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CAP (Cold Atmospheric Plasma): Applications in Dentistry

The fourth stage of matter after solid, liquid and gas was identified by William Crookes as Plasma in 1879. 99% of the visible universe is made up of plasma, the other states of matter being, solid, liquid and gas,. Plasma is a partially ionized gas with ions, electrons, and uncharged particles such as atoms, molecules, and radicals. There are two types of plasma: thermal and non-thermal or cