fig. 1.8: One week post operative

Fig. 1.9: One month post operative

Fig. 1.10: Three months post operative

Fig. 1.11: Six months post operative

increasingly used for aesthetic indications like soft tissue thickening, recession, ridge preservation, soft tissue ridge augmentation and papilla re-construction[26]. The organic extracellular connective tissue matrix can serve as a space holder and conductor for new ingrowing fibroblasts, ensuring smooth integration of the SCTG with the surrounding tissues. Tissue specific endogenous proteins as well as specific connective tissue cells (fibroblasts) are transferred within the connective tissue autograft. The majority of these cells are well nourished by the blood supply from the plasmatic circulation in the initial period and from revascularization in the subsequent period and hence have a good prognosis at the recipient sites[12].

In the cases reported harvesting the graft with single incision technique resulted in primary closure of the wound. This minimized the postoperative complications and enhanced the patient's postoperative comfort. Sloughing of the donor flap was noted in case report 1 during suture removal. This must have resulted due to the reduced thickness of the flap.

Deformed ridges may result from tooth extractions, advanced periodontal disease, abscess formations, periapical pathologies, developmental disorders, external trauma or tumors. Here the overlying soft tissue collapses into the bone defects and result in a three dimensional loss of soft and hard tissue. SCTG is the primary graft currently used in soft tissue ridge augmentation since it has a distinct advantage over other methods of augmentation. Disadvantage of this method is the limited availability of donor tissue[27]. In this case report the ridge defect was surgically corrected with SCTG, which showed significant fill of the ridge with acceptable color and contour. Thus with final prosthesis maximum esthetics, comfort and function was attained.

Subepithelial connective tissue grafting appears to be superior in terms of volume gain, esthetics, and long-term stability compared with full-thickness free gingival grafts[28]. In a systematic review for assessing soft tissue augmentation techniques it was concluded that the use of subepithelial connective tissue grafts (SCTG) resulted in statistically significantly more soft tissue volume gain compared with free gingival grafts (FGG)[29]. In another review in which the efficacy of soft tissue augmentation around dental implants and in partially edentulous areas was studied, it was seen that SCTG were the best-documented method for gain of soft tissue volume. Aesthetically at immediate implant sites, better papilla fill and higher marginal mucosal levels were obtained using SCTG compared to non-grafted sites[30]. SCTG is used for restoring the esthetics and function in patients with alveolar bone defects and is considered gold standard.

The ultimate goal of root coverage procedures is the complete coverage of the recession defect with aesthetic and harmonious integration of the covering tissues with minimal probing depths after treatment[31]. Pouch and tunnel technique gives best results when compared with any other flap design in terms of blood supply as it maintains blood supply from the papillary, mucogingival and mucoperiosteal sides of the tunnel. It also provides stability to the soft tissues graft as it can be secured on to the flap. These features reason for the high success rates for this technique[27]. In this case the modified tunnel technique was used whereby the pouch was

Fig. 2.1: Per-operative siberts class III ridge defect in relation to 21

Fig. 2.2: Tooth preparation done in relation to 12,11,21

Fig. 2.3: Incision and flap elevation

Fig. 2.4: Single incision technique

Fig. 2.5: Donor site sutured

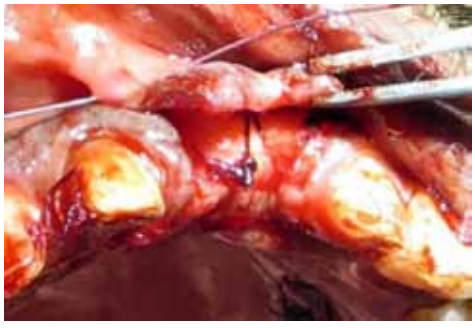

Fig. 2.6: Graft secured to the recipient bed with sutures

coronally advanced to cover the recession. After 6 months follow-up the treated site showed complete recession coverage in 31 and partial coverage in relation to 41 (3mm residual recession) with excellent tissue contour, color match and thicker marginal gingiva. Complete recession coverage in relation to 41 will be attained with a second stage surgery with coronally advanced flap.

The SCTG along with tunnel technique is most desirable in achieving thickness of the gingival margin. The thicker gingival margin is most stable to allow for the possibility of "creeping attachment" of the margin[32]. Creeping attachment is known as the postoperative migration of the gingival marginal tissue in a coronal direction over portions of previously denuded root. This phenomenon can be detected 1–12 months after graft surgery with an average coverage of approximately 1 mm[33].

In a randomized clinical trial in which a 3D digital measuring method was used for evaluating the outcomes after surgical root coverage by assessing the clinical performance of the tunnel technique with subepithelial connective tissue graft and coronally advanced flap with enamel matrix derivative, it was seen that tunnel technique resulted in significantly better clinical outcomes compared with coronally advanced flap[32]. In the second part of the same study where healing dynamics and gingival dimensions was studied, the results showed that tunnel technique resulted in thicker gingiva and better clinical outcomes compared to coronally advanced flap and the increased gingival thickness was associated with better surgical outcomes in terms of recession reduction and root coverage[33]. SCTG is a popular treatment for coverage of denuded roots because of its high degree of success and 95% predictability of root coverage in Millers

Class I and II cases[34]. Advantage of SCTG is closer color blend of the graft with adjacent tissue avoiding the "Keloid" healing present with free gingival grafts. The double blood supply from the underlying connective tissue base and the overlying flap in SCTG increases the success of the graft[9].

► Conclusion

Connective tissue grafts form a versatile treatment method in periodontal plastic surgery. Autogenous tissue (SCTG) have been a choice of treatment resulting in an increase in soft tissue thickness at implant sites and in partially edentulous sites and in attaining root coverage. The advantages of using

Fig. 2.7: immediate post operative

Fig. 2.8: Provisional pontic

Fig. 2.9: 3 days post-operative

Fig. 2.10: Provisional pontic

Fig. 2.11: Ten days postoperative

Fig. 2.12: Three months post operative

Fig. 2.13: Metal try in (3 months post op)

Fig 2.14: palatal view

Fig 2.15: six months post operative

SCTG are the ease of handling and good prospects of success. There are few disadvantages such as second surgical site and limitations in the size of the harvested graft.

Harvesting techniques that are minimally traumatic but aimed at maximizing tissue volume ensure multi-purpose usability of connective tissue grafts. A long-term goal would be to avoid the need for a harvesting site by the use of methods derived from tissue engineering whereby there won't be issues regarding second surgery and graft volume.

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Immediate placement of dental implant in fresh extraction socket without flap surgery- case series

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Abstract

Implant placement in maxillary anterior region is the most aesthetic challenges in implant dentistry. Atraumatic surgical techniques and immediate placement of implant result in the preservation of hard and soft tissue. An immediate implant placement into fresh socket reduces bone resorption, treatment time, and cost, preserve the gingival aesthetic and increase the comfort of patient. The following is a case series which describes the clinical procedure for implant placement in fresh extraction socket due to dental trauma.

Key words: Extraction socket; immediate implant; osseointegration; stability.

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► Introduction

Loss of tooth in the aesthetic zone is a traumatic experience with or without compromise in phonetics. Hence, in the aesthetic zone implants placement become one of the most challenging situations even for an experience clinician. According to traditional protocol 4-6 months of healing period is required for extraction sockets[1]. Patients frequently are required to wait up to one year for replacement of lost tooth[2]. Attempts to overcome treatment period have focused on immediate placements of implant in to fresh socket[3,4,5]. The concept of immediate placement of implant in to fresh socket is increasing day by day, because it preserves the hard and soft tissue. It also reduces the treatment time, cost and increase the patient's self-confidence after tooth loss.[6,7]

Case 1

A 25 year old male patient reported to the department of prosthodontics, Government Dental College Thiruvananthapuram with chief complaint of fracture upper both central incisors due to trauma. Clinical and radiographic (OPG) examination revealed fracture with unfavorable prognosis for left central incisor and favorable prognosis for right central incisor (Fig. 1, 2). All the information about implant placement and other alternative treatment were explained to the patients. The patient was very conscious about his aesthetic and he was very keen for early replacement of his tooth. The treatment plan was decided to do post and core for right central incisor and placement of implant immediately after extraction.

► Clinical Procedure

Preoperative antibiotics were given to patient one hour before surgery. Following the administration of local anesthesia, intrasulcular incision was given around the fracture tooth to separate the soft tissue attachment from the tooth. The tooth was carefully luxated using periotomes and removed with the help of forceps. Care was taken to minimize trauma to the surrounding bone and soft tissue and in particular the facial wall of socket. The extraction socket was debrided with hand instrument to remove any granulation tissue. Then the socket's wall inspected for any fenestration or dehiscence defect. The decision to proceed with implant placement without flap elevation was made once the tooth was extracted. Osteotomy done in palatal wall 4-5mm apical to the apex of the tooth socket. The tooth socket was filled with osteogenic bone graft and an implant (4.5 x 16mm, Adin) placed so that it is 1.5mm below the cementoenamel junction of adjacent tooth. The soft tissue sutured with black silk suture material and covered with zinc- oxide eugenol surgical paste. Appropriate antibiotics and analgesic were prescribed and post-operative instructions were given

Case 2

A 22 year old male patient reported to the department of prosthodontics, Government Dental College Thiruvananthapuram with chief complaint of mobility of upper left lateral incisors due to trauma. Clinical and radiographic examination revealed fracture with unfavorable prognosis (Fig. 1, 2). All the information regarding implant placement and other alternative treatment were given to the patients. It was decided to extract lateral incisor and placement of implant immediately after the extraction.

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Clinical Procedure

All presurgical parameters and surgical steps were done as in case number one. The decision to proceed with implant placement without flap elevation was made once the tooth was extracted, debridement of the socket was done. Osteotomy was done in palatal wall 4-5mm apical to the apex of the tooth socket. The tooth socket was filled with osteogenic bone graft and one implant (3.5 x 16 mm, Gen-XT, single piece) was placed so that it is 1.5mm below the cementoenamel junction of adjacent tooth and sutured. Temporary crown made by composite material directly and attached with adjacent teeth. Appropriate antibiotics and analgesic were prescribed and proper post-operative instructions were given. Permanent prosthesis given after 5 months.

Case 3

A 24 year old male patient reported chief complaint of fracture upper right central incisors due to trauma. Clinical and radiographic (OPG) examination revealed, fracture with unfavorable prognosis as fracture line was below the interdental bone and also it was root canal treated. It was decided to extract right central incisor and placement of implant immediately after extraction.

Case 1

Fig. 1 Pre-operative OPG

Fig. 2 Pre-operative clinical view

Fig. 3 Extraction socket

Fig. 4 Extracted tooth

Fig. 5 Implant placed with bone graft

Fig. 6 Assessment of angulation

Fig. 7 Post-operative view

Fig. 8 Post-operative OPG

Case 2

Fig. 1 Pre-operative clinical view

Fig. 2 Extraction done

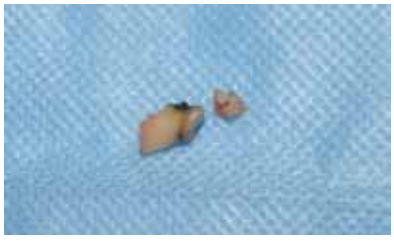

Fig. 3 Extracted tooth

Fig. 4 Implant placement done

Fig. 5 Post-operative IOPA

Fig. 6 Post-operative view

► Clinical Procedure

All presurgical parameters and clinical steps were done as above cases. Tooth socket was filled with osteogenic bone graft and one implant (4.5 x 16 mm, Gen-XT) placement done so that it is 1.5mm below the cementoenamel junction of adjacent tooth and sutured. Temporary crown made by using composite material directly and attached with adjacent teeth. Appropriate antibiotics and analgesic were prescribed and post-operative instructions were given. Permanent prosthesis given after six months.

Case 4

A 26 year old male patient reported to the department of prosthodontics, Government Dental College Thiruvananthapuram with chief complaint of loss of lower front teeth due to trauma. Clinical and radiographic examination revealed that both lower central and lateral incisors were missing and lower left canine, lower right canine and right first premolar were mobile with unfavorable prognosis. All the information regarding implant placement and other alternative treatment were given to the patients. It was decided to extract both canine and premolar and placement of implants immediately after the extraction.

Case 3

Fig. 1 Pre-operative IOPA

Fig. 2 Pre-operative clinical view

Fig. 3 Extracted tooth

Fig. 4 Implant placement

Fig. 5 Temporary crown immediately after surgery

Fig. 6 Post- operative view with zirconia crown

Case 4

Fig. 1 Pre-operative clinical view

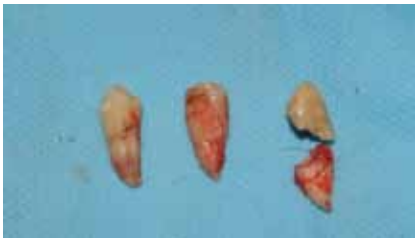

Fig. 2 Extracted teeth

Fig. 3 Implants placement done

Fig. 4 Splinting done with flowable composite

Fig. 5 Metal trial done after 5 months

Fig. 6 Post-operative final view

Clinical Procedure

All presurgical parameters and surgical steps were done as above cases. The decision to proceed with implant placement without flap elevation was made once the teeth were extracted, debridement of the sockets were done. Both canines and right premolar were extracted and followed by immediately placements of (Bicortical single piece) implants were done. Total five implants were placed and splinted with flowable composite. Appropriate antibiotics and analgesic were prescribed and proper post-operative instructions were given. Permanent prosthesis was given after 5 months.

► Discussion

Immediate implant placement and early loading has success rate in maxilla is 66%-95.5% and in mandible 90%-100%[7]. Immediate implant placement has several advantages compared to the traditional procedure that provides a healing period of 6 to 12 months between the time of extraction and subsequent implant placement. The total treatment period is reduced, which is usually appreciated by the patient. In addition, bone resorption is also reduced. Resorption of the buccal wall of the extraction socket may lead to significant disadvantages, especially in the anterior part of the maxilla. A buccal concavity in the alveolar process or an implant that is placed more lingually than the adjacent teeth can result in poor esthetics. In addition, with increasing resorption, the incisive canal is positioned relatively farther labially, which forces the surgeon to place implants replacing the central incisors too close to the laterals. Eventually, the alveolar process may become too narrow to allow implant placement. Immediate implant placement thus optimizes the prerequisites for implant treatment that is successful from both a functional and an esthetic standpoint. The bone volume is sufficient to ensure initial stability, and the implant can be placed in an identical position and with the same inclination as the natural tooth it replaces. Preservation of the gingival tissue and papilla in the esthetic zone and the healing phase is shortened.

Conclusion;implant prosthesis must fulfill both functional and esthetic requirements. Immediate placement of implant into extraction socket is mere accepted by the patients as it preserves the bone and gingival architecture.

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A novel technique for denture marking using QR code and android mobile phone application

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Abstract

Denture identification or labelling has been introduced into dentistry pertaining to its application in forensic odontology. Forensic odontology is one of the most inevitable branches of dentistry which helps to identify victims in natural disasters and also in medicolegal investigations. Various techniques and methods are described in the literature for denture labelling. This article depicts a simple, inexpensive and technologically advanced technique for denture marking by imparting a Quick Response code (QR code) in dentures.

Keywords: denture marking, denture labeling, inclusion method, QR coding

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► Introduction

Forensic dentistry relies on the ability to identify, collect, study and compare information from oral and facial structures.[1,2] Forensic odontology is an ancient branch of forensic science which has been also defined by Keiser Nielsen as 'that branch of odontology which is concerned with the proper evaluation, interpretation and presentation of dental findings in the interests of justice'.[3] Forensic odontology dates back to the Battle of Nancy in 1477, when the body of Charles the Bold was identified by the absence of a lower tooth,[4] or in 1835,when a gold denture helped identify the burned body of the Countess of Salisbury.[5] Denture marking or denture labelling is accepted as a means of identifying dentures and persons in geriatric institutions, or post-mortem during war, crimes, civil unrest, natural and mass disasters.[6] Two types of denture marking systems described in the literature include surface marking methods and inclusion methods. In the inclusion method, the marks are enclosed in the denture. The marking should be placed in a part of the denture without affecting the mechanical properties of the denture. The marking should be placed in a suitable aspect of the denture which is not visible while it is worn by the patient. Therefore, the posterior regions of the lingual flange and palate are recommended. The marking should also be resistant to high temperatures as in case of a fire.

Requirements of denture marking[6,7,8]

a. The strength of the prosthesis must not be jeopardized.

b. It must be easy and inexpensive to apply.

c. The identification system must be efficient.

d. The marking must be visible and durable.

e. The identification must withstand humidity and fire.

f. The identification mark should be cosmetically acceptable.

g. The identification mark should be biologically inert (when incorporated into the denture).

This article describes an inclusion method for denture identification which incorporates a QR Code (Quick Response code) in the denture. QR code is the trademark for a type of matrix barcode (or two-dimensional barcode) first designed for the automotive industry in Japan. A barcode is a machine-readable optical label that contains information about the item to which it is attached. A QR code uses four standardized encoding modes (numeric, alphanumeric, byte/binary, and kanji) to efficiently store data; extensions may also be used. A QR code consists of black squares arranged in a square grid on a white background, which can be read by an imaging device such as a camera, and processed using specific software until the image can be appropriately interpreted. The required data are then extracted from patterns that are present in both horizontal and vertical components of the image.

► Materials and methods

• An android mobile application called QR code generator is used to generate a code (Fig. 1) for the patient by entering the patient details (name, phone number, OPD no).

• Complete denture trial is done in a routine manner and then laboratory procedures are initiated. (Fig. 2)

• The QR code generated is printed in a photo printing paper (Kodak® Photo Paper, Glossy, 8.5 x 11 inch) in various sizes small and large. (Fig. 3) From these a

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size which is suitable to be placed in the denture is selected. (Fig. 4,5,6). QR code scanner which is available as an android mobile application is used to scan the label.

• Trial denture is sealed to the master cast and flasking and dewaxing is done. Separating medium is applied.

• Mix small amount of heat cure acrylic resin and place it in the posterolateral slope of the palate. Place the photo print paper with the QR code over the acrylic resin and sandwich it by covering it with mixed acrylic. (Fig. 7) Then the mould is packed with heat cure acrylic resin in the dough stage. Trial closure was done. This prevents the shifting of photo paper during final closure.

Fig. 1 QR code generated using the mobile phone application

Fig. 2 Trial denture sealed to the master cast

Fig. 3 QR code printed in photo print paper

Fig. 4 QR code label checked in position for size in the master cast

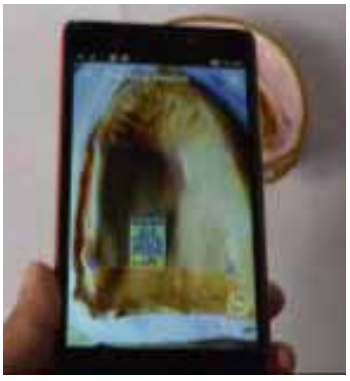

Fig. 5 Trial QR code scanning

Fig. 6 Trial QR code scanning results

Fig. 7 Sandwiching the QR code label while packing the heat cure acrylic resin

Fig. 8 Finished denture with QR code label incorporated

Fig. 9 QR code Scan results in the final denture

• Flask was reopened, flash was trimmed off and final closure done.

• Bench curing was done for 20 minutes, following which curing is done in the hot water bath.

• Deflask, trim and polish the denture so as to achieve a good finish. It should be ensured that the code is clearly visible through the cameo surface and any excess thickness of the acrylic over it should be trimmed off. (Fig. 8)

• QR code scan revealed the details of the patient. (Fig. 9)

Discussion

Denture labelling was introduced in Prosthodontics, due to its need in forensic investigations. In large scale disasters, associated with fire, the damage caused by heat could make medico-legal identification of human remains difficult. Therefore, the role of forensic odontology can be crucial. As teeth, restorations and dental prostheses are quite resistant to high temperatures, they could be used as aids in the identification process.[9] Denture marking or labelling is not a novel idea. Since the past few decades various methods have been introduced. They are broadly divided into two - surface marking methods and inclusion methods. The surface marking includes engraving the cast, scribbling on dentures, whereas the inclusion methods consist of incorporation of metallic or non-metallic materials within the denture. The surface method is easy to apply and relatively inexpensive. Skilled personnel are not necessary, but they wear off very easily and should be reapplied.[8] The inclusion method is permanent and provides a more predictable result, but it could weaken the structure and create porosity.[10] These methods which include lenticular cards, transponders and plastic chips are not economical, are time consuming and also not simple. Moreover these methods require equipments not readily available in the dental office. Also this can be scanned with any type of QR code scanner, not only with the android application.

The technique described in this article is an inclusion method but its relatively simple and requires no expensive equipments. Only additional requirements in fabrication of a denture here are an android mobile phone with applications for generating and scanning the QR code and photo printing paper. Both these are readily available. The photoprinting paper used would prevent smudging while it comes in contact with the heat cure acrylic resin. Hence this technique proves to be effective and useful.

Conclusion

The present technique describes an easy and inexpensive inclusion method for denture marking or labelling which fulfils all the required specifications. The label here is durable, smudge free and can stand high temperatures. This is cosmetically acceptable and biologically inert. Hence this technique may be advocated for routine labelling of dentures.

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Campagna impression technique for immediate denture fabrication

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Abstract

The immediate denture is a dental prosthesis constructed to replace the lost dentition and the associated structures of the maxilla and mandible and inserted immediately following removal of the remaining teeth. Final impressions for immediate denture are made by using combinations of materials and methods. This article highlights on campagna impression technique for immediate complete denture fabrication.

Keywords: Complete dentures, extraction, Campagna impression technique

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Introduction

For patients confronted with the extraction of their remaining natural teeth and the need for complete prosthodontic rehabilitation, the transition is generally psychologically challenging for the patient and demanding skill from the part of the clinician. This dramatic situation is often necessitated by placement of complete dentures immediately following the removal of natural teeth. The concept of immediate replacement of teeth dates back as early as to 1860s[1]. But for many years, immediate dentures were considered as a luxury. Today, however, the immediate replacement of missing anterior teeth is expected, and frequently demanded, by an appearance-conscious patient. Several impression techniques have been advocated, including the use of irreversible hydrocolloid impression material with stock impression trays, polysulfide rubber impression material with custom impression trays, irreversible hydrocolloid and polyvinyl siloxane with double custom impression trays in combination impression technique. This article describes Campagna impression technique with single custom impression tray.

Case report

A 52-year-old male patient reported to the Department of Prosthodontics, Government Dental College, Trivandrum for the fabrication of removable partial denture replacing his missing maxillary and mandibular posteriors. Intra oral examination revealed presence of only 11, 12, and 21 with grade III mobility in the maxilla and missing posteriors in mandible. It was decided to fabricate a maxillary immediate denture and mandibular removable partial denture.

1. Maxillary and Mandibular diagnostic impression was made with irreversible hydrocolloid (Plastalgin, France) in a stock tray. These impressions were poured with dental stone (Gypstone, India).

2. The outline of custom impression tray was drawn on the diagnostic cast. It was extended 2mm short of the depth of vestibules in posterior edentulous areas, passed above the pterygomaxillary notches, and extend 3 to 5 mm posterior to the vibratory line and extended into the labial vestibules. Anteriorly an opening of 3 to 4mm from the gingival margins of the remaining teeth was made so that the remaining anterior teeth were not covered by the custom impression tray. Thus a custom tray with a labial flange was fabricated. (Fig. 2)

3. The custom tray was tried in patient's mouth and border molding completed of maxillary arch in a conventional way. Final impression was made with polyvinyl siloxane elastomeric impression material (3M ESPE, Germany) (Fig. 3). When the impression material was set, an instrument was used to loosen the material to prevent it from getting pulled away from the labial flanges of the tray.

4. A stock tray was loaded with irreversible hydrocolloid impression material with custom tray seated in patient's mouth (Fig. 4). This was done to record the shape of the anterior teeth and their relationship to the final impression of the palatal and edentulous areas. Conventional beading and boxing of impression was done and was poured with dental stone.

5. After a satisfactory posterior try in the remaining anterior teeth present on the master cast were trimmed according to pocket depths and maxillary anterior teeth setting was completed.

6. Immediate denture was processed using heat cure acrylic and disinfected (Betadine solution) prior to insertion. The remaining teeth were removed as atraumatically as possible and denture insertion was done after

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few hours. The occlusion was evaluated in centricrelation and eccentric position. Intraoral adjustments were done.

7. Denture was carefully removed after 24-hour period and cleaned thoroughly. Pressure indicating paste was used to locate pressure areas and visualize the cause of irritated tissues. Denture was adjusted and occlusion was evaluated.

Discussion

Treatment with immediate denture is more challenging than the treatment with complete denture, because the presence of teeth complicates the impression procedure and recording of the maxillomandibular relations. The anterior ridge undercut caused by presence of remaining teeth may interfere with the impression procedures.[2] In order to negate this, there are four basic types of impression techniques for immediate denture. The first technique uses stock trays with irreversible hydrocolloid[3] but does not record the proper height, length and width of the labial and as well as buccal vestibules since the material displaces unattached mucosa. The second method employs custom impression trays with rubber base material[4] which distorts the lips and unattached mucosa resulting in inaccurate impression of labial vestibule because of excessive size of the tray. The combination impression technique with double custom impression trays[5] creates an over-extended labial flange. In order to overcome all these problems, Campagna[6] impression technique was employed due to its greater potential for more accurate impression of the labial vestibules. This technique was developed by Sebastian J Campagna in 1968 and employs a custom tray with a labial flange without covering the remaining anterior teeth which allows for accurate border molding. An irreversible hydrocolloid impression is then made over the custom tray to record the remaining teeth.

Conclusion

Immediate denture is one of the treatment option for the patient to overcome the negative psychological impact of the edentulous state immediately after the removal of teeth. It provides restoration of esthetics, phonetics and masticatory function. The patient does not have to endure a long healing period without teeth.[7] The fabrication of immediate maxillary complete denture with Campagna technique assures the same degree of accuracy of the borders in the dentulous as well as in the edentulous regions maxillary dental arches. It also ensures complete physiologic adaptation of the denture base throughout the basal seat and produces minimal post-operative soft tissue trauma.[8]

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Fig. 1 Preoperative view

Fig. 2 Custom tray with labial flange

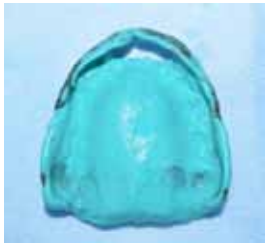

Fig. 3 Maxillary final impression

Fig. 4 Final impression picked up in stock tray

Fig. 5 Intaglio surface of denture

Fig. 6 Intra oral view

Fig. 7 Post-operative view

Aesthetics in anterior primary teeth: A Clinical perspective

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Abstract

Restoration of anterior primary teeth, severely destroyed by trauma or caries is a commonly faced problem in a dental clinic. In the past poor parental awareness and lack of knowledge of clinicians about advanced conservative restorations have led to unwanted extractions of primary teeth. Nowadays, with increase in demand for aesthetics, a variety of newer techniques are available for meeting the aesthetic restorative demands for anterior primary teeth. However, the dilemma remains while choosing the restorative material or technique of choice due to close proximity of the pulp to tooth surface, relatively thin enamel surface area for bonding and most importantly the child's cooperation towards the treatment. This article tries to provide an insight for the clinician towards the various options available for aesthetic restorations in anterior primary teeth.

Keywords: Aesthetics, primary teeth, smile

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Introduction

In the present cosmetically conscious world, well contoured and well aligned white teeth set the standard for beauty. Such teeth are not only considered attractive, but are also indicative of nutritional health, self esteem, hygienic pride and economic status.[1] The maintenance of the primary dentition in a healthy condition is vital for the general well-being of the child. The esthetic restoration of decayed and severely mutilated anterior primary teeth has always been a challenge to dentistry due to the limited availability of materials and also due to the lack of awareness of a clinician towards advanced techniques and procedures. Poor parental awareness about the severity of the condition has prompted extraction in most of the cases. However, with growing awareness the demand for aesthetics in anterior restorations has increased. The aesthetic anterior restorations may be generally divided into intracoronal and extracoronal restorations. Intracoronal restorations for primary teeth include Class III and Class V preparations. The best suitable materials for such restorations are composites and glass ionomer cements (GICs).[2]

Extra coronal esthetic restoration of anterior primary teeth range from placement of modifications of stainless steel crowns to ceramo – based metal crowns, however the use of a composite strip crown has been preferred and has performed well clinically in spite of its limitations, the type of material and size of the lesions present.[3] The anterior primary teeth, when grossly decayed, lack a coronal structure, leading to decreased support and adhesion for composite in such cases use of a resin based composite reinforced with polyethylene fibers referred to as the 'short post technique' is preferred.[4,5] In restorative dentistry, a relatively new technique of etching the enamel surface and bonding composite artificial teeth directly to the adjacent natural teeth reinforced with high density fibers, without metal frameworks, has yielded remarkable results. The advantage of minimal tooth preparation, little or no tissue removal and low laboratory cost has drawn extensive attention.[6]

The primary goal of pediatric restorative dentistry is to restore the damaged teeth to its normal function as well as to retain its aesthetics. This article aims to review and highlight the various options available for anterior aesthetic restorations in primary teeth along with their indications, advantages and disadvantages.

A. Restoration of mildly decayed teeth

1. Composite resins

These are helpful in restoration of interproximal carious lesions in primary anterior teeth. However, due to the pulp morphology, dentine and enamel of primary incisors have less retention for restorative materials compared to permanent teeth. The depth of cavity preparation becomes very shallow, which may result in insufficient amount of restorative material. Composite resin exhibits minimal toxicity, and the true cause of pulp damage is microleakage.[7] Resin-based composite is ideal for Class V restorations. It maintains color, provides aesthetics and can be bonded to the tooth structure.[2]

2. Glass ionomer cements

Glass ionomer cements, are materials made of calcium, strontium aluminosilicate glass powder (base) combined with a water-soluble polymer (acid). The range of glass – ionomer cements is very wide indeed and is of

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particular interest in pediatric dentistry due to its ease of application and its property of continued release of fluoride ions. Resin-modified GIC'S are effective restorative materials for Class III restorations in circumstances where isolation of the tooth to be restored is difficult, particularly with very young children, this is the restorative material of choice. Croll et al. reported a success rate of 100% and 98% in class III and class V restorations respectively where the resin-modified GIC was placed and maintained intraorally for an average duration of 4.5 years.[8]

► B. Restoration of moderately/severely decayed teeth

1. Indirect composite resin crowns reinforced with a fibre glass post

With the introduction of new adhesive systems and restorative materials, a new approach for treating severely mutilated anterior teeth is explained and documented by various clinical cases, where fiber core posts are introduced into the root canals of primary incisors for a distance of 2 to 3 mm. It is retained in place by flowable composite, then the coronal part is reconstructed by a strip crown to restore the crown form. A laboratory testing of the fracture load resistance of the restored teeth proved that this technique significantly improved the fracture load resistance of composite celluloid crowns, making it a valuable procedure to consider when the coronal tooth structure is not enough to support and retain a composite celluloid strip crown.[9]

2. Biological posts and crowns

Biological restorations were first introduced by Santos & Bianchiin 1991. Nowadays, teeth obtained from the Human Tooth Bank are used as natural posts & crowns. The selected tooth from the tooth bank is reshaped, roots strengthened by retro filling with flowable composites and autoclaved for 30min at 121 degree centigrade and 15 lbs pressure before cementation. The natural crowns offer aesthetics as well as preserves natural teeth colour. The enamel also has physiologic wear and offer superficial smoothness and cervical adaptation is compatible with those of surrounding teeth. The length of each appointment is reduced because natural teeth are prepared previously. Further more, the technique eliminates laboratory processing and is economical.[10] This technique, although simple, requires professional expertise to prepare and adapt the natural crowns and intracanal posts. It also requires the clinician to follow certain universal protocols of obtaining consent, storing and sterilizing in the human tooth bank. Collected samples should be scaled, polished and freed of soft tissues and periodontal remnants. Pulps have to be removed and complete biological preparation is to be done. Teeth are then stored at 4 degree centigrade in HBSS with donor identification till the time of its use.[11]

3. Orthodontic wires shaped as Greek alphabets

Core build-ups are made directly or indirectly over orthodontic wires shaped in different greek alphabets such as alpha(α), omega(Ω) and theta(θ) which are used as intracanal retainers. Mortada and King (2004) proposed the technique for restoring severely mutilated primary anterior teeth by placement of an omega shaped stainless steel wire extension into the entrance of the root canal prior to restoring the crown with an internal compomer core and an external composite restoration.[12] The ease of manipulation and short chair-side time are further advantages of the technique.[13]

Full coronal restorations of carious primary incisors are indicated when caries are present on multiple surfaces; the incisal edge is involved; there is extensive cervical decalcification; pulpal therapy is indicated; and caries are minor but the patient's oral hygiene is very poor, resulting in a high caries risk. The full coronal restorations can be discussed under bonded crowns and cemented crowns.

► A. Bonded Crowns

1. Strip Crowns

Composite strip crowns are composite filled celluloid crowns forms. They have become a popular method of restoring primary anterior teeth because they provide superior aesthetics as compared to other forms of anterior tooth coverage but they are very technique sensitive and require correct patient selection, proper moisture and hemorrhagic control. Kupietzky et al found that composite strip crowns had a 88% retention rate among 112 restorations in 40 children.[14]

2. Polycarbonate Crowns

These are heat molded acrylic resin used to restore primary anterior teeth. It can be adjusted with pliers, easier to trim and gives a better esthetic outcome than stainless steel crowns. These crowns are known to be dimensionally stable and are not easily affected by acids, ether or alcohol. Its use is contraindicated in cases of severe bruxism and deep bite since these crowns do not resist strong abrasive forces thus leading to occasional fracture of the crown.[15]

3.Pedojacket Crowns

It is a tooth colored copolyester material which is filled with resin and left on tooth after polymerization instead of being removed. It does not split, stain or crack and can be easily trimmed with scissors. However, it is available only in one size and shade which is very white colour. It cannot be trimmed or reshaped with a high speed finishing bur due to the fact that the material will melt to the bur.[2]

4. Artglass Crowns

It is made up of polymer glass and provides a natural feel, bondability and kindness associated with composite

and the aesthetics and longevity of porcelain. It is known for its color stability, plaque resistance and are purported to provide greater durability and aesthetics than composite strip crowns. They are available in one shade and 6 sizes for primary central,lateral and cuspid teeth.[2]

5. New Millennium Crowns

These crowns are similar in shape and form to pedojacket and strip crowns. They are made up of lab enhanced composite resin material. These crowns can be finished and reshaped but are brittle and expensive. No long term studies are available regarding these crowns.[16]

► B. Cemented Crowns

1. Stainless Steel Crowns

Stainless steel crowns are considered to be the most durable, economical and reliable for restoring severely carious and fractured primary incisors. They are easy to place, fracture proof, wear resistant and attached firmly to tooth until exfoliation. However there is a compromise in aesthetics due to the unsightly silver metallic appearance.[10]

► Modifications of Stainless Steel Crowns

a. Facial cut out Stainless steel crowns

This involves placement of composite material in a labial fenestration of SSC. Although there is an improvement in the appearance, the technique is time consuming and metal margins are still visible.[10]

b. Veneered Stainless steel crowns

Here the composite resins and thermoplastics are bonded to the metal. This type of preveneered crown was developed to serve as a convenient, durable, reliable, and esthetic solution to the difficult challenge of restoring severely carious primary incisors.[10]

2. Nusmile crowns

This is indicated when a full coverage restoration is needed for longevity and for protection of remaining tooth structure. It is less time consuming and can be easily placed.[17]

► 3. Kinder Krowns

Kinder Krowns offer the most natural shades and contour available for the pediatric patient. It is designed with Incisalock™ for better bonding and mechanical retention. They come in 2 aesthetically pleasing shades, Pedo 1 and Pedo 2. Pedo 2 shade is the most natural shade While Pedo 1 shade is for those cases when the bleached white shade is wanted.[16]

4. Cheng Crowns

These are stainless steel pediatric anterior crowns faced with a high quality composite, mesh-based with a light cured composite. It is available in short and regular lengths and sizes suitable for the right and left centrals,laterals and cuspids. They can undergo heat sterilization and the manufacturer claims it to be color stable, plaque resistant and matches pedo-shades. Disadvantages of all preveneered crowns are fracture of veneers during crimping and they are expensive.[18]

5. Dura Crowns

These crowns can be crimped labially and lingually, can be easily trimmed with crown scissors, easily festooned and has got a full-knife edge. Studies have shown that these crowns with veneer facings were significantly more retentive than the nonveneered ones when cement and crimping were combined.[19]

6. Pedo Pearls

The metal crown form is similar to the stainless steel crown, but is completely coated with a tooth coloured epoxy paint. These crowns are made of aluminium instead of stainless steel because the epoxy coating adheres much better to the former. They are relatively soft and the white coating will wear off in areas of heavy occlusion.[2]

7. EZ Pedo Crowns

These are prefabricated metal free crowns that provide good esthetics without compromising on its strength and durability. These crowns are built with Zir Lock technology which increases surface area reducing the possibility of clinical failure.[17]

8. Pedo Natural Crowns

These crowns are made from polycarbonate material. They are thin ultraflexible and durable with superior marginal integrity and high tensile strength.[17]

► Conclusion

Through this review we try to bring together various aesthetic approaches for the treatment of primary teeth in a pediatric patient. It is vital to understand the advantages and disadvantages of the different restorative materials and techniques available. Thus helping the clinician identify the material of choice according to the esthetic demands of the parents and the child.

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Diagnose

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A 25 year old male presented with pain and swelling in relation to the right side of the face. Diffuse swelling in relation to the right side of the face extending from the right preauricular region, to the corner of the mouth. (Fig 1).

Patient noticed swelling since two months back, which was gradually increased in size. There was mild intermittent pain over the jaw, the duration of pain increased gradually and now experiences severe continous pain. Patient also had history of multiple drug allergy since 15 years of age and is allergic to several food items. On examination, facial asymmetry with diffuse swelling on the right side of face which extends from preauricular region anteriorly upto corner of mouth and inferiorly into submandibular region. The skin over the swelling appears to be normal and there is also limitation of mouth opening and there is deviation to right side on opening. Palpable right submandibular lymph nodes. Overlying mucosa was erythematous. Partially impacted 48. The right mandibular second molar demonstrated grade 1 mobility. On palpation, inspection findings were confirmed. Soft edematous swelling over right cheek extending into submandibular region and a hard swelling palpable over right body of mandible measuring 4x3 cm, extending lingually involving the inferior and medial border of mandible. Skin overlying swelling is free. On intraoral examination obliteration of the right buccal vestibule was noticed in the lower right molar region (Fig 2). Orthopantomograph shows well defined unilocular radiolucency extending from the distal aspect of lower right premolar involving body, angle, ramus, coronoid and upto condyle. Neither root resorption nor tooth displacement was noticed. (Fig 3). CT shows loss of buccal as well as lingual cortical bone, with mild buccolingual expansion. (Fig 4). What is the provisional diagnosis and differential diagnosis?

Provisional diagnosis: Odontogenic cyst ?
Differential diagnosis: Odontogenic keratocyst, Dentigerous cyst, Ameloblastoma, Aneurysmal bone cyst
HPE report: histopathology showed parakeratinised corrugated stratified squamous epithelium of uniform thickness. Connective tissue showed moderately collagenous connective tissue. Satellite cysts were present.
Final diagnosis: Odontogenic keratocyst
Management: Cyst enucleation, Curettage, peripheral ostectomy, chemical cauterization using Carnoy's solution. Regular post operative follow-up up to 5 years is a must.

Fig 1

Fig 2

Fig 3

Fig 4

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Calcified root canals

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Abstract

The primary objective of endodontic therapy is to reduce or eliminate microorganisms and their by-products through chemo-mechanical debridement, disinfection and obturation of root canals. Calcified canals in need of root canal treatment pose certain treatment challenges. This article describes the different types of calcifications, etiology, methods for detection of calcified canals, armamentarium, and protocol for management during root canal treatment.

Key Words: Calcified canals, Long shank burs, Chelating agents, Path finders

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► Introduction

Success in root canal treatment is based on proper debridement, disinfection and three dimensional obturation of the root canal system with an inert material. The presence of an untreated canal can be one of the reason for root canal failure[1]. Calcified root canals 'are an enigma' to the clinicians, as they cause difficulties during non-surgical root canal treatments. The risk of procedural accidents such as perforation and instrument separation is high during treatment of the obliterated canals[2].

The calcifications can occur either as nodular small masses or as diffuse type. Both the hard substances and soft tissues of teeth and the attachment apparatus are subjected to constant changes in the oral cavity. The age induced changes occurring in dentin are more obvious and the properties of this dentine gets altered. If the teeth are impacted by a chronic irritant, the pulp space possibly undergoes calcific changes that may impede access opening during treatment[3,4,5].

The diagnostic aid commonly used by dentists to detect the calcified tooth is a radiograph. The pre-operative radiograph helps to detect the extent of calcification and facilitates for planning the entry into the chamber[2,6].

Different methods are used to tackle the calcified canals during non-surgical endodontic management. The newer tools which helps to treat the calcified canals include special burs, ultrasonic special tips, chelating agents, digital radiographs like CBCT, magnifying loupes and operating microscopes[6,7,8].

This review aims at describing the types of calcifications, etiology, clinical and radiographic features, diagnostic aids and different armamentarium used for negotiating the canal orifices and management of calcified canals during non-surgical root canal therapy.

► Classification

Calcifications can be classified into two types 3: 1) Physiologic calcification,

2) Pathologic calcification. Two types of pathologic calcification are a) Dystrophic and b) Metastatic.

Calcification of pulp in response to various irritants and age changes:

1) Tubular/Dentinal Sclerosis, 2) Secondary dentin, 3) Reparative dentin

Pulp stones are classified 4,Based on structure: 1) True denticles, 2) False denticles,

3) Diffuse /Amorphous; Based on location: 1) Embedded, 2) Adherent, 3) Free denticles.

Clinical Features[6-10]

Colour: Calcific metamorphosed tooth has darker hue than adjacent teeth. Crown exhibits dark yellowish to grey colour. Commonly seen in young adults. Anterior teeth are mostly involved.

Age: Structure of normal pulp advances with age. Calcifications are seen more in elderly individuals.

Sex prevalence: Females exhibits more incidence of pulp stones than males.

Tooth prevalence: Pulp stones are seen more prevalent in molars

Arch prevalence: Pulp stones are more commonly seen in maxillary molars.

Radiographic features

Calcific metamorphosis appears as partial or total obliteration of pulp canal space. Periodontal membrane and lamina

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dura appears normal (Fig 1.A). In some cases thickening of periodontal ligament space or periapical radiolucency can be seen. Pulp stones appear as small nodular radiopaque masses located in pulp chamber or in root canals[11] (Fig 1.B).

Visual methods for detection of calcified canals[6,7,10,14-19]

A. Radiographs: Intra oral periapical, Bitewing, Digital radiographs, Orthopantamograph (Fig 2.A, B, C)

B. Cone Beam Computed Tomography (Fig 2.D)

C. Dyes – Methylene Blue, Ophthalmic dye (Fluorescein sodium) (Fig 2. E)

D. Magnification-Dental operating microscope, Magnification loupes (Fig 2. F, G)

E. Champagne bubble test (Fig 2.H)

Management of calcified root canals [Non-surgical root canal therapy]

Armamentarium:

1. Long shank burs, Pulp out burs
2. Explorer-DG 16, JW 17
3. Pathfinder Files, Micro orifice openers
4. Ultrasonic tips
5. Chelating agents

1. Long shank burs[6,7]:

For detecting the calcified canals the clinician must cut into the root to locate and identify the canal orifices. The long shaft is useful for working deep in the radicular portion of the tooth; it displaces the hand piece away from the occlusal surface, allowing the clinician to see the cutting tip in action.

A] LN Burs (Long neck bur) (Fig. 3. A): LN burs are made up of Tungsten steel. They are latch type, right angled burs with half round long neck 28mm in length.

Local factors	Systemic factors
A. Caries B. Trauma C. Attrition D. Age changes E. Cavity preparation F. Orthodontic treatment	A. ormonal changes i. Hypercalcemia ii. Hypophosphatemia B. Drugs i. Statins ii. Glucocorticoid therapy C. Diseases i. Periodontal disease ii. Cardiovascular diseases iii. Renal diseases

Fig. 1a Radiographic appearance with pulp canal obliteration

Fig. 1b Radiographic appearance of pulp stones

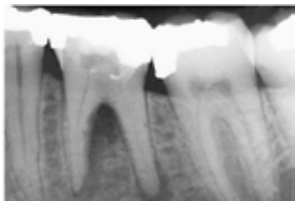

Fig 2. A & B Radiographs

Fig 2c Orthopantamograph

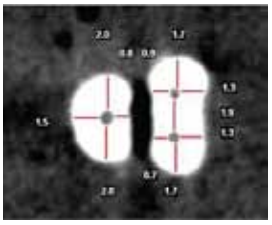

Fig. 2d CBCT

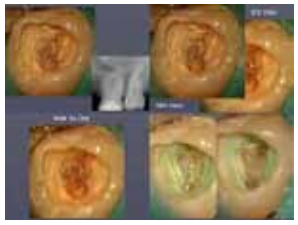

Fig. 2e Dyes

Fig. 2f DOM,

Fig 2g Magnification Loupe

Fig 2h Champagne bubble test

B] Mueller burs: Mueller burs are long-shaft, ½ mm round carbide-burs used in a low-speed latch handpiece in a brushing motion (Fig. 3. B). Bur leaves a clean, shiny surface when used on intact dentin. This surface contrasts well with the "white dot" or "white line" connective tissue remnant that was left as the pulp receded.

C] Munce discovery burs: These are carbide latch type burs available in three styles (Fig. 3. C). They do not create a fine powdery dust. 3 types of burs are, Deep Troughers (34mm length), Shallow Troughers (31mm length) and Endodontic Cariesectomy Burs. They have a narrow, non-flexible shaft with 1mm diameter to facilitate positive control for deep troughing. Both Deep and Shallow Troughers are available in six head sizes (#¼, #½, #1, #2, #3, #4). The tip diameter varies from 0.77mm to 0.58mm. The Deep Troughers have depth rings, and are color coded by size on the shank.

Pulp out burs[6]:

Pulp out bur is designed to aid in the initial endodontic access opening of calcified teeth (Fig. 3. D). It is a friction grip #4 round carbide bur with a plastic stop fixed at 7mm. Permanently set at the critical depth from the cusp tip to the pulp chamber ceiling of teeth that allows access to the pulp chamber without perforation of the furcations.

2. Endodontic explorers[17]

The DG-16 endodontic explorer (Fig. 3. E) and JW-17 (Fig. 3. F) endodontic explorer are used for locating the canal orifice. JW 17 explorer has thinner and stiffer tip. (Fig. 3. G)

3. Pathfinder instruments[6,7,8]

Pathfinder CS files: These carbon steel files that have reduced flutes. They have quadrangular cross-sections which provide enhanced rigidity. The greater shafts strength helps to penetrate calcified canals. (Fig. 3. H)

C+ files:C+ stainless steel files have pyramid shaped tip which makes insertion easier during instrumentation and the square cross section allows better resistance to distortion (Fig. 3. I).

Schwed Antaeos Stiff C files: These are stainless steel files that are heat treated for extra firmness. They are made to ISO standards. Handles are colour coded. Pre inserted directional endo stops are colour coded to indicate length (Fig. 3. J).

C Files: These are heat tempered Stainless steel files having sharp edges twisted to tip. They have silicone stops and are available in 21mm and 25mm (Fig. 3. K).

Mani D Finders: These are stiff endodontic hand files specially designed with D shaped cross section. It helps in negotiating calcified canals. These are available in sizes #8, #10, #12, #15 (Fig. 3. L).

Pathfinder SS: Stainless steel hand files with minimal taper used for negotiating calcified canals(Fig. 3. M).

Fig. 3a LN Bur

Fig 3b Mueller Burs

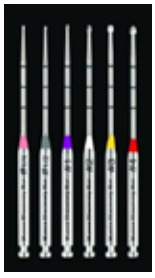

Fig 3c Munce discovery burs

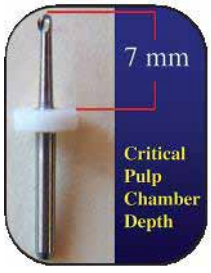

Fig 3d Pulp out bur

Fig. 3e DG-16

Fig 3f JW-17

Fig 3g Locating molar orifices with DG-16

Fig 3h Pathfinder CS,

Fig 3i C+ Files,

Fig 3j Schwed Antaeos Stiff C files

JS S Finder: Stainless steel path finding instruments in S file configuration. It is available in #8 size (Fig. 3. N).

4. Ultrasonic tips[6,7,19]

These tips when used in conjunction with dental operating microscope are used in the detection of calcified canals and removal of the attached pulp stones.

Examples of tips used: a. BUC tips, CPR tips, Start X tips

BUC tips (Fig 4. A & B): These are Titanium alloy tips.

BUC 1 tip- used for uncovering the pulp chamber floor and removal of pulp stones.

BUC 2 & 2A tips - are disk like radiused tip. It can be used for smoothening and to safely plane the attached pulp stones from the pulp chamber.

BUC 3 tip- a sharp pear tip used to create a smooth, clean flat troughing groove.

CPR tips: The CPR 2D tip made up of Titanium alloy has a working length of 17mm. It has a contra angled end and a durable shape which is excellent for locating calcified orifices and causes trephining around obstructions within pulp chamber.

Start X Tips (Fig. 4. C): Hard tempered stainless steel tips with 8mm of micro-blades on a shaft. It tapers down to 0.64mm, ending in a sharp polished tip. Start-x no.3 is a canal opening scouter and helps in removing any obstruction in the pulp chamber. Start-X tip no 5, is used to smooth the pulp floor and walls off the access cavity. The tip has parallel sides and a mean diameter of 1mm.

5. Chelating Agents[16,17]

Chelating agents were introduced in endodontics for the preparation of narrow and calcified root canals by Nygaard Ostby in 1957. Chelation is a physico-chemical process that prompts the uptake of multivalent positive ions. They reacts with the calcium ions in the hydroxyl apatite crystals and cause changes in Ca-P ratio of the dentin surface. 17% EDTA, 10%

Fig. 3k C-Files

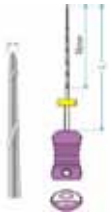

Fig. 3l Mani D Finders

Fig. 3m Pathfinder SS

Fig. 3n JS S Finder

Fig 4 a & b BUC Tips

Fig 4c Start X tips

Fig 4d EDTA

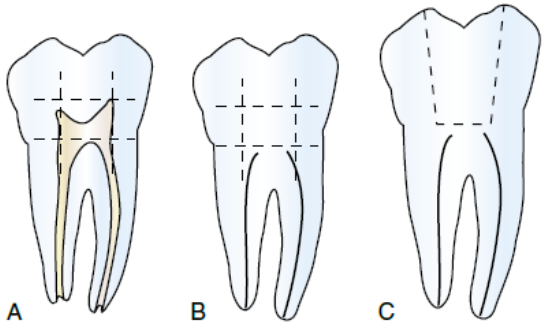

Fig 5a Normal molar tooth. Broken lines delineates anatomic location of pulp chamber
Fig 5b Molar tooth with obliteration of pulp chamber. Broken lines delineate location of former pulp chamber
Fig 5c Access preparation shown to precise depth & lateral extension as with normal chamber

Fig. 6a Estimation of pulp chamber depth by holding a bur mounted in the handpiece against a radiograph of the tooth to be operated

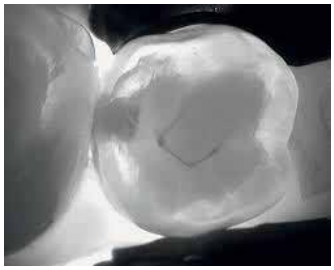

Fig. 6b Jack O 'Lantern' pattern of tooth. Calcified canals seen as dark dots,

Fig. 6c Sodium hypochlorite in pulp chamber, tiny bubbles appearing from the canal orifice,

Fig 6d Presence of bubbles as whitish colour in a calcified molars

Citric acid are commonly used agents. The routinely used EDTA containing chelating agents as solutions and gels are Tublicid, EDTAC, File–Eze and RC-Prep (Fig. 4. D).

► Management of calcified canals[18,21-23]

A] Orifice Location

A preoperative radiograph reveals total or near total calcification of pulp chamber and radicular spaces. To locate the calcified orifice, the practitioner first visualizes and projects the normal spatial relationship of the pulp space onto a radiograph of the calcified tooth (Fig. 5).

Before the access preparation the distance from the occlusal surface to the pulp chamber should be assessed by placing the bur on preoperative periradicular film (Fig. 6. A).

Knowledge of pulp chamber anatomy of individual tooth and laws of symmetry and colour proposed by Krasner and Rankow helps in locating the calcified root canal orifices[24]. Pulp out burs can be used for orifice location. To increase visibility and alignment access can be initiated before isolation.

After the initial access opening the bur is left in place and three radiographs are taken by applying the buccal object rule to aid in the determination of calcified root canals. They are taken in 1] Straight-on to the bucco-lingual dimension, 2] 20^0 horizontal angulation with the cone shifted distally, 3] 20^0 horizontal angulation with the cone shifted mesially[25].

In severely calcified teeth, calcified dentin must be removed slowly down the root. The clinician can use long, thin ultrasonic tips under the high magnification of a DOM to avoid removing too much tooth structure. Subtle and minute differences in color and calcification patterns become immediately obvious, which helps in removing the obstructions. When Fibreoptic light is passed through the tooth at the CEJ level, tooth will appear like a Jack O'Lantern' with calcified canals appearing as dark dots and not as wide canals (Fig. 6. B).

When 5% sodium hypochlorite is placed into the pulp chamber of a calcified canal which contains remnants of pulp tissue, it will result in a stream of bubbles emerging from the oxygenation of the tissue which can be visualized under DOM[20] (Fig. 6. C & D). In deep preparations multiple radiographs may be taken.

Clinician should search for root canal orifices only after completely preparing the pulp chamber and cleaning and drying the floor. 95% denatured ethanol is useful for drying the floor and enhancing visibility. The chamber floor is darker in color than its walls, and developmental grooves connecting orifices are lighter in color than the chamber floor.

Small files are required for initial pathfinding. Alternating between size 8 and 10 K files with a gentle watch winding motion with minimal vertical pressure and regular replacement of the instruments reduces fatigue of files.

B] Negotiation and Penetration

DG 16, JW- 17 explorer is a very useful instrument in the location of canal orifice. Instruments with reduced flutes, such as a Canal Pathfinder or instruments with greater shaft strength such as the Pathfinder CS, C+ Files, and Micro openers are also ideal for initial instrumentation of calcified root canals. The smaller K files can be precurved to allow the files to follow the natural canal curvatures. Long shank burs can be used for locating orifices. If the orifice still cannot be negotiated with a fine instrument, drill 1-2mm into centre of orifice with no.2 round bur at slow speed and use DG 16 explorer to re-establish canal orifice. Bur produces white spots on dark floor of chamber and serves as markers for exploration of canal. Ultrasonic tips can also help in opening up calcified canals. The vibrations creates miniature sound waves that break up the calcification. Uncovering of floor of pulp chamber can be accomplished with the help of CPR 2D or BUC 1tips. Pulpstones can be vibrated out or planed with help of CPR 2D tips.

Radiographs taken with radiopaque markers in the chamber can help confirm the direction of instrumentation if needed. E.g.: Instruments or obturating materials. Calcification occurs in a coronoapical direction; therefore, once the initial canal has been captured, an instrument tends to progress more easily as it advances towards the canal terminus. Incremental instrumentation can be done by creating new increments between the established widths by cutting off a portion of the file tip, thus making it slightly wider in diameter. Chelator preparations have been advocated frequently as adjuncts for root canal preparation, especially in narrow and calcified root canals.

C] Biomechanical Preparation

Crown- down technique is preferred in treatment of calcified canals to improve the tactile sensation and better apical penetration. As a general rule, the calcification process as seen in pulpal obliteration occurs in a corono-apical direction so once the initial canal has been captured, an instrument tends to progress more easily as it advances the terminus[18,22,23]. A 21-mm NO.8 K file is the initial instrument of choice to negotiate the calcified canal. Before the file is inserted into the canal, a small curve is placed in its apical 1 mm. Irrigate copiously at all times with 2.5% to 5.25% NaOCI. Advance instruments slowly in calcified canals. Use chelating pastes or solutions to assist in canal penetration. Flare the canal orifice in a crown-down fashion and enlarge the negotiated canal

space. Use of newer, nickel-titanium rotary orifice-penetrating instruments should be considered when possible. E.g.:Vortex orifice openers, Hero Shapers. The canals can be obturated using the lateral compaction, vertical compaction, continuous wave, warm lateral, and injection and carrier based techniques.

Conclusion

Operator skills, patience, use of a proper armamentarium and instrumentation under adequate illumination and magnification helps to overcome the difficulties posed by calcified canals, ensuring successful outcome of endodontic treatment.

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Dentists' day celebration

Dentists' day celebrations by Kerala Dental Council was on 6th March at Kanakakunnu Palace, Thiruvananthapuram.

Minister for health and family affairs Smt. Shylaja Teacher inaugurated the function. K. Muraleedharan MLA presided over the meeting. KDC President Dr. Shaji K. Joseph gave the dentists day message. Members Dr.K.Nandakumar, Dr. Biju A.Nair, Dr. OV. Sanal, Dr Prasanth, Dr. Prasanth Sony, Dr. Anish, Dr. Jolly Mary Varughese, Registrar Mr Bhadran and IDA State President Dr.Sabu Kurien were present.

Dentists' day awards were presented on the occasion by the health minister. Dr. Prasanthila Janam was selected for the Best dentists award and Dantacharya awards were presented to Dr. Varghese Mani and Dr. Harshakumar and Dentasreshta to Dr. Sasikumar.

Speech aid prosthesis - Case report of rehabilitating a velopharyngeal defect

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Abstract

Velopharyngeal defects are distressing disorders causing hypernasality, nasal regurgitation, disarticulation and impaired speech intelligibility. The defect can be congenital or acquired with variation in location and extent. Prosthetic treatment combined with speech therapy is the treatment of choice when the defect cannot be managed surgically. This case report describes rehabilitation of a patient with acquired velopharyngeal defect by means of a speech aid prosthesis.

Key words: Soft palate defect; Speech aid; Velopharyngeal insufficiency.

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Introduction

The velopharynx is a three dimensional muscular valve located between nasal and oral cavities which consists of lateral and posterior pharyngeal wall and soft palate[1]. The speech utterance and activities like sucking, swallowing, whistling and blowing are regulated by this velopharyngeal or palatopharyngeal (VP) valving mechanism. Impairment of velopharyngeal function can be due to insufficiency (when some or all of the anatomic structures of soft palate is absent) or incompetency (soft palate is of adequate dimension, but lacks movement because of neuromuscular disorders)[2,3]. Velopharyngeal insufficiency can be due to congenital, or acquired defects. Acquired soft palatal defects results from surgical resection of neoplastic disease, whereas cleft palate is the main cause of congenital defect. This insufficiency will lead to nasal regurgitation of fluids, hypernasal speech, nasal escape, impaired speech intelligibility and disarticulation. Rehabilitation of such patients may be accomplished either surgically or prosthetically. Surgical reconstruction includes microvascular flap techniques but in many cases complete obturation is difficult to achieve and can result in deficient, non-functioning palatopharyngeal mechanism[4].

Prosthodontic management of velopharyngeal insufficiency is carried out by means of a pharyngeal obturator and velopharyngeal incompetency by a palatal lift prosthesis[5,6]. Pharyngeal obturator, also known as speech –aid prosthesis, extend beyond the residual soft palate to create separation between nasopharynx and oropharynx. It provides a fixed structure against which the pharyngeal muscles can function to affect palatopharyngeal closure. This case report describes the prosthetic rehabilitation of an acquired velopharyngeal insufficiency with a speech aid prosthesis.

Case report

A 41 year old male patient reported to the department of Prosthodontics, with chief complaint of nasal twang in voice. History revealed that he was diagnosed with adenoid cystic carcinoma of minor salivary gland in soft palate 10 years back. He underwent wide excision and palatoplasty for the same and received adjuant radiation 60Gy on 30 fractions. As a result of radiation fibrosis, velopharyngeal insufficiency was developed since 4 years and splinter pharyngoplasty was attempted and one flap was sloughed which again lead to velopharyngeal insufficiency. On examination hypernasality and dysphagia was noticed and there were minimal movement of palatal tissues. Unilateral soft palatal defect involving the posterior pharyngeal wall was seen (Fig. 1). It was decided to fabricate a pharyngeal obturator with speech bulb using functional impression technique.

Procedure

Soft palatal defect was blocked out with gauze piece and primary impression of the maxillary arch was made using irreversible hydrocolloid impression material. The impression was poured in dental plaster to obtain a primary cast. The undercut areas of teeth were blocked out with wax and custom tray with extension till the defect was made in autopolymerizing acrylic resin. Patient was instructed to perform various movements of head and neck and functional molding of the defect area was done using low fusing green stick impression compound. Procedure was repeated until the defect was correctly obtained. The wax used for blocking the teeth were then removed and final impression of the defect was made in light body elastomeric impression material (Fig.2). The correct recording of the defect was ensured in the impression as well and was poured in type 4 dental stone to obtain master cast.

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On the master cast, clasps were adapted on molars and premolars using 19 gauge stainless steel wire and wax up for oral section of the prosthesis was done. From the posterior border of the wax up two parallel lines of approximately 2.5 cm length were drawn on the master cast which extended till the anterior border of soft palatal defect. Two 19 gauge stainless steel wire were then bend in zig –zag manner and was aligned parallel to the marked line and wax up of the defect region was done (Fig.3). This was then processed in heat cure acrylic resin. Thus a stable denture base with extension into the defective area was obtained and was tried in patient (Fig.4). The extension of the defect area was adjusted and correct seating of the denture base was ensured.

Next step was to record the functional impression for the fabrication of speech bulb. Green stick compound was added on the base and patient was asked to perform movements like swallowing, speaking, circular movements of head, breathing and turn the head to right and left sides. The procedure was repeated until correct extension of the bulb was achieved (Fig.5). The green stick speech bulb was relieved to create space and light body impression material was added as a thin layer on the bulb and placed in the defect. Patient was instructed to repeat all the functional movements. The denture base with functional impression was invested. The green stick in the bulb portion was removed by dewaxing and was packed with molloplast B denture relining material. After the curing process, prosthesis was carefully removed

Fig 1. Velopharyngeal defect

Fig. 2 Final impression

Fig. 3 Wax up for denture base

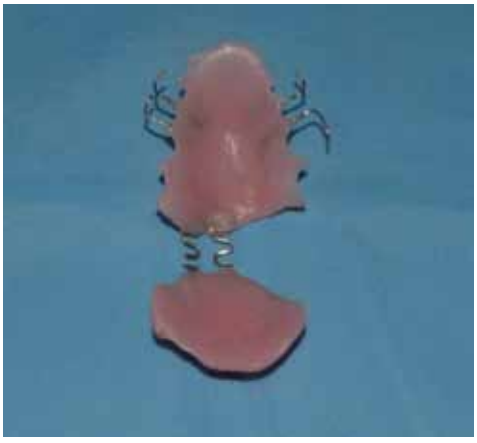

Fig. 4 Denture base with pharyngeal extension

Fig. 5 Functional record of the defect

Fig. 6 Intagliosurface of the finished prosthesis

Fig. 7 Definitive prosthesis intraorally.

from the cast, finished and polished (Fig.6). Final prosthesis was placed in patient's mouth and evaluated for proper extensions (Fig.7). Patient was trained for proper insertion and removal of the prosthesis. A regular follow up was done for a period of four months. Patient was completely satisfied with the prosthesis and marked improvement in speech and pronunciation was noticed.

► Discussion

Velopharyngeal defects are common problems which may be congenital or acquired, causing uncontrolled nasal emission, inappropriate nasal resonance during speech deglutition dysfunction with nasal regurgitation[7,8]. Surgical correction in cases of insufficiency may be contraindicated or chances of failure are higher. Hence is the importance of prosthetic rehabilitation using obturator prosthesis that depends on the location and nature of the defect. It is a multidisciplinary approach requiring a speech pathologist to evaluate the articulation errors and oronasal resonance balance. The frequency and consistency of velopharyngeal insufficiency can be diagnosed with perceptual and instrumental measure[9]. There are several types of pharyngeal obturator such as meatus obturator, fixed horizontal type and hinged pharyngeal obturators. The prosthesis have both pharyngeal and palatal or base sections. Pharyngeal extension add bulk, weight and leverage and thus generating stress to the supporting structures of mouth through palatal section.

It is advised to fabricate the obturator section of the prosthesis once the framework of palatal section is completed. The retentive loop has to extend posteriorly from the palatal portion to facilitate the placement and retention of impression material for recording the defect. It must be ensured that this extension must be parallel and as close to the palatal plane as possible. The correct functioning of the prosthesis depends on the degree of velopharyngeal defect. Larger defects involving both hard and soft palate creates more discomfort but there are times when a smaller defect may be more problematic. Unilateral soft palatal defects are more difficult to obturate because the function of the residual soft palate does not provide closure on the non defect side and it can be difficult to extend the obturator around and over the prosthesis. Also configuration of the residual soft palate can affect the prosthetic management[10].

In the present case report, a pharyngeal obturator was fabricated using resilient orthodontic wires which joined the palatal section and pharyngeal speech bulb portion. The bulb portion was made using functional adaptation of green stick compound which was lined by light body elastomeric impression material. Soft liners and fluid wax can also be used for this purpose. In the final prosthesis superior portion of the bulb was made of molloplast B which provided better comfort than an acrylic surface.

► Conclusion

Velopharyngeal defects frequently present as perplexing problems to the prosthodontist. The contours of the partial soft palate defect can be correctly recorded with multi step procedure as described in this report which result in proper tissue approximation. The final prosthesis had the advantages that the technique was non invasive, cost effective and was easy to maintain. The prosthesis coupled with patient's compensatory mechanism improved the quality of life and provided effective obturation.

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Knowledge of expectant mothers on early childhood caries – a hospital based cross sectional study

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Abstract

Aim and Objective: Assessment of the knowledge on Early childhood caries (ECC) among expectant mothers visiting a tertiary health care centre in Trivandrum by using an interviewer administered structured questionnaire

Materials and methods: The present study was a cross sectional study conducted in the Department of Gynaecology and Obstetrics Sree Avittam Thirunal Hospital (SATH), Thiruvananthapuram. Knowledge of expectant mothers on ECC was recorded using a structured questionnaire divided into 2 domains consisting of sociodemographic characteristics and maternal knowledge on ECC. The data was analysed using Spearman's rho test, Mann-Whitney U test, Kruskal-Wallis test. Level of Significance for the study was set as $p < 0.05$.

Results: Distribution of knowledge on ECC follows a Gaussian distribution/ Normal distribution with mean value 5.07 and standard deviation of 1.98. The minimum, maximum knowledge scores were in the range of 1 to 10. Total knowledge score at 25th percentile corresponds to 3.38, 50th percentile corresponds to 5 and 75th percentile corresponds to 6.5. A statistically significant association between knowledge of expectant mothers with income and education level.

Conclusion: The study portrays that all the expectant mothers were having poor knowledge on ECC and oral health education should be focused on all the expectant mothers especially those coming from low economic status and low level of education.

Keywords: Expectant mothers; knowledge; early childhood caries.

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Introduction

Good oral health is an integral component of good health. The foundation for good oral health is established early in childhood and the role of the mother is significant even prior to conception. Early childhood caries (ECC) is one of the most common chronic diseases of childhood is considered to be a big public health challenge for dental professionals through-out the world.[1] Cariogenic bacteria are typically acquired by young children through direct salivary transmission from their mothers.[2]

The prevalence rate of ECC is low in the developed countries of Europe and USA.[3] In developing countries like India, a fluctuant prevalence rate is found over the years. A study conducted by Kuriakose and Joseph in 1999, showed prevalence rate of 57%.[4] Even though Kerala has highest Human Development Index (HDI), 0.790 in 2011; the highest literacy rate, 93.91% in the 2011 census; most women are unaware of the potential consequences of neglecting infant oral health.

During pregnancy, women are more receptive to messages related to their health and the health of their future infants. Thus, pregnancy is an opportune time to educate women about the importance of dental care and its impact on the health of their infants. Prevention programs initiated during pregnancy have positively influenced the oral health of mothers and their children. Mothers are decision makers and play an important role in achieving the best oral health outcomes for their young children.[5] What mothers know about ECC care is crucial in order to modify their behavior and encourage good oral health of their children. Though studies have been conducted in various parts of the globe to evaluate knowledge of expectant mothers on ECC, there were no reported studies in Kerala. Thus this study was under taken to assess expectant mothers knowledge on ECC.

Methodology

Verbal and written informed consent was obtained from expectant mothers. Respondents' information sheet explaining the research objectives and ensuring anonymity/confidentiality of the information in the preferred language (English/Malayalam) were distributed to the expectant mothers. The expectant mothers were selected from the antenatal department when they reported for the counseling provided by SNEHA. After disclosing the nature of the study, a total of 150 expectant mothers who were in the first pregnancy, end of first trimester, signed the approval to participate in the study through an informed consent form and participated in the study by completing an interviewer administered structured questionnaire. Expectant mothers who were not willing

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to participate in the study, with systemic disease such as diabetes, hypertension, epilepsy, or under medication were excluded.

Interviewer administered structured questionnaire in the expectant mothers preferred language to assess the knowledge on preventive oral health measures for the infant. The questionnaire used a simple tick-box format, with sections for demographic items such as age, domicile, income, educational level and occupation. The questionnaire was made comprehensible for the expectant mothers of all socioeconomic and educational backgrounds. Each correct response was given a score '1' and incorrect response as '0'. For questions carrying more than one correct response, total score (1) was divided by number of right responses, to ensure that sum of scores for a question does not exceed '1'.

• Pamphlets containing infant oral health care were distributed among expectant mothers after completing the questionnaire.

Results

In the present study, distribution of knowledge (Table 1) on ECC follows a Gaussian distribution/ Normal distribution with mean value 5.07 and standard deviation of 1.98. The minimum, maximum knowledge scores were in the range of 1 to 10. Total knowledge score at 25th percentile corresponds to 3.38, 50th percentile corresponds to 5 and 75th percentile corresponds to 6.5. Here 75% of expectant mothers having a knowledge score of 6.5 which is < arbitrary average 7, that means greater than two third of the expectant mothers in the present study is having poor knowledge on ECC. Even though all the expectant mothers with poor knowledge on ECC, there is a statistically significant association between knowledge of expectant mothers with income (Correlation coefficient (r(s) = 0.284, p= 0.001) and education level ($\chi 2$ value = 14.82, p = 0.002). Expectant mothers without any formal education group was having "0" persons with good knowledge, primary / upper primary education with "2", high school with "3" and graduate with "4" persons respectively. Though this reflects an increasing knowledge of expectant mothers on ECC with education, only few (13%) of graduate expectant mothers were with good knowledge on ECC compared to 0% in the first group. Hence oral health education should be focused on all the expectant mothers especially those coming from low economic status and low level of education. This figure brings out the importance of educating the expectant mothers on ECC.

Discussion

The findings of this study is in accordance with the study by Jain et al[6] where > 60% exhibited poor knowledge on infant oral health. Studies conducted by Chacko et al[7] (Mangalore) also showed poor knowledge of expectant mothers on infant oral health. The findings of this study in contrary to the study done by George et al[8] (The mean percentage of total correct responses for the 10 knowledge items was 79.1%) in Australian population which indicated that pregnant women had good knowledge on infant oral health.

The findings of this study is in accordance with the previous studies by William et al[9], D S Rwakatema and P M ng'ang'a[10], Suresh et al[11], F Szatko et al[12], Jain et al[6] where significant differences were detected for parental dental knowledge according to educational status. Similar to the studies done by George et al[8], Jain et al[6] the result of this study also shows that there is a significant difference between knowledge with income.

Mother's age had no significant correlation between knowledge. Similarly studies by Sultan et al[13], Abiola A

Table 1 Distribution of expectant mothers' knowledge on ECC

Knowledge on vertical transmission of dental caries	54(36%)
Mode of vertical transmission	32 (59.25%)
Gum pad cleaning	78 (52%)
Cleaning of child's mouth after each feeding	128 (85.3%)
Age of weaning	83 (55.3%)
Age of introducing cups	55 (36.7%)
First dental visit	9 (6%)
Age of introduction of tooth brush	44 (29.3%)
Children's tooth paste	53 (35.3%)
Knowledge on flouride	30 (20%)
Causes of dental caries	75 (50%)
Calcium deficiency and dental caries	118 (78.7%)
Feeding the baby while sleeping and dental caries	28(18.7%)
Extended use of sugared medicine and dental caries	56(37.3%)

A[14], Thakare et al[15] also showed weak correlation between maternal age and dental health knowledge. In this study there was no statistically significant association between knowledge and domicile, religion, occupation of the expectant mother.

The probable reasons could be lack of information or lack of proper access to awareness about ECC, lack of advice from antenatal health care providers on oral health. The common belief is that mother's knowledge on infant oral health improves with more than one pregnancy, the present study included only primigravida mothers may also contribute to the results. Considering the fact that women are amenable to disease prevention and health promotion interventions during pregnancy, this period needs to be utilized to motivate and educate expectant mothers on the importance of good oral health during pregnancy and infant oral health.

Conclusion

However despite the limitations it seems worthwhile to consider findings of the study and start a process of developing strategies of targeting especially young females and expectant mothers for receiving specific types of oral health information especially information on early childhood caries. Hence knowledge on early childhood caries should be included as an integral part of antenatal care to increase the women's awareness. This would improve mother's dental care seeking behavior and in turn the child's oral health. From this study we would like to recommend incorporation of basic oral health care into well-antenatal–care visit routine. Dental health awareness through pamphlets should be on a door to door basis by ASHA workers, Anganwadi workers or Kudumbasree units which ensures coverage of a wider section of the residential population A policy brief should include recommendations for funds, policy makers, dental and medical schools and other advocates of maternal and child health and obstetrical communities.

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Compound odontoma in a 5 year old child

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Abstract

Odontomas are considered to be developmental anomalies resulting from the growth of completely differentiated epithelial and mesenchymal cells. Odontomas are classified as complex and compound ones. Odontomes commonly occur in permanent dentition and are rarely reported in association with primary teeth. In this article, we report a case of compound odontoma in a 5-year-old male child who presented with a swelling in the anterior maxilla.

Key words: Compound odontoma, Odontogenic tumor, Odontoma

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Odontomas are considered to be developmental anomalies resulting from the growth of completely differentiated epithelial and mesenchymal cells that give rise to ameloblasts and odontoblasts. These tumors are basically formed of enamel and dentin but they can also have variableamounts of cementum and pulp tissue.The term odontoma was first used by Paul Broca in 1867.[1]

Odontomas are classified as complex and compound ones. Complex odontomas are malformations in which all the dental tissues are well formed but occurring in a less orderly pattern. Compound odontomas are malformations in which all the dental tissues are well formed but occurring in a more orderly pattern than in complex odontoma, so that the lesion consists of tooth-like structures. The lesion is composed of more than one type of tissues, so it is known as composite odontoma for this reason it has been called as composite odontoma. Accordingly, we have complex composite odontoma, compound composite odontoma.[2]

Odontomas are also classified as intraosseous and extraosseous odontomas. Intraosseous odontomas occur inside the bone and may erupt into the oral cavity (erupted odontoma) or peripeheral odontomas are occurring in the soft tissue covering the tooth bearing portions of the jaws, having tendency to exfoliate.[3]

Odontomes commonly occur in permanent dentition and are rarely reported in association with primary teeth.[4] In this article, we report a case of compound odontoma in a 5-year-old male child who presented with a swelling in the anterior maxilla.

► Case Report

A 5-year-old male patient was referred to the Department of Pedodontics and Preventive Dentistry with a complaint of swelling over the maxillary anterior region since 6 months. Initially it was small in size and then gradually increased to the present size within 3 months. There were no associated symptoms. His medical and family history were non contributory to the present condition.

Extraoral examination showed no abnormality. Intraoral examination revealed a diffuse swelling in the maxillary anterior region measuring approximately 1.5 × 2 cm in size that extends from the midline to maxillary left primary central incisor, lateral incisor and canine. The swelling was nontender and bony hard in consistency (Fig 1).

Intraoral occlusal and OPG showed multiple radiopacities in irregular fashion and a thin radioluscent lining was present around the radioopacity. Erupting 21 and 22 were present above the lesion. On the basis of history, clinical and radiographic examination a final diagnosis of compound odontoma was made. In this case surgical excision was planned as treatment option. Surgical removal of the odontomes were performed and the specimen was sent for histopathological examination (Fig 2). Extraction of 51, 61 and 62 were done due to root resorption and poor root support.

Complete removal of all odontomas were confirmed by post-operative radiographs. The patient was then re-evaluated after 2 months and permanent tooth eruption was evident on radiograph (Fig 3).

► Discussion

Odontomas are relatively common odontogenic lesions encountered in the oral cavity, they are hamartomatous lesion of odontogenic origin involving both epithelial and mesenchymal tissues that give rise to functional ameloblast and odontoblast.[5]

The etiology of formation of odontoma is not so clear. Several theories proposed trauma and inflammatory or infectious anomalies to be the cause. Lopez Areal has concluded in his study

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that if the injury occurs in early childhood, it is more likely to form odontomas. Hitchin suggested that odontomas are inherited or due to a mutagene or interference possibly postnatal with the genetic control of tooth development.[6]

Majority of odontomas are asymptomatic, sometimes, swelling, pain, suppuration, bony expansion, delayed eruption and displacement of teeth are noted. Severe cases of infection and regional lymphadenopathies have also been reported in the literature. In rare cases, both intraosseous compound and complex odontomas which are located may erupt in the oral cavity.[7]

The radiographic findings of odontomas depend on their stage of development and degree of mineralization. The first stage is characterized by radiolucency due to lack of calcification. Partial calcification is observed in the intermediate stage, while in the third stage the lesion usually appears as radiopaque masses surrounded by radiolucent areas corresponding to the connective tissue histologically.[8]

Histologic appearances of odontomas are of little importance in the diagnosis. The compound odontoma reveals the organization of a normal tooth, while the complex odontoma appears as a disorganized mass of hard odontogenic tissues. Treatment for an odontoma is complete removal with any associated soft tissues. Recurrences usually do not occur. Further malocclusion or any mal-alignment of teeth present can be corrected by orthodontic treatment.[9]

Ideally, odontomas should be removed when the permanent teeth adjacent to the lesion exhibit about one half of their root development because this ensures safety of the normal permanent teeth and prevents interference with their eruption. Kaban states that odontomas are easily enucleated and adjacent teeth that may have been displaced by the lesion are seldom harmed by the excision since they are usually separated from the lesion by a septum of bone.[10] Although the treatment modality is enucleation; but this has to be altered in cases of syndromic association & occurence of complex odontoma with ameloblastic fibro odontoma. Such long standing patients have greater chances of developing ameloblastic fibrosarcoma[11].

Fig. 1 (a) Swelling in the maxillary anterior region (b) OPG showing tooth like radiopacities

Fig. 2(a) Surgical site showing permanent tooth (b)surgical specimen

Fig. 3 Radiographic evaluation (a) immediate post-operative (b) after two months

Conclusion

Most of the odontomas are associated with unerupted permanent teeth, so early detection and treatment is very important to prevent future complications like development of ameloblastic fibrosarcoma.

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A novel non surgical modality for implant site development

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Abstract

Adequate ridge dimension is a prerequisite for implant placement. But in most cases ridge dimensions may not be optimum. Usually, when teeth have been missing for a long time, opposing teeth often over-erupt or drift into the edentulous space, compromising space for the restoration. Ridge augmentation procedures using autografts or allografts are the widely used measures for this problem. But, orthodontics can provide a non-surgical solution to this problem without complications, as need for a donor site, post-operative morbidity, lack of predictability of regenerative materials etc.Hence, the incorporation of orthodontic therapy into comprehensive treatment planning is a valuable adjunct which can enhance aesthetic and functional outcomes in implant dentistry.

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► Introduction

Successful implant therapy is dependent upon adequate volume of bone at the site of implant placement[1]. Augmentative surgical procedures are often used to improve the hard and soft tissue profiles of implant recipient sites. Allogenous grafting and autogenous bone grafting from intraoral or extraoral donor sites is currently the most widely used and best studied method of increasing the amount of alveolar bone available for primary implant anchorage, stability, and thread coverage. But, perfectly timed orthodontic treatment can provide a non-surgical solution to this problem.

With loss of teeth, adjacent or opposing teeth usually tip, drift or over-erupt leaving spaces that are not optimal for replacement of missing teeth. Orthodontic correction of these spatial relationships will aid prosthetic replacement of the missing teeth, function, hygiene and aesthetics. The incorporation of orthodontic therapy into comprehensive treatment planning is a valuable adjunct which can enhance aesthetic and functional outcomes in implant dentistry by both hard tissue and soft tissue augmentation.

Orthodontic implant site development (OISD)

Orthodontic implant site development is a process involving the root movement that creates adequate alveolar ridge width through stretching of periodontal ligament fibres prior to implant placement. Increased bone volume results when tension is applied to the periodontal ligament by orthodontic means, invoking osteoblastic activity and new bone formation[2]. Aesthetic implant placement is driven by both a restorative and biological philosophy. Aesthetically the implant should be placed to satisfy the parameters of contour so that the restoration is pleasing. Biologically it should be placed to allow maintenance of both hard and soft tissue architecture[3].

There are mainly three areas where orthodontics can be considered in implant site development:

1. Orthodontic ridge augmentation by vertical tooth movement
2. Orthodontic ridge augmentation by horizontal tooth movement.
3. Redistribution of the available space in the dental arch when tooth positions for implant placement are not optimal

1. Ridge augmentation - vertical movement

During selective orthodontic extrusion of a single tooth, both the alveolar bone and the soft periodontal tissues will follow the extruded tooth in an incisal direction. By this means, it is possible to significantly improve the periodontal tissue esthetics associated with fabrication of prosthetic crowns on single implants.

If the tooth to be replaced has not yet been removed and if bone deficiencies are present, orthodontic eruption of the tooth prior to extraction can help to increase the amount of hard and soft tissue in the future implant site. Orthodontic extrusion allows the restorative dentist to create a more harmonious gingival level and aesthetically provide the patient with a restoration that mimics the contra-lateral tooth.

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Orthodontic extraction:

The technique of "orthodontic extraction" of a hopeless tooth was introduced by Salama & Salama in 1993[4]. According to Salama & Salama, extrusion is performed at a rate of 1 mm per week and a stabilisation period of one month for each millimetre extruded. Following progressive grinding of the extruded tooth to prevent it from jiggling, new periodontal tissues are generated that provide improved conditions for the implant,after extraction of the extruded tooth. This technique has been used successfully by various authors as Salama[5], Zucatti[6], Lin[7], Chambrone[8] etc. in conditions such as periodontally hopeless tooth along with severe horizontal and vertical circumferential bone defects, external resorption, infrabony vertical root fracture, extensive sub gingival caries.

Korayem et al[9] in 2008 put forth some guidelines in relation to the orthodontic forces to be applied.

1. Light, constant, extrusive forces are recommended: 15 g for anterior teeth to 50 g for posterior teeth.

2. The extrusion rate is to be maintained at a slow and steady rate of no more than 2.0 mm per month.

3. A buccal root torque component may be applied concomitantly to increase the buccolingual bulk of alveolar bone.

4. A retention and stabilization period of no less than 1 month for every month of active extrusion is recommended prior to extraction.

5. Overlay wires (anchorage wires) are recommended to reinforce anchorage and avoid tipping of adjacent teeth toward the tooth undergoing active extrusion.

Upon extruding a tooth, periodontal ligaments are pulled away from the bone and thus transfer mechanical strain to cells in the bone. A series of mechano-transduction mediators (Indian hedgehog), are expressed and lead to bone formation[10]. The type of bone formed initially is the "emergency type of bone" with type III collagen[11]. This bone is somewhat weak because the cross-links between the collagen fiber matrix are weak. It takes about 6 months to mature to the more stable type I collagen[11]. The stable type of bone may accept an implant without showing relapse. The stability of the newly formed bone can thus be influenced by whether the clinician allows the newly formed bone to remodel to the more stablebone. It is conceivable that the time periods for the extrusion and the observation time before implant insertion should be at least 6 months for the newly formed bone to mature into more stable bone. To allow for rest periods in between the activations, an interrupted continuous force is recommended, by using small step bends in the arch-wires.

2. Ridge augmentation - horizontal movement

If an implant cannot be placed because of reduced bucco-lingual ridge thickness after a previous extraction, one option

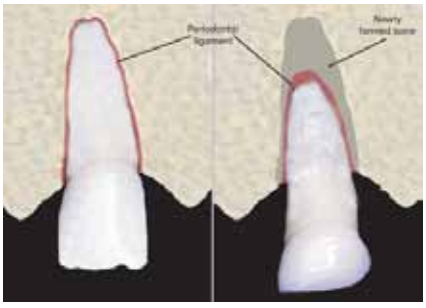

Fig. 1: Schematic representation of newly formed bone after orthodontic extrusion.

Fig. 2: Space created for first molar replacement by uprighting of mesially tipped second molar.

Fig.3: 3a: A case of congenitally missing 12, 22 and 32.

3b: In treatment stage

3c: Temporary prosthesis for 12 and 22.

is to move an adjacent tooth into the edentulous space and to place the implant in the position previously occupied by the orthodontically moved tooth[12]. The bucco-lingual volume of the new bone on the tension side will be markedly greater than that on the pressure side. The root of the moved tooth creates an adequate ridge through stretching of the periodontal ligament. This is an alternative to surgical ridge augmentation (GBR or bone graft). It should be emphasized that there is much less shrinkage of the alveolar bone after horizontal tooth movements than after extractions of teeth.

3. Redistribution of space

Another common indication is a lack of adequate space for the implant. Orthodontic movement of neighboring teeth to optimal positions is often required in association with placement of implants[12].

When teeth are lost, opposing teeth often over-erupt or drift into the edentulous space, compromising space for the restoration. The restorative dentist needs to communicate with the orthodontist with regard to mesiodistal space required for an anatomically contoured restoration. Contra- lateral teeth can be used as a reference to communicate spatial requirements.

a. Dental agenesis: Congenitally missing lateral incisors.

When lateral incisors are congenitally missing it is not uncommon to find that the adjacent roots drift into the space, making placement of implants difficult. Often orthodontic therapy is required to create space for implant placement and also for the prosthetic restoration. One difficulty that arises is communication of space required to the orthodontist. An aesthetic relationship exists between the size of the central and lateral incisors. This ratio has been termed the Golden Proportion — it is not absolutely correct in all cases but serves as a very good guideline[13]. Ideally the maxillary lateral incisor should be two thirds the width of the central incisor.

b. Distalisation and uprighting of molars: Spatial problems in the implant site, due to drifting of adjacent tooth can be corrected orthodontically. Mesially tipped molars are usually accompanied by angular bone loss. Uprighting and if needed distalisation of these teeth not only creates adequate space for implants, but also restores periodontal health, by correction of osseous defects. In cases accompanied with thin bucco lingual dimension, uprighting can be followed by procedures as ridge split and ridge expansion.

c. Space management for immediate implants

If the candidate tooth for immediate implant is malposed, such as a rotated incisor or bucally or lingually tilted teeth, orthodontic tooth movement should be done for optimum space distribution prior to implant placement. Orthodontic movement as tipping and bodily movement alter ridge dimensions favorable for implant supported prosthesis

► Conclusion

Interdisciplinary planning can contribute to a successful implant. A three dimensional planning of the implant location site is necessary in order not to compromise orthodontic movement or subsequent prosthetic treatment. Orthodontics assisted implant site development is an indispensable treatment modality due to its non-invasive nature, better patient acceptance and lack of post-operative morbidity.

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CASE REPORT

Prosthodontic rehabilitation of hemi-mandibulectomy patient with guiding flange and fixed prosthesis

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Abstract

Prosthetic management of surgical defects has always been a big challenge for a prosthodontist. The sudden change in patient's perspective towards life affects the future outcome of any prosthetic rehabilitation. A good prosthesis can bring back the lost pride and smile on the patient face. This clinical report described the mandibular guidance therapy to correct the mandibular deviation due to segmental mandibulectomy.

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► Introduction

Maxillofacial prosthetic therapy for acquired defects has become more complex and sophisticated with advances in surgical, physical and rehabilitative medicine. Acquired defects of the orofacial structures must be analyzed as to the specific cause and the consequent objectives of rehabilitation.[1]

The traditional concept of a one-time prosthesis that supplies the patient's requirements through the course of life is no longer realistic or valid. If the prosthesis is fabricated in an acceptable fashion to meet the physiologic, anatomic, functional and cosmetic requirements of the patient, there is no predictable method of calculating its longevity.

An understanding of post surgical anatomy and physiology is a prerequisite for the development of new prosthetic procedures for mandibulectomy patients. Only this understanding will permit functional utilization of these unusual postoperative anatomic conditions.[2]

Sequelae of Mandibuletomy

The sequelae of mandibulectomy include the deviation of the mandible to the resected side by the muscular pull. The rotation of the mandible leading to occlusal derangement on the resected side.[3]

► Case report

A 27 years old male patient was referred to the department of Prosthodontics, Sree Mookambika Dental College, Kanayakumari, Tamil nadu, for rehabilitation following resection of mandible. Patients history revealed that 3 years back, a lesion was noticed which enlarged in size and eventually diagnosed as Muco-Epidermoid carcinoma in right side of the mandible.

Mandibular resection surgery was carried out and the right side of the mandible was resected till canine on ipsilateral side. (class III according to Contor and Curtis classification) The resected region was unfavorable to receive the removable prosthesis due to restricted mouth opening. Initially resection guidance restoration was given to the patient as guiding flange prosthesis till the occlusion was corrected and later fixed prosthesis rehabilitation was carried out.

Technique

1. Impression has been made using sectional tray with putty silicone impression material for upper and lower arch (fig. 1).
2. Interocclusal record made by guiding the patient in maximum intercuspal position. (fig. 2)
3. Upper and lower casts were mounted using the interocclusal record (fig.3)
4. Mandibular repositioning appliance (Guiding flange) fabricated in autopolymerizing resin (fig.4)
5. Intraoral image of mandibular repositioning appliance, guided in normal occlusion (fig.5)
6. Patient trained with the guiding flange appliance for 6 months, which have been evaluated every 2 months and

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replaced by a new guiding flange appliance to achieve normal occlusion on the non affected side before fabrication of definitive prosthesis.

7. Lower anterior tooth preparation done for fixed cantilever prosthesis (fig. 6)

8. Split tray fabricated in autopolymerizing resin, due to restricted mouth opening (fig. 7)

9. Impression made using light body impression material as two piece(teeth region and floor mouth separately and united later). (fig. 8)

10. Metal try-in verification done in lateral movements for interferences. (fig. 9)

11. Final fixed prosthesis luted using GIC luting cement. (fig. 10)

Fig. 1 Primary impresssion

Fig. 2 Inter occlusal record

Fig. 3 Articulation done

Fig. 4 Guiding flange

Fig 5 Insertion of guiding flange

Fig. 6 Tooth prepration

Fig. 7 Split tray

Fig. 8 Secondary impression with split tray

Fig. 9 Metal try-in

Fig. 10 Cementation

Pre and post operative

Discussion

Following a segmental mandibular resection resulting in a discontinuity defect, masticatory function is compromised because of muscular imbalance that results from unilateral muscle removal, altered maxilla-mandibular relationship and decreased tooth to tooth contacts. Although immediate mandibular reconstruction aims to restore facial symmetry, arch alignment and stable occlusion, masticatory function often remains compromised. During the initial healing period, early prosthodontic intervention by mandibular guiding flange and maxillary stabilization prosthesis serve the purpose of reducing the mandibular deviation, preventing extrusion of the maxillary teeth and improving masticatory efficiency.[4]

In this case report the mandibular guidance prosthesis extending laterally and superiorly on the buccal aspect of the bicuspids and molars on the non defect side. This flange engages the maxillary teeth during mandibular closure, thereby directing the mandible into an appropriate intercuspal position.

The use of resection guidance restoration is predicted on the basis of presence of maxillary and mandibular teeth, as teeth presence in both arches is important for effective guidance and reprogramming of mandibular movement. The patient in this clinical report retained his mandibular dentition from left third molar to right lateral tooth.

The prosthetic rehabilitation of patients after a partial mandibulectomy is essential for their self-esteem. Irradiated patients generally have xerostomia that may reduce the vacuum effect of the prostheses base to the soft tissues diminishing their retention.[5]

The patient has maxillary dentition only upto second premolar on the resected side so a fixed prosthesis as cantilever extending till mandibular second premolar on the affected side has been done for adequate lip support and to restore the normal occlusion.

Guidance therapy improves form and function of the individual. It serve as a interim basis to allow for neuro muscular adaptation of the mandible for correcting the lost occlusion and it also allowed to proceed with further definitive Prosthodontics management.

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Dr.Mercy Joji
Chairperson

WDC Report

Dr.Sapna Sreekumar
Secretary

Women's dental council of IDA Kerala State chairperson, Dr.Mercy Joji and Secretary Dr.Sapna Sreekumar were awarded IDA National awards for best outstanding performance and contribution to women dental council at 70th Indian Dental Conference, IDC Navi Mumbai on 18th February 2017. The office bearers of Women's Dental Council of IDA Kerala State participated in the IDA head office women dental council installation ceremony on 19th February 2017 at the same venue.

IDA National award for best outstanding performance and contribution to women dental council, IDA Kerala State

IDA head office women dental council Office bearers with IDA Kerala State WDC Office bearers

Alternative treatment modality for atrophic mandible

* Bini K. Issac, * Anjana Raveendran, *Bajaj Rashmi Devilal, ** Sudeep S., *** Dinesh N.

Abstract

Extreme resorption of residual ridge is one of the challenging problem for fabricating complete denture prosthesis. As a conservative approach, Neutral zone technique is a simple procedure used for the management of severely resorbed mandibular ridges. There are various materials available for recording neutral zone.

Keywords: Residual ridge resorption, Neutral zone.

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► Introduction:

Maintaining healthy dentition for lifetime is the primary goal of preventive dentistry. But due to several factors like caries, periodontal disease, socio-economical factors, attitude of the patient this goal cannot be achieved and the patient become edentulous. Rehabilitating edentulous individual with removable complete denture still remains the standard norm in many parts of the country. The greatest challenge with removable prosthesis is to manage problems caused by continuous residual ridge resorption.

Residual ridge resorption is the term used for the diminishing quantity and quality of the residual ridge after teeth are removed (GPT-8). Residual ridge resorption is a multi-factorial, biomechanical disease that results from a combination of anatomic, metabolic and mechanical determinants. It is chronic, progressive, irreversible and cumulative.

In maxilla, resorption occurs in a centripetal direction (towards the centre). It occurs in an upward and inward direction. Hence the size of maxillary arch will decrease with resorption. Longer the maxilla have been edentulous, smaller their bearing area is likely to be. In mandible, resorption pattern is centrifugal (away from the centre). The size of the mandibular arch will increase with resorption and becomes progressively wider according to edentulous stage. This progressive change of edentulous maxillae and mandible makes many patients appear prognathic.

When ridge resorption gets more severe, retention and stability of complete denture become unfavourable, especially in the mandible. Compared with conventional complete dentures, Implant overdenture can provide long-term prognosis and more stable outcome. However, for some medically compromised, financially constrained patients, this therapy may not be a superior choice to new conventional dentures[1]. Therefore, techniques to improve retention and stability in severely atrophic ridge cases must be considered for fabricating a denture in harmony with forces exerted by the tongue, lips, cheeks, and floor of the mouth.

Neutral zone:-

Neutral zone is defined as "the potential space between the lips and cheeks on one side and the tongue on the other; that area or position where the forces between the tongue and cheeks or lips are equal."[2]

The eruption of the teeth in the oral cavity is influenced by the forces exerted by tongue, cheeks and lips. These muscular forces collectively determine the final dental arch form and position of the tooth in the oral cavity. This muscular environment continues throughout life, even after teeth have been lost and greatly influences this potential space. It is one of the major determining factors for any prosthesis that will be placed in the oral cavity to replace these missing teeth. The success of denture prosthesis depends on the proper positioning of the artificial teeth within the neutral zone[3]. It was first described by Wilfred Fish who reported the influence of the polished surfaces on retention and stability of complete dentures in 1931[4].

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Extreme resorption of ridge makes all the physical and physiological factors of retention like adhesion cohesion interfacial surface tension etc. Become ineffective in providing retention and stability to denture. Hence a rehabilitating prosthodontist is left with only one factor which is the patients neuromuscular co-ordination helping the stability. Arranging artificial teeth in neutral zone greatly improves the neuromuscular co-ordination. This article describes a case report of a severely resorbed ridge managed by neutral zone technique.

► Case report

A 54 year old patient named Chandran reported to the Department of Prosthodontics in PMS College of dental science with a complaint of missing teeth. On examination, completely edentulous maxillary and mandibular arch with 5 years of edentulism noticed. Maxillary arch form is ovoid with adequate height and mandibular arch form is knife edge with severely resorbed ridges. On palpation mylohyoid ridges are too shallow and there is no flabby tissue over the ridge. There is no abnormality in his medical history.

Preliminary impression was made using impression heavy body elastomeric material and poured with plaster of paries. Special tray was fabricated with cold cure acrylic resin. Border moulding done and secondary impression made using putty elastomeric material. Beading and boxing done. Master cast obtained with dental stone. Denture base fabricated and assessed and modified for extension and stability. Wax occlusal rims constricted. Jaw relation done and transfer this relation to the articulator.

Recording neutral zone

For recording neutral zone, a custom record base was fabricated on the articulated lower cast with self cure acrylic filled with stainless steel orthodontic wire of gauge 21, bend in a fence shape. Height of the wire fell short of the occlusal plane. Vertical height is maintained with acrylic pillars. One the day of recording a combination of impression compound and green stick compound in 7:3 ratios is mixed and adapted to the wire to form the occlusal rim. Attached compound roll was reheated in hot water and placed this occlusal rims in patients mouth and asked the patient to perform sucking, swallowing, pursing the lip, slightly protruding the tongue, speaking etc. During these functions the forces exerted on the soft compound molds it into the neutral zone. Asked the patient to repeat the procedures till the compound sets. Maxillary occlusal rim was oriented in the patient's mouth. Adjust the vertical height and remove the excuse material. Check stability of the occlusal rims. Now the occlusal rims are in neutral zone. Jaw registration was carried out. Remounted the articulation with neutral zone records. Plaster index fabricated and was sectioned in anterior and posterior regions to give two buccal and one lingual segment. Remove the compound from the lower denture base along with orthodontic wires and acrylic pillars and replaced with modelling wax to the form determined by the plaster index. Teeth selection was done. Taking plaster index as reference teeth arrangement done with care taken to accommodate them within the space created by neutral zone. Patient was made to sit upright and a try in was carried out for checking esthetics and to verify the accuracy of jaw relation recorded After acrylication, finished and polished denture inserted. These dentures were followed up and the new dentures successfully improved stability, comfort, and function for the patient

Fig. 1 : Severely atrophied mandibular alveolar ridge

Fig 2: Primary cast with plaster of paris

Fig. 3 Secondary impression made with elastomeric impression material

Fig 4: Secondary cast with dental stone

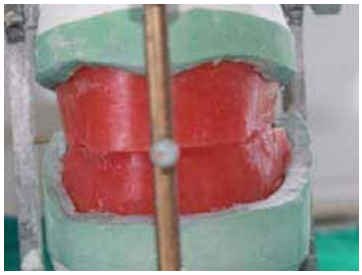

Fig 5 : Jaw relation recorded

► Discussion

Conventional complete denture therapy for patients with severe residual ridge resorption is challenging. The most ideal treatment modality for atrophic ridge is implant therapy for improving the denture support, retention, and stability. According to literature, implant-supported mandibular overdentures have high implant survival rates[5,6]. But for some patients this option is not feasible due to financial, systemic factors or due to psychological fear. However, the neutral zone technique is also considered to be a good alternative approach to patients complaining of unstable dentures

Complete dentures are primarily mechanical devices, but since they function in the oral cavity, they must be fashioned so that they are in harmony with normal neuromuscular function. All oral functions like, speech, mastication, swallowing, smiling, and laughing, have a synergistic actions of the tongue, lips, cheeks, and floor of the mouth which are very complex and highly individual. Failure to recognize the cardinal importance of tooth position and flange form and contour often results in dentures which are unstable and unsatisfactory, even though they were skilfully designed and expertly constructed. The coordination of complete dentures with neuromuscular function is the foundation of successful, stable dentures[7].

Denture has the three surfaces. Out of these, polished surface is bounded by the tongue and the cheeks. These muscles play a key role in normal physiologic movements such as speech, mastication, swallowing, smiling, and laughing. So fabrication of the denture must be in harmony with functions of these structures. Because a physiologically unacceptable denture is responsible for poor prosthesis stability and retention, insufficient facial tissue support, less tongue space and compromised phonetics. Complete denture fabricated by neutral zone impression technique over a severely resorbed mandibular ridge will ensure fair retention and stabilization of the denture due to the muscular forces than dislodging the denture during function. These type dentures will reduced food lodgement, provide good esthetics due to facial support, proper positioning of the posterior teeth which allows sufficient tongue space.

To record this neutral zone, many materials and methods have been come over the years. A pliable and mouldable material is used as an occlusal rim. Modelling plastic impression compound is a good suggestion for that[8]. Although this advice is widely followed, other materials such as tissue conditioner, wax, zinc oxide eugenol impression material, silicone material, chair side relining material, and acrylic resin are also described for this technique. In current case we used a combination of greenstick and impression compound in 7:3 ratio to get an ideally pliable and workable moulding material. According to Garg S et al, combination of greenstick and impression compound has been softened in a bath of water at temperature of 60° C to get a pliable and workable material[9]. According to Cagna et al, schiesser et al and Cwynar et al, most commonly used technique for recording the neutral zone were found to be swallowing and phonetics[10,11,12,13]. However, Fahmy[14] reported other techniques such as sipping water, licking, smiling, pursing the lips, sucking masticating, mouth exercises (including tongue movements, blowing, protruding of the tongue,

Fig 6: Fencing with orthodontic wire

Fig 7 : Neutral zone recorded

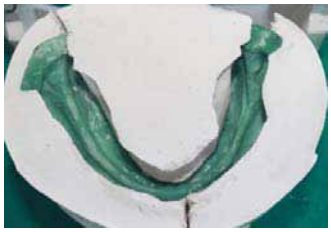

Fig. 8 : Plaster index to maintain reutral zone

Fig 10: Trial denture

Fig. 11 : Finished and polished denture

exercise movements of the lips, cheek, and tongue, facial expression, opening and closing) and whistling for recording neutral zone. Here function forces exerted by the lips, cheeks, and the tongue, on the soft compound moulds it into the shape of the neutral zone. The fixing muscles aid in retention by their seating force on the well constructed denture base and the path of action of dislodging muscles is relieved while fabrication of the denture base. With the help of the functional movements ensure that the denture does not get displaced even when these set of muscles come into action. Thus neutral zone concept incorporates the features already present in the form of muscular structures, to compensate for the lost retentive features in case of resorbed ridges. Complete denture fabricated in neutral zone method gives satisfactory results when retention is concerned even though the residual ridge condition is compromised.

► Conclusion

Rehabilitating a patient with compromised edentulous ridges in conventional manner is a difficult task. In this condition neutral zone technique for complete denture fabrication should be considered to fulfill the patient's functional and esthetic desires.

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An innovative approach for generating occlusion in full mouth rehabilitation

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Abstract

This report describes a patient with multiple loss of tooth in the Maxillary and Mandibular arch, resulting in a restricted restorative space. The patient's chief complaints were poor chewing function and unesthetic appearance. To create sufficient restorative space and provide an improved appearance, we used a removable appliance to biologically restore the lost vertical dimension. After a 3 month adaptation period, we began fabrication of a fixed dental prosthesis having a Computer generated occlusal pattern (CAD-CAM). During the provisional stage, the patient adapted smoothly, and no muscles or temporomandibular joint related symptoms or signs were noted. Finally, we met the treatment goal of rehabilitation of the chewing function, and a satisfying smile.

Keywords: vertical dimension, limited interocclusal space, full mouth rehabilitation, CAD-CAM, Direct Metal Laser Sintered (DMLS)

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► Introduction

The vertical dimension of occlusion (VDO) is constant throughout an individual's life, and any alteration in this distance will interfere with the physiology of the masticatory system, although many authors assume that patients can adapt to such changes.[1,2] Multiple techniques have been proposed to quantify the VDO, including the use of pre-treatment records, incisor height measurements, phonetic evaluation, patient relaxation, assessment of facial appearance, radiographic evaluation, and neuromuscular evaluation.[3] Each of these techniques has proven useful.

In day to day clinical practice, patient demands for restoring lost esthetics and function caused due to extensive tooth wear and early loss of permanent teeth. However, a limited interocclusal space often creates a challenge for restorative treatment because the space required for restoration is unavailable, and it is probable that the final retention and resistance form will be inadequate. ¬The use of surgical crown lengthening to reposition the gingival tissues and elective devitalization of teeth are frequent methods used for restoration. However, if patients have periodontal disease, crown-lengthening procedures will aggravate any reduction in bony support. A more reliable method is to increase the VDO to provide space for restorative materials, enhance the aesthetic tooth display, rectify anterior teeth relationships, and minimize the need for biologically invasive clinical surgery and elective endodontic treatments.[4-7]

Fixed appliances are more reliable and comfortable for the patient[8]. This report describes a case of multiple tooth loss in the both arches.

► Case report

A 37-year-old woman was referred to the Department of Prosthodontics, Sree Mookambika Institute of Dental Science, with chief complaints of poor chewing function and poor esthetic appearance (Fig. 1). The medical history was non-contributory, and anill-fitting acrylic fixed partial denture in the maxillary anterior was present with 21 and 13 as abutments done by a local dental clinic 4–5 years previously. Patient had also lost multiple mandibular teeth a long time before the upper prosthesis was fabricated. Thus, during these 4–5 years, the patient could only perform the chewing function. Occlusal analysis revealed a deep overbite and large overjet of 5 and 6 mm, respectively. Ondetailed examination it was found that the vertical dimension of the patient was deficient considering patients occlusion, speech and condylar position. Long-term loss of the posterior and anterior teeth on both arches has led to an uneven occlusal plane. Rehabilitation of the chewing function and acceptable aesthetics were the major treatment goals. Nevertheless, it was difficult to develop a treatment plan that met the patient's expectations, given the restricted restorative space available.

So we planned for a bite raising removable partial denture as a treatment prosthesis which will replace the missing tooth as well as increase the vertical dimension.

Maxillary and mandibular impressions were made using alginate material and

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facebow transfer was also done (Fig 2) and the cast were articulated on the Hanau wide vue semi adjustable articulator.

Centric and protrusive bite records were also taken and horizontal condylar angle as well as lateral angles (Hanau Formula) were found out using these records. The vertical dimension was increased by 4mm using the graduated incisal pin in the semi adjustable articulator. A removable partial denture was fabricated on this vertical dimension and the horizontal condylar angle was so adjusted that the prosthesis will be in complete harmony with the stomatognathic system.

Patient was given the removable partial denture and was recalled weekly for review and minor adjustments.(Fig 3) After 3 months the vertical dimension was restored and patient was now adapted to the new vertical dimension.

Fig. 1 Preoperative

Fig 2 Facebow transfer

Fig 3 Bite Raising RPD

Fig 4 Articulation done

Fig 5 Upper arch preparation

Fig 6 Impression

Fig 7 Provisional restoration

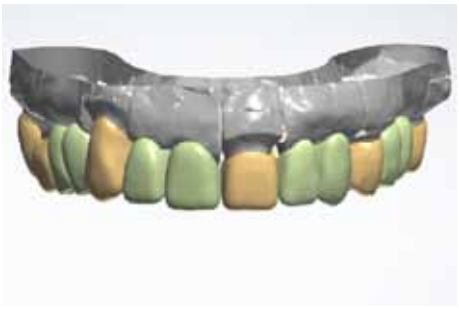

Fig 8 CAD image 1

Fig 9 CAD image 2

Fig 10 Bisque trial

Fig 11 Mandibular Prosthesis

Fig 12 POST operative

Now impressions of upper and lower arches were taken with the removable partial denture in the mouth using alginate impression material and again a facebow transfer was done. The cast were then articulated on to the Hanau wide vue semi-adjustable articulator (Fig 4) and a mock tooth preparation was done with all the necessary plane corrections and finally a temporary restoration was fabricated. Tooth preparations were done on the abutment tooth (Fig 5) and impression was taken using silicone impression material (Fig 6).Centric inter occlusal record was also taken and the temporary restoration was cemented. (Fig 7)

On the master cast the new occlusal pattern was generated with the help of Computer Aided Designing (CAD) (Fig 8 and 9).

The metal frame work of the maxillary fixed partial denture was fabricated using Direct Metal Laser Sintering method and was tried in the patient's mouth followed by bisque trial (Fig 10).

The finished maxillary prosthesis was cemented. The tooth preparation of the abutment tooth in the mandibular arch was done and impression was taken using silicone impression material. Centric bite record was taken.

Now mandibular fixed denture prosthesis with an occlusal scheme corresponding to the computer generated maxillary arch was fabricated using CAD-CAM technique. (Fig 11)

Discussion

Generally, the VDO is constant and does not change throughout an individual's life.[1,2,9] There are several reported procedures for determination of the VDO, and one commonly employed method is measurement of the freeway space when the mandible is at rest. Niswonger[10] reported that the freeway space was 4/32" (3 mm) in 87% of patients; the remaining 13% varied from 1/32" to 11/32". Niswonger concluded that as the teeth slowly wear down, the body adapts by making necessary changes in bone and soft tissue to maintain the space. Thompson[11] pointed out the stability of the rest position in normal dentition, but that it may be greater than 10 mm in abnormal dentition patients. However, Atwood[12] considered that each physiologic process has a range of variability. Thus, it may be true that the inter occlusal distance is very often 2-3 mm, but there is a range of variation from one patient to another, and even in the same patient from one time to another. The loss of teeth or wear are potential factors for changes the dynamic nature of the stomatognathic system.[5] In this case, we increased the VDO to approximately 4 mm, to meet the restorative material's space requirements. There are no clear objective guidelines to optimizing the VDO to maximize the space available, and that is physiologically acceptable to a patient. According to a systematic review investigating the implications of increasing the VDO, a permanent increase in the vertical dimension from 1 to 5 mm is a safe and reliable procedure, and the associated signs and symptoms are self-limiting with a tendency to resolve within 2 weeks. 13 Although it may have been safe to increase the VDO by as much as 5 mm, in this study, we performed the work carefully, delivering the occlusal bite splint before commencing restorative treatment, and observing for 3 month to confirm adaptation by the patient. The main highlight was the occlusal pattern generated by the computer which was in total harmony with the stomatognathic system.

This case report describes a full-mouth rehabilitation in a restricted inter occlusal space and early loss of posterior mandibular teeth. We used a removable partial denture to temporarily increase the VDO and observe the patient's adaptation before any restorative treatment was begun. This approach provided a safe and conservative route with minimum tooth preparation to meet the patient's requirement. We successfully met the treatment goals of rehabilitation of chewing function and improved smiling appearance. (Fig 12)

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CASE REPORT

Iatrogenic perforation repair with biodentine under dental operating microscope

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Abstract

Perforations are undesirable complications and unfortunate incidents that can occur during root canal therapy and often leads to tooth extraction. Successful treatment depends on immediate sealing of the perforation and prevention of infection. For proper identification and better sealing of perforation magnification is mandatory. The present case reports the successful management of an iatrogenic perforation in a maxillary premolar using biodentine under dental operating microscope.

Key words: iatrogenic perforation, biodentine, perforation repair, dental operating microscope

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Introduction

As with any dental treatment, procedural mishaps can occur during root canal therapy. One such occurrence is iatrogenic perforation.

Root perforation is an artificial communication between the root canal system to the supporting tissues of the teeth or to the oral cavity[1]. The frequency of root perforation has been reported in 2-12% of endodontically treated teeth[2,3-7] and studies have reported that perforation lowers the prognosis of endodontic treatment to 54-56%[8,9]. Malalignedrotary burs during access preparation, attempt to negotiate calcified or curved canals, lateral extension of the canal preparation as well as inappropriate post space preparation can lead to iatrogenic perforation.

Prognosis of perforation repair depends on immediacy of treatment, size and location of perforation. Perforations that are small, coronal to crestal bone and repaired immediately have best prognosis.

Successful management of root perforation depends on early diagnosis of the defect, choice of treatment and materials, host response and experience of the practitioner[10].

The use of dental operating microscope and loupes improves magnification and illumination. This allows accurate localization and precise sealing of the perforation site.

Various materials have been used as root repair material. Among them MTA is widely preferred. A newer material, Biodentine overcomes some of the shortcomings of MTA such as difficult handling, long setting time and potential discolouration.

Case report

A healthy 42 year old male patient with nomedical complications was reported to the department of conservative dentistry &endodontics, with chief complaint of mild pain in relation to upper right back tooth region. History revealed previous attempt of endodontic treatment in a private dental clinic 2 days before. Clinical examination revealed attempted access opening in relation to maxillary right first premolar. The tooth was nontender to pressure and there was mild tenderness on percussion, and there were no significant probing depths. Radiographic examination revealed attempted endodontic entry into maxillary right first premolar with an iatrogenic perforation suspected 2mm below alveolar crest on the mesial aspect of the tooth (Fig 2.2).

The possible treatment options of orthograde perforation repair or extraction with replacement were discussed with the patient. In accordance with patient preference, the option of saving tooth with perforation repair using biodentine was chosen.

After administration of the local anesthetic (2% Lignocaine with 1:100,000 epinephrine), tooth was isolated and access reentered. Access was modified and canal orifices located under dental operating microscope (Fig 1.1). A perforation of size 3mm diameter was located on the mesial aspect of pulpal floor (Fig 1.2).

Once canals were negotiated, working length was determined using

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apex locator (Root Zx Mini, J. Morita). The canals were cleaned and shaped upto iso size 20 k file with chlorhexidine 0.2% as irrigant. Haemorrhage was controlled and site cleaned with chlorhexidine 0.2%. Then the canals were blocked with guttapercha. Biodentine was mixed according to manufacturer's instructions and placed with the help of amalgam carrier. It was then gently pressed with moist cotton pellet to adapt it to the site (Fig 1.4). Moist cotton pellet was placed in the access cavity and the tooth was temporized.

After 24 hours, cleaning and shaping was completed using sodium hypochlorite as irrigant followed by obturation (Fig 1.6, 1.7, 2.4). Patient reported after one month and three months for review,and was completely asymptomatic (Fig 2.5).

► Discussion

This article presents the diagnostic and treatment challenges of an iatrogenically perforated maxillary right first premolar, successfully treated using biodentine with the aid of dental operating microscope.

As stated earlier occurrence of iatrogenic perforation ranges from 2-12%. When occurred it should be treated immediately because of potential bacterial infection. Moreover consequences such as gingival down growth of epithelium into perforation area,periodontal bone resorption and/or necrosis can make perforation repair difficult and time consuming.

Fig 1.1 Orifices located

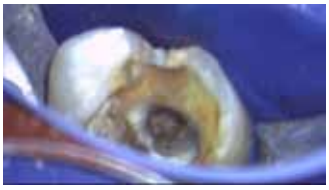

Fig. 1.2. Perforation

Fig. 1.3. Orifices enlarged

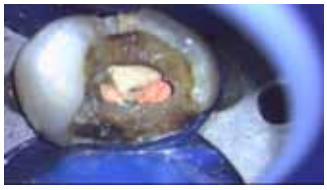

Fig. 1.4. Orifices blocked with GP and perforation repaired using biodentine.

Fig. 1.5. Perforation repaired

Fig. 1.6. Canals cleaned and shaped.

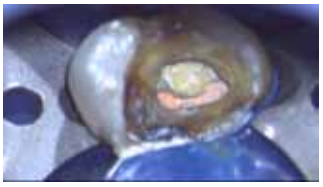

Fig. 1.7. Obturation completed

Fig. 1.8. gic restoration done

Fig 2.1. Preop radiograph

Fig 2.2. k file passing through perforation

Fig 2.3. Mastercone radiograph

Fig 2.4. Post obturation radiograph

Fig 2.5. Three months review

Management of iatrogenic perforation depends on several factors as shown by Fuss and Trope[1]. It includes immediacy of treatment, location, size of perforation and previous microbial contamination. Perforation in the apical and middle third of root have better prognosis than those in cervical third or floor of chamber. Root perforation at the level of alveolar crest exhibit poor prognosis because of microbial contamination and periodontal breakdown.

This procedure is best performed under a dental operating microscope that provides great magnification and illumination[10]. The microscope allows precision in sealing the perforation site.

Among different materials used for perforation repair, MTA has been used most commonly with good treatment outcome due to its biocompatibility, excellent seal even in the presence of moisture or blood. Recently, calcium-silicate based cement 'Biodentine' has gained popularity because of its resemblance to MTA and increased physical properties due to which it is designated as 'Dentin Replacement' material. Favorable features of biodentine include:

1. Faster Setting time

2. No effect of blood contamination on push-out bond strength of material irrespective of setting time.

3. When used as retrograde filling material or groove sealing material in a moist environment,lesser porosity that occurs with biodentine is advantageous.

4. During SEM analysis, biodentine crystals appeared firmly attached to the underlying dentin surface[11].

In a study by Guneser et al. biodentine showed considerable performance as a perforation repair material even after being exposed to various endodontic irrigants as compared to MTA[12]. Also biodentine has better handling property and is more cost effective.

Conclusion

Smart combination of correctly chosen treatment and material and correct diagnosis is the key to successful management of iatrogenic perforation. As a biocompatible, 'dentin replacement' material with better handling properties 'biodentine' may be effectively used for iatrogenic perforation.

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OBITUARY

With profound grief IDA, Kerala State inform the demise of **Dr. N.T. PILLAI,** F/o Dr. T. Mukesh . He was former Kerala Dental Council member and Founder Member of IDA Trivandrum Branch. We all pray for the departed soul

Dr Bindu V Das (39)
11.10.1975 - 09.03.2017
W/o Dr Civy V Pulayath
IDA Tripunithura Branch
Punchiri Dental Clinic
Thiruvaniyoor
KVG Sullia 1995 Batch

Single denture duplication

*Rubina Mathew Stephen, **Sudeep S., ***Dinesh N., ***Sapna Bhaskaran

Abstract

Complete denture treatment for elderly patient is difficult and the traditional methods require number of visits. Few of them finds it difficult to adapt to the new prosthesis or may have decreased neuromuscular skills. When a patient has been satisfied with his or her existing dentures but requests or requires new dentures, such scenarios can be appropriately met with denture duplication. This case report describes the clinical and laboratory procedures for duplicating a existing mandibular denture.

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Introduction

Fabrication of complete dentures is indeed time consuming and technique sensitive. It requires a lot of patience on the part of the dentists as well as the patient for a successful prosthesis. After denture insertion, transitory problems do occur, creating a challenge to the patient to adapt to these difficulties[1,6]. However after this transitory period, the patients acquire a neuromuscular control that compensates eventual deficiencies of the prosthesis and maintain long-term functional balance and comfort. When a patient has been satisfied with his or her existing dentures but requests or requires new dentures, such scenarios can be appropriately met with denture duplication or denture copying.[2,4] The dentures so obtained are called copy dentures,template dentures or replica dentures[4]. Factors that need to be kept constant are the vertical dimension and occlusal status. If most other aspects such as arch form, jaw relations, and stability are acceptable, then the duplication technique is ideal[2,5]. Any changes planned should be minimal, and this procedure should not be used to correct large deficiencies in arch form or vertical dimension greater than about 3 mm. In other words, in the case of such patients appropriate technology can be considered.[2]

Case report

A 72 yrs old female patient reported to the department of prosthodontics with the chief complaint of fractured tooth in the mandibular complete denture. She has been a denture wearer since 10 years and has been wearing the current denture since 2 years (fig 1a and b).She had lost her fractured maxillary denture 6 months back and since then has been using only the madibular dentures. Intra oral examination revealed a Class II ridge relationship and an atropic mandibular ridge. Patient was so accustomed to the existing mandibular dentures, that she demanded a similar balance and stability, otherwise was reluctant to refabricate her mandibular denture. The mandibular denture teeth were attrited minimally.

Treatment plan

The patient was finally convinced to fabricate a new maxillary denture and duplicate the exiting mandibular denture for attaining similar comfort and balance as the previous mandibular denture. However it did not really have an advantage of decreased clinical visits as the maxillary denture had to be re-frabicated.

Procedure

1. Primary impression was recorded for the maxillary arch with impression compound and secondary impression was made with light bodied elastomeric impression material in the patient's existing denture. (Fig 2)
2. After border molding of the maxillary arch, secondary impression was recorded using light bodied elastomeric impression material. Beading and boxing was carried out and maxillary master cast was obtained.
3. Dentulous tray slightly larger than the existing mandibular denture was selected. It was filled with heavy bodied elastomeric impression material, into with the denture with secondary impression was pressed. The borders of impression material was trimmed flat and indices or location grooves were marked. (Fig 3a)
4. Beading and boxing was done (Fig 3a) and Type IV dental stone was poured to get the master cast.
5. Master cast and the impression was then carefully separated. The cast could be reunited to the impression with the help of the location grooves.
6. Temporary denture base was fabricated on the mandibular master cast.

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7. The posterior portion of the impression was cut open for wax to flow in, in order to replicate the polished and occlusal surfaces of the denture.
8. Medium hard wax was melted and poured through this opening while the master cast was still in the impression as shown in the figure 3b.
9. After assuring that the wax has hardened enough, master cast and impression were carefully separated. A replica of the patient's old denture was obtained in wax (Fig 4).
10. Jaw relation was recorded using maxillary rim and mandibular wax trial base. The lost vertical dimension was restored.
11. The recorded jaw relation was transferred onto a three point articulator.
12. Teeth arrangement was done by setting teeth alternately,to help maintain arch form and tooth position of the mandibular wax trial denture. Maxillary teeth was arranged according to mandibular teeth arrangement. The impression was placed onto the impression to see if an absolute likeness of the old dentures is obtained.
13. The trial dentures were tried in the patient's mouth using conventional clinical techniques (Fig 5a). After the trial is satisfactory to the patient and the doctor, they were immediately flasked.

Following this dewaxing, acrylization, finishing and polishing were carried out one after the other in the conventional manner.

14. The dentures were inserted (Fig 5b). Post insertion instructions were given. Recall appointments were scheduled at 24 hrs, 1 week, 3 weeks and every six months. At the recall appointment, mandibular denture was observed to have had good stability. Patient was extremely satisfied with the new dentures. As for the mandibular denture, she felt like having the old one itself.

Fig 1(a) Front view (b) Profile view

Fig 2: Primary and secondary impressions

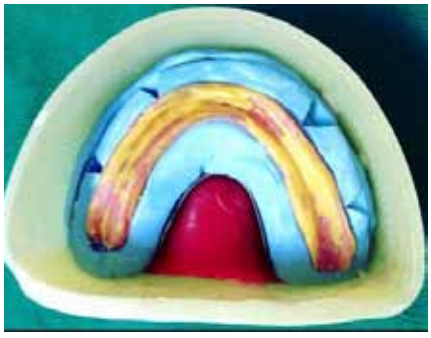

Fig 3 (a and b) Duplication of denture using tray technique

Fig 4: Duplicated denture in wax

Fig 5 (a) : Wax Trial (b) Inserted Prosthesis

Fig 6 (a and b) Post-Operative view (c) Old and duplicated denture

Discussion

In dentulous individuals the pattern of mastication is automatic and is performed on a subconscious level. By contrast, the complete denture wearer must, at least in the beginning, focus all his efforts on the motoric phase of mastication. He has to consciously coordinate the masticatory movements of the mandible with those of the cheeks, lips, and tongue to keep the dentures in place. Therefore, duplication of dentures is indeed a good choice of treatment in such patients.

This case offers distinct advantages like:

- The familiar features of previously successful dentures are retained.
- The technique is particularly suited for treatment of elderly patients as they will have better adaptability to the new prosthesis.

The main disadvantage was however the risk that was involved in attaining the lost vertical dimension. If the discrepancy was more than 3mm, then this technique would have been a failure.

Van Waas has reported that 25% of denture wearers have severe problems with their dentures[4]. Retention and stability is a challenging factor in case of mandibular dentures more than the maxillary, mainly because of the reduced surface area of the residual alveolar ridge and the constant movement of the muscles and soft tissues involved in the involuntary actions like swallowing, mastication and speech.[3,7] Resorbed mandibular ridges makes the situation more critical. Therefore, patients find it very difficult to adapt to this initially. However, some patients may take a little longer. Once the patient has attained neuromuscular skills, he or she can use the dentures successfully,which will not happen otherwise. Hence, techniques that can mimic or replicate the surfaces of the denture to which the patient has already attained nueromuscular adaptation will make the task easier. Patients will then find denture wearing more simplified and comfortable. They don't have to go through the struggles they had gone through in the adaptive phase of the existing dentures, which would ultimately yield better and satisfactory results.[3,7]

The desirability of copying was recognized by Fenn et al in 1953[4]. Many case reports has described the benefits of the copy dentures and the technique of using denture flask method is advocated for duplicating existing dentures[4]. This techniques of obtaining replica dentures from the moulds of existing denture obtained in laboratory alginate or laboratory silicone as a duplicating material in copy denture flasks was described by Basker, Davenport and Ghani[7]. The different techniques for denture duplication are the modified denture flask method, duplicating flask method, pour resin flask method, cup flask method, soap container method and agar container method. The recently introduced method is the tray technique, mainly due to the unavailability of copy denture flasks[2].

C. Peter Owen in 2006 brought forth a new philosophical concept of "appropriatech" in relation to denture duplication. He mainly foccuses on using cost-effective materials and methods without sacrificing any of the accepted prosthodontic principles. He also stated that the technique of denture fabrication used in the present case can be used in a variety of circumstances[2]. Hence this method of fabrication of new dentures should no longer be in doubt, as the first line of treatment in appropriate clinical situations.

Conclusion

Here the situation seemed to be a little far from the usual clinical scenario, but definitely the adoption of duplication in this case had a good patient satisfaction, which is however the ultimate goal of every dentist.

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CASE REPORT

Bimaxillary protrusion treated with orthodontic mini-implant assisted en-masse retraction

*Sumi Thampi, **S. Babukuttan Pillai. ***Koshi Philip, ****Prasanth S P

Abstract

Most common treatment approach for bimaxillary protrusion is extraction of four first premolars followed by retraction of anterior teeth using maximum anchorage mechanics. Anchorage reinforcement is very critical for the treatment of bimaxillary dentoalveolar protrusion. Mini-implants can be effectively used in such cases. This case report describes the treatment of a female patient with bimaxillary protrusion using mini-implants.

Key Words: bimaxillary protrusion; mini-implants; retraction

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► Introduction

Bimaxillary dentoalveolar protrusion is a common malocclusion in south Indian populations. Most of the patients with bimaxillary protrusion seek orthodontic treatment in order to reduce the procumbency caused by the protrusive teeth and lips. The etiology of bimaxillary dentoalveolar protrusion is multifactorial and consists of genetic as well as environmental factors[1]. The morphological features of bimaxillary protrusion in Caucasian population was studied by Keating[2] in 1985. He observed that bimaxillary protrusion was associated with a shorter posterior cranial base, a longer and more prognathic maxilla, and a mild Class II skeletal pattern. He also found that Caucasians with this condition displayed a smaller upper and posterior face height, diverging facial planes, and a procumbent soft tissue profile with a low lip line.

Most common treatment approach for patients with bimaxillary dentoalveolar protrusion is to extract four first premolars and then retract the anterior teeth using maximum anchorage mechanics[3,4]. Kim et al[5] reported that there is an anchorage loss of about 3.6–3.8 mm with conventional orthodontic treatment. Mini-implants (TAD) can be effectively used in such situations as anchorage reinforcement. This case report describes extraction space closure using TAD's in a patient with bimaxillary dentoalveolar protrusion.

► Case presentation

A 15-year-old postpubertal female patient presented with a chief complaint of forwardly placed upper and lower front teeth and missing upper right corner tooth. Family history revealed that her younger brother has got similar kind of malocclusion. There was no history of dental trauma or oral habits. The patient had good oral hygiene and her medical history showed no contraindication to orthodontic treatment.

► Diagnosis

The patient presented an apparently symmetrical face and a convex profile with slight increase in the lower anterior facial height. She had an acute nasolabial angle, thick, fleshy and everted upper and lower lips, a deep mentolabial sulcus, and excessive lip strain on closure (Fig 1). Intra oral examination revealed a Class I malocclusion with severe dentoalveolar protrusion,over-retained upper right deciduous canine and impacted maxillary right permanent canine which was clinically palpable. She showed an overjet of 2 mm and overbite of 2 mm and her upper dental midline was shifted to right by 1mm (Fig 2).

The panoramic radiograph (OPG) showed no evidence of bony pathology. It reveals all set of teeth except upper third molars. OPG and occlusal view confirmed that right upper canine was bucally impacted. The lateral cephalometric radiograph showed a Class I bimaxillary dentoalveolar protrusion on a class I skeletal base with an average growth pattern (Table 1).

► Treatment objectives

- Alignment of maxillary and mandibular teeth in proper line of occlusion
- Bringing the upper right impacted canine in arch (surgical canine exposure and traction)
- Correction of proclination and protrusion of upper and lower anteriors with the help of TAD and lingual arch respectively.
- Attaining adequate overjet and overbite.

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► Treatment progress

An 0.022" slot MBT prescription Preadjusted Edgewise Appliance (Ortho Organizer) was used. One week after extraction of all first premolars, bands were placed on all first molars while remaining teeth were bonded with light cure adhesive (TransBondXT). Initial alignment and levelling was accomplished with .016-in nickel-titanium archwires. The archwires were cinched to avoid proclining the maxillary and mandibular incisors during levelling. After the first stage of comprehensive therapy, surgical exposure of impacted upper right canine was done. Following which traction of canine started using 0.014" NiTi as piggy back over 0.018" stainless steel pulse straightened upper wire (Fig 3).

One micro implant on each side was inserted into the attached gingiva between maxillary second premolars and maxillary first molars, at a height of about 6–8 mm from the main archwire in order to reinforce the anchorage. A lingual arch was placed in the mandibular arch. Following which 0.019x0.025" Stainless steel upper and lower coordinated archwires with crimpable hooks were placed for en masse space closure. NiTi coil spring was used to retract the maxillary and mandibular teeth with force of about 150–200 g on each side (Fig 4). The space closure mechanics lasted for 7 months.

After complete space closure, second molars were banded and 0.016x0.022" upper and lower NiTi archwires were placed followed by 0.019×0.025" coordinated upper and lower stainless steel archwires. Finishing was achieved with 0.021"×0.025" TMA archwires. Upper and lower 0.018" stainless steel archwires were placed and settling elastics were given to seat the occlusion. The appliance was debonded and upper bonded lingual retainer and lower Begg retainer was placed. The patient was instructed to wear the retainers full time for 9 months, half time for 15 months, then once per week at night indefinitely.

► Treatment results

The change in the patient's facial esthetics was the most dramatic part of the treatment. With extraction of the first premolars, significant retraction of her upper and lower lips was achieved (Fig 5 and 6). Her lip eversion and dentoalveolar protrusion were improved. Post treatment intraoral photographs, study models, and lateral cephalogram confirmed the above results (Table 1). The panoramic radiograph showed adequate root parallelism in both the arch.

► Discussion

Bimaxillary protrusion is a condition characterized by protrusive and proclined upper and lower anteriors and an increased procumbency of the lips and the treatment of which usually requires extraction of four first premolars.

Fig 1. Pretreatment facial photographs

Fig 2. Pretreatment intraoral photographs

Fig 3. Traction of canine using 0.014" NiTi as piggy back over 0.018" SS

Fig 4. Space closure using TAD in the upper arch

Fig 5. Post treatment facial photographs

Fig 6. Post treatment intraoral photographs

Closure of the extraction sites can occur by retraction of the anterior segments, protraction of the posterior segments, or a combination of the two[6]. When it is indicated to prevent mesial movement of the posterior segments in the anteroposterior dimension, it is termed maximum anchorage. To augment anchorage, adjunctive appliances, such as a transpalatal bar, a Nance palatal arch, head gear, or palatal implants, are usually necessary. Renfroe[7] stated that, to be stable, the anchorage unit must be overwhelmingly more resistant than the teeth being moved. TAD's can provide infinite anchorage that has been defined in terms of implants as showing no movement as a consequence of reaction forces[8]. The reactionary forces are applied to cortical skeleton and are distributed and dissipated there.

Table 1. Pre and Post treatment cephalometric values.

Measurement	Steiner Ref Norm	Kerala Norm	Pre Trt.	Post Trt.
SNA	820	84.140	90^0	89^0
SNB	800	81.850	86^0	86.5^0
ANB	20	2.270	4^0	3.5^0
SND	760	79.360	81.5^0	81.5^0
1 to NA	220	27.44^0	36^0	27^0
1 to NA	4 mm	7.46 mm	9 mm	3.5mm
1 to NB	250	30.750	40^0	28^0
1 to NB	4 mm	7.5 mm	10mm	5.5mm
1 to 1	1310	119.690	103^0	125^0
Occl to SN	140	11.790	9.5^0	9.5^0
GoGn to SN	320	27.910	27^0	28^0
FMA	250		28^0	28^0
IMPA	90±50		103^0	90^0
WITS appraisal	0/1 mm		1 mm	0mm
Ant. Face ht.			121 mm	117mm
Post Face ht.			83mm	78mm
E plane	L/Lip -2 to 0 mm		8mm	4mm

Biomechanical variations with force application are significant when comparing conventional and mini-implant orthodontics. To reinforce posterior anchorage units and counteract the reactive mesial tipping of molars, a reverse curve of Spee or a compensating curve is incorporated in the archwire in conventional retraction mechanics. In contrast, when the retraction force is provided by the miniscrews, as the line of force is below the centre of resistance of anterior segment there is a tendency towards clockwise rotation of occlusal plane. This can lead to either distal tipping or intrusion of posterior segments causing a posterior open bite[9]. A reverse curve of Spee or compensating curve can exacerbate this side effects. For counteracting all these side effects, in this case a palatal root torque is given in the anterior segment of the archwire for simultaneous retraction and intrusion.

► Conclusion

Temporary anchorage device (TAD'S) assisted treatment mechanics has opened several therapeutic possibilities that until recently were considered impossible without the use of orthognathic surgical procedures.

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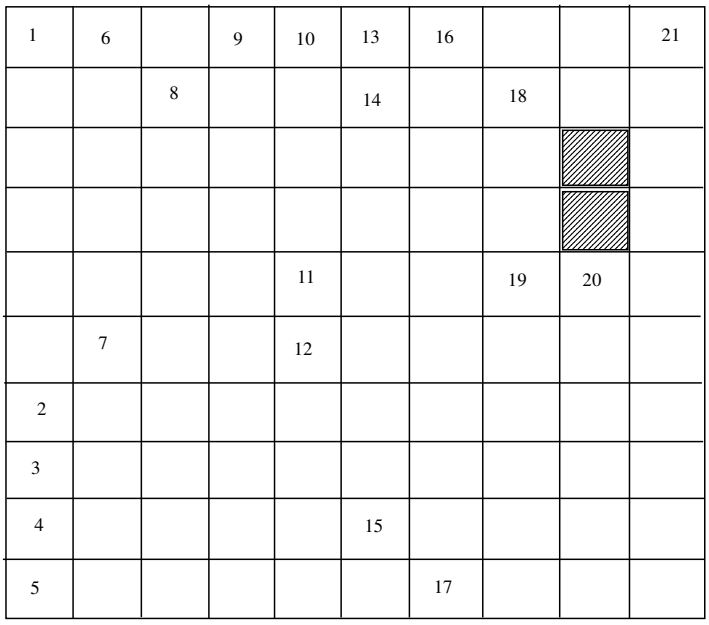
Dr. Nirmal George Saibu

ACROSS

1. Complication of replanted avulsed tooth – (Dr. Gopu H Lal Govt Hospital Kodungallur) (10 Letters)
2. For immediate implant placement the tooth is atraumatically extracted using which instrument (Dr. Sangeeth Cherian - Trivandrum) (9 Letters)
3. A sheet of some substance lying upon another, distinguished by a difference in texture, color or not continuous with it (5 Letters)
4. The chief end product of nitrogen metabolism in mammals, excreted in human urine in the amount of about 32 gm a day (4 Letters)
5. What appearance in green stick during border molding shows absence of tissue contact (Dr. Sangeeth Cherian Trivandrum) (6 Letters)
11. White infarcts commonly occurs in..... organ (5 Letters)
14. The fluid and dissolved substance excreted by the kidney (5 Letters)
15. A connective tissue cell that contain coarse, basophilic metachromatic granules and believed to contain heparin and histamine (Dr. Simple Varghese Adoor) (4 Letters)
17. Sharpey's fibres present in ..... (Dr. Simple Varghese, Adoor)(4 Letters)

DOWN

1. A highly fatal infectious disease that is transmitted almost exclusively by the bite of carnivorous animal, may affect all species of warm blood animals and occurs in the CNS and salivary glands - (6 Letters)
2. Any mass filling a hole or closing an orifice - (4 Letters)
6. Dyes with important uses as cytoplasmic and counterstains in histology (5 Letters)
7. Enameloma other wise called enamel ..... (5 Letters)
8. Acrodynia occurs due to poisoning with (7 Letters)
9. An abnormal accumulation of fluid in the body tissues producing swelling (6 Letters)
10. An extension on a partial denture extending over and resting upon the occlusal or other prepared surface of a natural tooth and acting as an indirect retainer (Dr. Laju S Kodungallur) (4 Letters)
12. Minute orifices in human membranes, for transpiration or absorption. (Dr. Simple Varghese Adoor) (5 Letters)
13. Treatment for periapical abscess of primary tooth (Dr. Gopu H Lal Govt. Hospital Kodungalloor.(10 letters)
16. Analgesics of Choice for a patient with renal dysfunction (Dr. Sunil K.A. Changanachery)(8 letters)
18. An atom or group of atom carrying a charge of electricity by virtue having gained or lost one or more valance electron (3 Letters)
19. A part of an irregularly shaped bone which forms an angle with the main body (as the .....of mandible) (5 letter)
20 Care for a patient medically or surgically (5 letter)
21 Operation for the removal of a sequestrum or necrosed portion of bone (9 letter)



General Rules and Regulations for CROSSWORD CHALLENGE

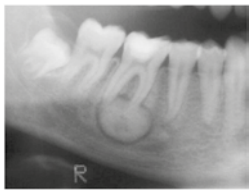
1. IDA Kerala State is the only organisation responsible for this prize puzzle competition
2. Will not consider entries submitted after the closing date and time.
3. The closing date and time for this competition is on the thirty first of march 2017.
4. All contestants should participate individually in the event
5. The competition carries prize for 1st 2nd 3rd place holders only
6. Contestants must mention their name and submit IDA membership number.
7. There will be a unique solution for a crossword will be declared as the winner.
8. In case none of the contestants are able to solve the crossword completely, the contestant with the maximum number of correct answers will be selected as the winner.
9. In the event of a tie, the contestants who have tied for the winner will be selected from them by lot system.
10. Unnecessary overwriting, lack of clarity, incomprehensibility can lead to cancelation ordisqualifying the participant.
11. In case of any divergence regarding any clues or else, decision of the jury panel will be final.
12. Any type of false move/ adopting unfair means by any participant will lead to disqualification of him/her immediately.
13. All entries can send through whatsapp or by mail to editors office
14. The winner of this prize puzzle competition will be decided by the Editor and CDE chairman
15. The decision, or decisions, of the Editorand CDE chairman in all and every matters, pertaining to this prize puzzle competition, are, final.

Completed Crossword send to the following address: **The Editor, KDJ, Neelambikam, Attukal, Trivandrum - 695 009, editorkdj@gmail.com, 9447066100**

* Jayanthi, ** Varun B.R.

1. Fusion of cementum between adjacent teeth without confluence of dentin is
   a. Hypercementosis
   b. Taurodontism
   c. Concrescence
   d. Gemination

2. A well defined radio opaque lesion fused to the root of mandibular molar is suggestive of
   a. Osteoblastoma
   b. Cementoblastoma
   c. Osteoid osteoma
   d. Condensing osteitis



3. A radiolucent lesion seen on the lateral aspect of root in a non vital tooth is most probably
   a. Lateral periodontal cyst
   b. Radicular cyst
   c. Dentigerous cyst
   d. Odontogenic keratocyst

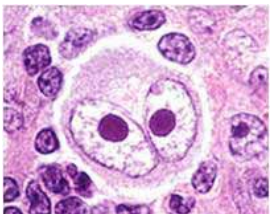
4. In which of the following mucocutaneous diseases, indirect immunofluroscence shows absence of circulating autoantibodies?
   a. Lichen Planus
   b. Pemphigus vulgaris
   c. Pemphigus vegetans
   d. Pemphigoid

5. Hypoplastic mandible and zygoma with a characteristic bird like facies is seen in which of the following syndromes?
   a. Pierre-Robin syndrome
   b. Parry-Romberg syndrome
   c. Treacher-Collin syndrome
   d. Down's syndrome

6. Which of the following vitamin deficiencies can produce gingival swelling, gingival hemorrhage and tooth mobility?
   a. Vitamin B6
   b. Vitamin K
   c. Vitamin A
   d. Vitamin C

7. Diffuse brown pigmentation of oral mucosa may occur due to
   a. Deficiency of adrenocortical hormones
   b. Excess of adrenocortical hormones
   c. Deficiency of thyroid hormones
   d. Excess of thyroid hormones

8. "Reed-Sternberg cell" with owl's eye appearance is characteristic histopathological appearance of
   a. Burkitt's lymphoma
   b. Hodgkin's lymphoma
   c. Non-Hodgkin's lymphoma
   d. T cell leukemia



9. Torus mandibularis is most commonly seen in
   a. Incisor region
   b. Canine region
   c. Premolar region
   d. Molar region

10. Opalescent dentin is a feature of which of the following bone diseases?
    a. Dentinogenesis imperfecta
    b. Osteogenesis imperfecta
    c. Ectodermal dysplasia
    d. Achondroplasia

Answers:
1. c, 2. b, 3. b, 4. a, 5. c, 6. d, 7. a, 8. b, 9. c, 10. b

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Association News

CDE Report

Dr Anil Thunoli
Chairman CDE

Dear Colleagues,

As we finish first four months of this working year, we are proud that we could conduct 4 CDE programs conducted by state CDE wing and 57 CDE programs conducted by local branches. Also happy to say that the idea of conducting state CDE programs incorporating nearby branches of a zone is really appreciated by many. It not only helps to increase the number of participation in the programs but also boost the harmonious relationship among the neighbouring branch members. The state CDE wing is thankful to Ernad, Coastal Malabar, Central Kerala Kottayam and Quilon branches for their effort taken to make necessary arrangements for CDE programs conducted in their zones.

The first State CDE was conducted on 5th March at Hotel Hi-ton Perinthalmanna on the topic Infection control & Sterilization in dental clinic And Medical Negligence in Dental Practise by Dr George Scaria P. The CDE was hosted jointly by IDA Ernad, Palakkad and Valluvanadu branches.

The second state CDE was conducted on 9th April at Hotel Raj Residency, Kanhangad on the topic Fine Tuning of Fixed Prosthodontics. Dr. Mathai K Joseph, Dr Umesh Pai and Dr Faris Mohammed Shafi were the faculties. This CDE was hosted jointly by IDA Coastal Malabar and Kassargod branches.

The third state CDE was conducted on 30th April at Hotel Arcadia, Kottayam on the topic Predictable Endodontics by Dr Jayasree Hegde Anil. This CDE was jointly hosted by IDA Central Kerala Kottayam, Green Valley, Kottayam and Malanad branches.

The fourth CDE was conducted on May 14th at Hotel Sea Palace, Kollam on the topic Composite Resin Perfectly Misunderstood by Dr Yohan Chako. This was hosted by IDA Quilon and Karunagapalli branches jointly.

We are proud to announce that IDA Kerala State will be a hosting a FDI-IDA CDE programme on November 11th and 12th at Cochin with a host of International and National Level Speakers. We request all the branches to actively participate and make it a success. The comprehensive course on basic clinical implantology will be launched soon. The details of the same will be send shortly.

Dear friends once again I am requesting you all to continue the support extended to state and local branch CDE wing thus far.

Thanking You

Your's in IDA

Dr. Anil Thunoli

CDH Report

Dr. Rajesh V.
Chairman CDH

Report from CDH Chairman

As the CDH Chairman I am very much satisfied with the way the CDH activities of the branches as well as the state have been conducted so far. It is really heartening to see the branches competing with one another to bring out a variety of innovative programmes.

As per the decision of the second state executive committee meeting, the state level day observations are limited to only six programmes this year i.e. Dentist Day (6th March), Oral Health Day (20th March), No Tobacco Day (31st May), Oral Hygiene Day(1st August), Oral Cancer Awareness Day (16th September) and National Dentist Day (24th December). Dentist Day and Oral Heath Day have already been conducted in an excellent manner and I congratulate the presidents, secretaries and members of the host branches, IDA Alappuzha and IDA Nedumbassery respectively. Alappuzha branch had conducted a week long programmes as part of their branch level observation of Dentist day and I was invited for the inauguration ceremony which was held at Alappuzha beach. It was a different kind of function with painting exhibition and dental awareness programmes attracting great public attention. State level Oral Health Day observation was held at Sri Sankara College campus at Kaladi with innovative activities.

No Tobacco Day is allotted to IDA Trivandrum branch and they are planning a unique programme in association with Indian Railways. It seems that great surprises are awaiting in the wings. We all have great expectations regarding this programme.

As I mentioned earlier, branches have conducted numerous programmes and I have received tri-monthly reports from IDA Quilon, Kochi, Vatakara, Central Kerala Kottayam, Coastal Malabar, Eranadu, Kunnamkulam, Palakkadu, Alapuzha, Pathanamthitta and Trivandum branches.. I could attend the Women's Day Observation of IDA Kunnamkulam branch which was organized in association with IMA Kunnamkulam branch and Cochin Cancer Centre. They conducted a free breast cancer screening and a dental health awareness class on 6th March at Taluk Hospital Kunnamkulam. It was a well organized programme and the hospitality they extended was overwhelming. I had also attended the inauguration of the tribal project of IDA Pathanamthitta branch- 'Punyam 2017' at the tribal colony of Kattathippara in Pathanamthitta district. It was a great experience to visit the tribes and to share some time with the people who always prefer to stay away from the modern civilization.

As we reach the fag end the of the first half of the IDA year with such notable performance and commitment from the CDH conveners of all the local branches, I am keeping my fingers crossed and hope the second half of the year will be even more fruitful.

Dr Rajesh V.

IDA Hope Report

Dr. Joseph C.C.
Hon. Secretary

IDA HOPE – IDA HOPE MEDI UPDATE.

IDA Hope renewal is going on in full swing, Thanks to all HOPE representatives who have managed to only get renewal for existing members but also get 48 new membership .

IDA Hope Medi also has been a good blessing for its subscribers, Rs 72 lakhs claimed 188 cases .with four more months to go before next renewal.

IDA HOPE framework was tweaked keeping in mind changes required for betterment of the scheme.

An EOGM held on 20/4/2017 Hotel Maharani Calicut and following changes were made

1. PROFESSIONAL INDEMNITY increased from 2 lakhs to 4 lakhs.

For claims of more than the 2 Lakhs there will be a co-sharing of 25% of the amount by the member. As of now Orthodontic Aligners have been excluded from this cover.

2. SOCIAL SECURITY SCHEME: The Fraternity benefit given to a members family will be paid upto the age 70 and has been made dynamic, with the payment calculated as Rs.400/- X Number of Members (M) on that date when the death occurs.

As of today the amount will be Rs. 400 X 2588 Members = 10.35 Lakhs. For every Rs 500 collected per death Rs.100 will be allocated to the Corpus Fund.

3. PLATINUM BENEFIT SCHEME

At the age of 70, a HOPE member is converted to a Platinum Member who ceases to be eligible for SSS but will be paid a Survival Benefit of Rs 3 Lakhs which is to be paid in instalments of Rs 60000/- annually for 5 years. In the event of the demise of a Platinum Member during this period his family will be paid the remainder of his Survival Benefit as a lump sum amount.

A Platinum Member is eligible for Hope Medi and PPS except Fraternity Death Benefit. Platinum Members only needs to pay a Hope Renewal amount of Rs.500/- year thereafter.

The age at 70 is calculated as of April 1st of every year and the First instalment of Survival benefit will be paid on September 30th of every year commencing from April/Sept 2018. The member is eligible for the Fraternity benefit till September 30th.

4. SUBSCRIPTION CHANGES in view of the increasing number of legal cases and to facilitate the Platinum Benefit scheme with minimum effect on the Corpus Fund the following changes have been effected.

Members contribution increased by Rs 200/- only for Founder Members to make the amount uniform while retaining the existing provision of inclusion of 2 Fraternity payments for Founder Members.

A contribution of Rs.800 from all members annually for facilitating payments under the Benefit Scheme by each member above the age of 30.

These were the main decisions taken while a separate facility to provide increased indemnity cover under a group professional indemnity policy on the similar lines of HOPEMEDI is to be explored.

Sports Report

Dr.Dinesh Nambiar
Sports Chairman
IDA Kerala State

The 2nd IDA 7's Football Tournament was conducted at Alunkal Mini Floodlight Stadium Chelari near Calicut hosted by IDA Ernad. It was a wonderfully organised tournament and hats off to the host branch especially Dr Sabish. The inauguration of the programme was graced by the presence of the famous international footballer from Kerala I M Vijayan. It was inaugurated by MLA Hamid Maash and Ward Member Mr.Sawad was the guest of honour.

A record 19 teams participated. It was immensely satisfying to see the enthusiasm and the camaraderie among the players. List of teams: Trivandrum, Mavelikara, Alapuzha, Pathanamthitta, Kochi, Thripunithura, Thrissur, Chalakudy, Valluvanad, Ernad, Malappuram, Malabar, Palakkad, Wayanad, Vadakara, North Malabar, Coastal Malabar, CKK, Malabar

Winners : IDA Central Kerala Kottayam.
Cash Prize - Rs.10001
Runners up: IDA Ernad.
Cash Prize - Rs.5001
Best Player: Shaheer Bakker - IDA North Malabar.
Best Goalkeeper: Dr.Fayas - IDA Malabar
Best Defender: Dr.Nafsal Babu.P - IDA Ernad
Highest Goal Scorer: Dr.Fias Ansari - IDA Kottayam

Tellicherry Branch

IDA Tellicherry celebrated international dentist day and family get together program on 5th march at 'ANCHOR RESORT'. On this occasion branch honored our senior most members those who have completed their 35 yrs of clinical practice, Dr. Natarajan, Dr. Haridas, Dr. Rethnakaran, Dr.Aravindan, Dr. Ashok Kumar were among those who were honoured. Various entertainment games and DJ were organized and followed by dinner.

CDH camp was conducted on 19.3.2017 at NIRAM Arts and sports club Panniyannur Chockli. Dr Jithesh, Dr. Shaheen Niyas, Dr. Purushothaman, Dr.Libin Chandra and Dr. Pramith attend the camp and examined over 150 patients. Dr. Shaheen niaz delivered a speech on dental awareness.

Our branch participated in IDA sevens football tournament held at Chelary Alungkal Mini Floodlight Stadium on second April.

Players: Dr.Firose K.M, Dr. Jithesh KK, Dr. Arshad Ali, Dr. Thomas Kutty
Dr. Jibin, Dr. Mithun, Dr.Abhinav, Dr. Shajir KK, Dr. Nabeel
Dr. Libin Chandra, Dr. Kabeer, Dr. Jamsheer
Team Officials: Dr. Purushothaman

IDA Tellicherry branch conducted CDE on Basic Life Support and Medical Emergencies on 23rd April at Parco residency Thalassery. 20 Members attended the program. Session included hands on over dummy models along with theory. Programe was organized in collaboration with Department of emergency medicine MIMS.

Central Kerala Kottayam Branch

On the month of March 2017 IDA- Central Kerala Kottayam conducted 4 treatment camps benefitting 153 patients and 10 Oral screening camps benefitting 1208 people. Oral hygiene kits were distributed

6th March 2017 (Dentist's day): On Dentist day three camps where conducted at various places of kottayam district

1. Dental treatment camp was conducted at Maryasadanam, Pala.

Program started at 9.30 am by lighting the lamp by our senior most member Dr. Babu Ittyavirah and finished by around 12pm. Around 10 dentist participated for the program. 30 inmates where given treatments and free oral hygiene kits where provided.

2. Oral screening camp was conducted at St. Joseph's L.P. School, Mundakayam. About 450 students benefited from this program.

3. Oral screening camp was conducted at K.P.M Nursery School, Thiruvathukkal.

9th March, 2017: Treatment camp associating with Govt. Dental College, Kottayam was conducted at Pala organized by Kidney Federation of India on the occasion of World Kidney day on 9th March, 2017.

10th March, 2017: Dental treatment camp was conducted at House of Providence (Orphanage for physically and mentally disabled children and adults) associating with Govt. Dental College, Kottayam.

11th March, 2017: Oral screening camp was conducted at Bishop Jacob Memorial Hall, Kottayam, organized by CSI Youth Movement, for differently abled children.

12th March, 2017: Dentist's day celebration that lasted for one week ended with a grand function attended by about 90 dentists. The following dentists were honored with Ponnada who were contributing their time, effort and practice for the welfare of the needy and downtrodden people.

1. Dr. George Antony and Dr. Juno George 2. Dr. Jinu Mohan

3. Dr. Joe Manuel

15th March, 2017: Oral screening camps were conducted at:

1. M.M. L.P. School, Arikad 2. Govt. L.P. School, Thampalakkad:

16th March, 2017 1. Oral Screening camp at St. Joseph's L.P. School, Podimattam. 2. Oral screening camp at St. Joseph's L.P. School, Velichiyani. 3. Oral screening camp at St. Xavier's L.P. School, Vattakkavu 4. Oral Screening camp at Holy Family U.P. School, Inchiyan

20th March, 2017 (World Oral Health Day): Antenatal oral screening camp and awareness class was conducted for out patients of the Department of Gynaecology and Obstetrics, Govt. Medical College, Kottayam.

27th March, 2017: As part of WORLD DOWN SYNDROME DAY, Dental treatment camp was conducted at Providence Home, Aruvikuzhy.

CDE REPORT: First branch CDE programme was held on March 12th 2017 at Hotel Aida, Kottayam by Prof Dr. Prathima Sumal.

IDA- CKK hosted the 3rd state CDE programme by Dr. JAYASHREE HEGDE on PREDICTABLE ENDODONTICS WITH NEW EDM NITI FILES, on April 30th at Hotel Arcadia Kottayam

SPORTS: IDA CKK the defending champions of IDA 7'S FOOTBALL once again bagged the championship at CHELARI on April 2nd by defeating the home branch. Dr. Faiz Ansari of IDA-CKK was awarded the player of the tournament. IDA- CKK retained the ever rolling trophy and won the cash prize of Rs 10000/-

EXECUTIVE MEETING: The 4th executive meeting of IDA-CKK was held on April 20th at Pala.

Thiruvalla Branch

1. The first executive committee meeting was held on Dec 5th, 2016 at Vallamkulam.
2. Dr. Saji Kurian and Dr. Simon George attended President-Secretary seminar.
3. The state Executive committee meeting was attended by Dr. Saji Kurian, Dr. Simon George, Dr. K.N Thomas and Dr. Sumod P Mathew.
4. The second executive committee meeting was held on Feb 20th 2017 at Vallamkulam.
5. Dr. Saji Kurian, Dr. Simon George, Dr. Samuel K Ninan, Dr. Lanu Abraham attended the IDA HOPE management committee meeting held at Lotus Club On March 12th.

CDE PROGRAMME: The First CDE of the branch was held on 26th February 2017 at Govt. Employees Co-operative Bank Jubilee Hall Thiruvalla from 9:30am - 4pm. It was a Mega CDE with three Oral & Maxillofacial surgeons as faculties. They were Prof. Dr. Philip Mathew M.D.S, Prof. Dr. Manoj Kumar Bhaskaran M.D.S, Prof. Dr. M.Ummar M.D.S. The CDE was very informative and clinically oriented. 52 members attended the programme

CDH PROGRAMME: 1. The first CDH Programme was held at Govt. Tribal L.P School Attathodu on February 15th 2017. Oral Hygiene instructions and Dental Examination of the students was conducted. Free Tooth Brush and Paste was distributed to all the students.

2. IDA in Association with Sarva Shiksha Abhiyan conducted a Dental camp in DBHS -Cheriyanad on February 26th 2017. Dr. Sunil Roy Koshy conducted Oral Hygiene awareness class and a brief narration on common Oral Diseases. 40 students attended the camp

3. Third Dental Camp was held in GUPS- Kuttamperoor on February 26th 2017. More than 40 Students attended the camp. A brief description of Common Oral diseases and Oral Hygiene was given by Dr. Sunil Roy Koshy.

4. IDA in association with Red Cross conducted a screening camp at Market Junction, Kavumbhagom, Thiruvalla on Feb 26th.

5. Dental screening camp was conducted at Eminent school Enath on march 4th 2017 by Dr. Saji Kurian. More than 100 students attended the camp.

DENTIST DAY CELEBRATION: Dr. Samuel K. Ninan, Dr. Vineetha Anie George and Dr. Simon George attended the state level Dentist Day Celebration held at Allapuzha. IDA Excellence award were given to Dr. Samuel K. Ninan and Dr. Vineetha Anie George.

BRANCH LEVEL DENTIST DAY CELEBRATION: IDA Thiruvalla Celebrated Dentist Day by visiting one of the old Living Dentist Dr. T.G Daniel at his residence in Parakode. He was honoured with ponnada and a cake was cut on this occasion. We had very lively interaction with him. Dr. Daniel was overwhelmed and thanked all the members for our presence.

Kunnamkualam Branch

1. The installation ceremony of the 2016-17 office bearers of IDA Kunnamkulam under the presidentship of Dr. P.U. Bejoy was presided by IDA Kerala State president Dr. Sabu Kurian and Dr. Varghese Mani was the guest of honour. This was followed by a colourful x mas and new year celebrations by ida family members
2. CDH activities started with the oral cancer screening and awareness camp was conducted by IDA at Mannalamkunnu on 5th February 2017.
3. 1st CDE on practice management by Dr. Binu T Abraham was conducted on 22nd February 2017 at Liwa tower Kunnamkulam.
4. Dentist's day was celebrated in a grand way on 6th march 2017 at Royal Dental College, Chalissery by ida which was attended by more than 250 dentists and dental students with cultural competitions.
5. IDA Kunnamkulam in association with IMA Kunnamkulam, conducted a screening camp for breast cancer in general public which was followed by free mammogram test for 25 screened patients on account of women's day on 8th march 2017. Mammogram was done incoordination with the mobile mammogram unit of Cochin Cancer Society.
6. A screening camp was organized at CMLP School, Karikkad on 17th March 2017
7. A screening camp in association with IMA Kunnamkulam was organized on 24th March 2017 at IMA Hall Kunnamkulam.
8. 2nd CDE on clear aligners by Dr. Tariq Ansari,MDS Orthodontics was held on 23 April 2017 at Sopanam Heritage, Guruvayur.

Quilon Branch

Kerala state conference: Members from Quilon branch attended the kerala state conference "KODACKK" held at Kottayam from 21st to 22nd January 2017.

Branch member Dr Biju Kumar SD was elected as the third Vice President of IDA Kerala State.

IDC 2017: 8 members (Dr Sundaresan, Dr Ciju P Cherian,Dr Biju Kumar SD, Dr Joseph Edward, Dr Sulfikar Ali, Dr Anney George, Dr Shibu Rajagopal and Dr John Shibu) from our branch attended the 70th Indian dental conference held at Mumbai from February 17th to 19th 2017 at Vaashi Mumbai. Quilon branch was awarded the Runner up for the best rural activities in the national level.

ASPIRE 2017: Branch president Dr Nizamudeen, Hon: Secretary Dr Ciju P Cherian, State Vice president Dr Biju Kumar SD attended the president secretary seminar "ASPIRE 2017" at Hotel Udaya suites hosted by IDA Trivandrum branch on February 11th 2017.

CDH : First Programme IDA Quilon branch CDH wing conducted the hepatitis B vaccination program in the costal areas of Eravipuram in association with the primary health center on 03.02.2017.

2nd CDH Program: INTERNATIONAL DENTIST DAY : The dentist day celebrations of the branch was conducted on 6th March 2017 at Yonus Engineering college. An awareness class on oral cancer and preventive measures was done by Dr Nivia M MDS. Oral health awareness class was also conducted by Dr Nizamudeen.

Dentist day state level program: Dr B S Sundaresan and Dr Anney George were nominated as the Excellence award winner of the branch. The awards were received at the State dentist day programme organized by IDA Alappuzha

3rd CDH Programme: CDH wing of IDA Quilon branch, a dental awareness and dental camp for the women inmates of Quilon Social Service Society Kollam near Trinity Lyceum on March 7.

4th CDH Programme: International womens day programme: The CDH wing and Womens Dental Wing of Quilon branch observed the womens day as two programmes.

1) A dental camp and Gyaenecology talk and awareness programme was conducted at SN womens college Kollam for the students of SN college for women on 8th March at 10 am.

Women's Dental Wing Programme: WDC wing of Quilon branch conducted a dental camp in association with the Indian Bank and Meitrina Hospital on International Womens day 8th March at The Indian Bank Auditorium Chinnakkada Kollam. The programme was inaugurated by the worshipful mayor of Kollam Adv Rajendara Babu.

CDE: The first CDE programme of IDA Quilon branch was an elaborate lecture class with power point presentation on " MARKETING YOUR PRACTICE WITHOUT ADVERTISEMENT" by Dr CP John on 25th February 2017 at Lions hall, Quilon.

The second CDE programme of IDA Quilon branch was an elaborate lecture class with a demo on "Peadodontics in a Nut Shell" by Dr Gopu Hareendra lal on 26th March 2017 at Lions hall, Quilon.

ASAP: The third batch theory and clinical postings were conducted well by the branch coordinator Dr John Shibu.

MUKTHI: The 6th Mukthi class - teachers training class on Substance Abuse in Quilon district was conducted by Dr Anney George on 21st February at YMCA.

MEMBERSHIP STATUS : 17 new members were joined to the branch till 31st march 2017. The membership strength reached 185.

Malanadu Branch

CDE programmes: We have conducted two cde programmes during this period. First one was on the topic, "Clear aligner" by Dr. Tariq Ansari MDS. on 19.02.2017. Second cde programme was on 02.04.2017 on the topic Mini Mally Invasive dentistry with Lasers –An overview, And The Management of discoloured teeth. The faculty of the programme were Dr Alex Mathew Muruppel MDS, And Dr Liza Abraham MDS. Around 100 participants participated in the programme and the programme was accredited with 6 points by KDC.

CDH Programmes: During this period we have conducted five CDH programmes, first one was a state CDH, a public awareness meeting and a Flash Mob in connection with world cancer day on 04.02.2017 at Grand Central Mall, Muvattupuzha. The second one was on 07.02.2017 and it was an awareness class on palliative care in dentistry by Dr. Gerald Mathew in Indiragandhi Dental College, Kothamangalam. More than 150 students participated. Third CDH was a dental check up and treatment camp organized in Association with Annoor Dental college,and there was an oral hygiene awareness class and dental kit distribution in the camp on 27.02.2017. More than 250 patients participated in the camp and was held at St. Michaels Church, Randar, Muvattupuzha. Fourth CDH programme was the dentist day programme which we celebrated on 04.03.2017 at Hotel Kabani international, Muvattupuzha. The last CDH conducted during this period was at Mar Kauma Higher Secondary School Auditorium, Vengoor on 05.03.2017, for about 400 students we conducted dental check up and oral hygiene awareness classes and dental kit distribution were also done.

Family Meetings: Two family meetings were held during this term, first one was in connection with installation ceremony on 29.01.2017 and the second one was in connection with dentist day and women's day celebrations on 04.03.2017. Several colorful cultural programmes were there during the celebration including solo song,solo dance, group dance, western dance and fashion show and much attraction sought skit which were performed by the Malanadu branch members. This was one of the best dentist day which was celebrated by our branch.. Dentist who were completing twenty five years of clinical practice were honored during the occasion.

Executive committee meetings: We met twice for executive committee meetings on 15.02.2017 and 27.02.2017. Charter day and women days were also celebrated on 29.01.2017 and 04.03.2017.




Tripunithura Branch

IDA Tripunithura conducted three CDH programmes. The first was at Govt. Boys High School and a talk on dental awareness was given by Dr. Civy. The second one was done at Janey Centre, Eroor for children with down syndrome dental screening was done for the children and awareness class taken for their parents and teachers. The third one was at Thalayolaparambu and dental screening was done for more than 100 patients.

We have also conducted two CDE programmes the first one was held on 26 Feb and the topic was esthetic Xtravaganza. The faculties were Dr. Eldo Koshy, Dr. Madhu Hariharan and Dr. Meera Gopalakrishnan. Almost 100 members were present for the CDE. On 23 April the second CDE on Clinical Periodontology was conducted the faculties were Dr. Baiju R.M. and Dr. Biju Balakrishnan.

The Women's Wing of IDA Tripunithura conducted an interactive session on " Fit Body Healthy Mind " on 19 Feb at Choice Fitness and Aquatic Centre. A free dental check up camp on 12 Feb at Govt. UPS, Choorakad was also conducted by them.


Attingal Branch

IDA Attingal branch conducted awareness class for their members on 8/1/2017. Topic: Accounts keeping.

February 19th: First inter branch CDE programme - Orthodontic Across Ages. Faculty - Dr Vineeth V Thundukattil. 100 participants attended.

March 5th: IDA Attingal branch visited Karunalayam (an asylum for mentally challenged and Old Age home) in connection with Dentist Day, and provide groceries, cloths etc.

Womens wing of IDA Attingal branch conducted a dental camp at Vithura for tribal community in connection with World Womens Day.

We send Dentist Day posters to all our members.

March 26th: 2nd interbranch CDE

TOPIC : Ethics and Practice Management.

Faculties: Dr Johny Kutty and Dr Sunil KA

106 participants attended.

Release first issue of our Journal IMPRESSIONS for the year 2017.

Valluvanad Branch

CDE program: IDA VALLUVANAD has conducted a CDE program on PEDO EXPEDIA on 19th February 2017 at Hotel Nakshatra Regency, Pattambi. Faculty was Dr. Kavitakumar, MDS. It was a full day program with handson session on stainless steel crowns. 35 members from our branch participated.

Certificates are distributed on the same day awarding 6 credit points.

Dentist day celebrations-2017: IDA VALLUVANAD has celebrated dentist day on march 6, 2017 by conducting a dental awareness class at AUP school, Poiloor near Vadanamkurussi, Pattambi. Dental hygiene kits distributed. Dr Sreeshgopal, cdh representative of our branch took the awareness for school children.

FIRST STATE CDE- 2017: IDA VALLUVANAD in association with IDA Palakkad and Ernad branch conducted a state level CDE program on infection control and sterilization in dental clinic and medical negligence in dental practice on march 5, 2017 at hotel HI-ton Perinthalmanna. Dr. George Skariah P was the faculty. 20 members from Valluvanad branch participated.

IDA KERALA STATE FOOTBALL TOURNAMENT-2017: IDA VALLUVANAD participated in the ida state football tournament conducted by Ernad branch. 12 members from our branch participated.





Kasargod Branch

1. 2nd CDE programme was Conducted on 23rd March 2017, in Hotel JK Residency Kasargod on Diagnosis and Management of Potentially malignant oro-mucosal lesions by Dr. Prabhath Ramakrishnan, Kannur. 25 members participated in the programe.
2. State level CDE programmes was conducted along with IDA costal Malabar branch in Kanhangad. 20 members of Kasargod branch participated in the programme.
3. Executive meeting was held on 3rd April for discussion of topics on Clinical establishment bill and Oral health camos to be conducted in this year.

Palakkad Branch

CDH Activities:

- ❖ Dental camp for the prisoners held at Palakkad sub jail on 24/01/17.
- ❖ Dental camp for physically challenged children on Dentist day (March 6).
- ❖ Dental camp for pregnant women in Palakkad Govt Hospital on women's day (March 8).
- ❖ Dental camp for ezhava samudhayam on 12/03/17.
- ❖ Dental awareness and screening camp at Palakkad Railway Station on world oral health day 20/03/17.

CDE Activities:

- ❖ Ist CDE "Dilemma in Diagnosis" by Dr Harish on 22/01/17.
- ❖ Interaction with Dr Muthukumar on physiotherapy on dentist day.
- ❖ Co host for 1st State CDE 05/03/17 with Ernad and Valluvanad branch.





Mavelikkara Branch

Oral Health day Celebration

IDA Mavelikara celebrated Oral health day at St Thomas Balabhavan, Haripad on 19th March 2017. A Screening camp for the inmates of the orphanage was conducted.

Our project Gift A Smile where in each dentist gives free treatment for the needy orphan for the next one year free of cost was inaugurated on the same day.

1st Dental Camp

Our 1st dental camp was held on 28th March at Mizpah School for differently abled children, Kayamkulam.

Around 13 doctors participated in screening around 100 children and their parents.

Children who needed treatment were referred to nearby clinics of their choice... The findings were recorded and given to the respective parents.

2nd Dental camp

The 2nd camp was held at KMJ Public School, Pandalam. A dental awareness class for the children and their parents was held along with a screening camp.

Alappuzha Branch

The annual general body meeting of IDA Alappuzha was held at Rotary Club of Aleppy East hall at Vazhichery Alappuzha on 18.12.2016 before the installation of President Dr Rupesh and his team of office bearers elected at the AGM.

The Christmas celebration and first family meet of IDA Alappuzha too was celebrated after the Installation with cake cutting and carol songs.

CDE Activities: IDA Alappuzha has successfully conducted two interbranch CDEs on Rotary endodontics, Lecture with hands on and Practice management with participation of 70 and 67 members respectively.

CDH Activities : We conducted 16 screening camps, 3 treatment camps and one cancer awareness and screening camp in the first quarter with one treatment camp exclusively for the underprivileged kids in various orphanages in Alappuzha town.

State Program: We hosted the World Dentists Day Celebrations by IDA Kerala State and the program was organized in three stages. As the initial step series of screening camps were conducted at various orphanages to select kids who require treatment to be provided on the Dentists day. The second stage was a dental exhibition and live painting on the theme of safety for women as "Ma Nishada" on the Alappuzha beach. The third and culminating event was on March 6th at the YMCA hall Alappuzha where the World Dentists day celebrations of IDA Kerala State was inaugurated by the Hon. MP Mr K C Venugopal and the IDA members from all branches were honored with excellence award for their contributions to the branch.





Malappuram Branch

Installation ceremony of IDA MALAPPURAM for the year 2017 -18 done on 8 January 2017 at Hotel Rydges Inn Kottakkal 8 pm IDA KERALA STATE BRANCH President Dr Sameer P T was the chief guest for this function

IDA Malappuram celebrated dentists day on march 5 th Sunday at sangamam residency Tirur from 6 pm onwards

Conducted 3 executive committee meeting

Conducted cde,s on managing your finance on 8 th January and SMART PRACTICE on 26 th February

CDH WING OF IDA MALAPPURAM conducted 7 dental health checkup camps in various part of malappuram

SNEHASMITHAM

IDA MALAPPURAM inaugurated the project of the year snehasmitham On 17 march 2017 at vkm special school venagad

The inauguration of the project was done by Mr PV Abdul Wahab MP, in the presence of Hon Chief Minister of Kerala Sri Pinarayi Vijayan, Hon Health Minister Smt KK Shylaja Teacher, Hon Minster for Local Adminstration Dr. KT Jaleel. The programe will focuss on a comprehensive dental treatment project for the mentally challened and differently abled childrens of Malppuram dist

The programme got well coverage in media as well as well appreciated by the public and members

Coastal Malabar Branch

Our branch conducted eleven CDH activities which included 9 Dental check up camps and dental awareness classes with free oral hygiene kit distribution. Treatment camps were held at two old age homes adopted by our branch. As a part of the ongoing Mukthi project of IDA Kerala state in association with Government of Kerala our branch conducted a teachers training program at Kanhangad. We hosted a family get together at Nalanda resorts, Nileshwar on the occasion of dentist day celebrations on 5th March 2017. The chief guest for the function was the president IDA head office, Dr Vishwas V Puranik. He inaugurated the celebrations by cutting the cake and also released our 1st issue of our branch journal 'Mirror'. He also delivered a lecture on the topic 'medicolegal aspects in dentistry'. CDE chairman IDA head office Dr Raveendranath released our member directory. Also conducted 3 CDE programmes including 2 branch level CDE's and a state level CDE programme on the topic 'Fine tuning of fixed prosthodontics'. We celebrated the international womens day on 8th March by conducting a dental camp along with healthy teeth and best smile competitions for students of 2 Anganvadis and gifts & prizes were distributed for the students. Achievements of our branch included the bagging of 'Danthashresta' award constituted by Kerala Dental Council by our past president Dr Santhosh Kumar.P and our charter secretary Dr Santhosh Sreedhar being elected as the Vice President of IDA head office. Our senior members Dr Santhosh Sreedhar & Dr Suja Vinod bagged the IDA excellency award constituted by IDA Kerala State.

North Malabar Branch

INSTALLATION 2017

The installation ceremony of office bearers of IDA North Malabar Branch for the year 2017-18 was held on January 24th,2017 at Sunshine Royal Heritage, Kannur. The chief guest for the day was Sri P C Vijayarajan, Chairman, Bharathya Vidya Bhavan and Dr O V Sanal, Member, Kerala Dental Council was Guest of Honor. During the day Dr.Valsalan K V. the incoming President, IDA North Malabar branch and his team of office bearers were sworn in. The ceremony was followed by variety entertainment and dinner.

EXECUTIVE COMMITTEE MEETINGS:

- First executive committee meeting was held on 23rd February at I.D.A. Hall Podikkundu, Kannur. 19 members attended
- Second executive committee meeting was held on 20th March 2017 at I.D.A Hall, Podikkundu, Kannur. 23 members attended
- Third executive committee meeting was held on 28th March 2017 at I.D.A. Hall, Podikkundu, Kannur. 21 members attended.

FAMILY MEETING

Family meeting of IDA NMB members was held at Sunshine royal heritage on 24th January 2017. Around 42 families attended.

C.D.E PROGRAMMES:

CDE CLUB: CDE club was inaugurated by national CDE Chairman Dr Raveendranath on March 5th 2017 at IDA hall, Podikundu.

1. C.D.E. Topic : Minor Oral Surgical Procedures-Challenges And Advances Sutures And Suturing Techniques Venue: I.D.A. Hall, Podikundu Date: 05/ March 2017
   Faculty: Dr.Sony Jacob MDS / Dr Saju N S MDS.
   Time: 10.00 Am To 3.00 Pm.
   Members Attended: 51

Trivandrum Branch

1. **DENTIST DAY CELEBRATIONS:** IDA Trivandrum Branch - Dentist Day celebration of 2017 was held at Diamond Jubilee Auditorium, Medical College Campus on Sunday, March 5th from 7pm-9:30pm.

   An inspirational talk by Dr. Abdul Latheef K.H on the topic "Creative Dentist for the 21st Century" was the main highlight.

   It was followed by a Website(www.idatrivandrum.com) launch of IDA Trivandrum by Dr. Jolly Mary Varghese, Joint DME&

   "Dentist Day Sticker launch" was done by IDA Trivandrum Charter President, Dr. K. Balakrishnan Nair.
2. **CDE:** The First CDE Programme of IDA Trivandrum on "Asepsis, Infection Control &Medical negligence in Dental practice" by Dr. George Skariah was held on Sunday, March 19th@ Hotel SP Grand Days, Trivandrum.
3. **CDH -** CDH Activity - February 2017
   - A Dental Screening camp for 250 high school students was organized by the CDH Wing of IDA Trivandrum in VHSS Vallakkadavu, Thiruvananthapuram as a part of the National Service Scheme Programme on February 16th, 2017.
   - Our members Dr. Nisanth. Dr. Aseem Hassali, Dr.Asif Shah, Dr.Capt. Pramod, Dr.Rajeev, Dr.Alifathima and Dr.Veena participated in the camp.

   CDH Activity - February 2017
   - A Dental Screening camp and an Awareness talk for 70 children was organized by the CDH Wing-IDA Trivandrum in Vellayani Government L.P School, Trivandrum on February 23rd by our members Dr.Kamalalekshmy and Dr.Rajeev.

   CDH Activity -March 2017
   - Women's Dental check-up camp was conducted at Trivandrum Central Railway Station on Wednesday, March 8th in association with the World Women's day.

   CDH Activity –March 2017
   - Dental Screening camp along with treatment organised by IDA Trivandrum in association with Government Dental College,Trivandrum
   - Held on 12-3-2017 at Govt; Special School for children @ Poojappura.

   CDH Activity – March 2017
   - On March 20th, as part of the World Oral health day
   - IDA TRIVANDRUM branch conducted an Awareness talk at Sri Chithra home and orphanage.
   - Our members Dr.Sony Thomas, Dr.Sangeetha and Dr.Bindu organised the programme.
   - Students were provided with oral health care kits.

   CDH Activity - April 2017
   - An awareness talk and a Dental Screening camp held on Sunday,April 9th in Shishu Vihar UP School,Vazhuthacaud,Trivandrum which was organised by IDA Trivandrum in association with the Sanjeevani Chartiable trust, an employee driven corporate Social responsibility group of Infosys Limited, Trivandrum Development centre.
4. **CLINICAL CLUBS**
   - The First Clinical Club of IDA Trivandrum was held on Tuesday, February 14 th at Innu apartments from 8pm - 9pm.
     - o Lecture was given by Mr.SabinBabu (Chartered Accountant) on accounts keeping, self-assessment of income, maintenance of registers and tax saving options.
     - o It was followed by a demo of swiping machines and LOTZA by Federal bank.
     - o Around 48 members attended the meeting and was followed by dinner.
   - The Second Clinical Club of IDA Trivandrum Branch for the year 2017 at Innu Apartments, Kuravankonam on Tuesday,11th April from 8 pm-9pm.
     - o Lecture by Dr.Subbalekshmi M.D.S, practicing Pedodontist on 'Clinical Preventive Pedodontics- Redefined'.
     - o 40 members attended the programme which was followed by dinner.
5. **EXECUTIVE COMMITTEE MEETINGS**
   - The First Executive committee meeting of IDA Trivandrum Branch was held on Monday, February 6th in IDA Hall, Innu apartments, Trivandrum.
   - Around 25 Executive committee members attended the meeting and the various activities for 2017 were decided. Various sub committees were selected for CDE, CDH, Sports & Cultural activities.
   - The Second Executive committee meeting of IDA Trivandrum was held on Wednesday March 29,2017 at IDA Hall, Innu apartments from 8pm-9.30pm.
   - The meeting was called to order by Dr.Sony Thomas,President IDA Trivandrum.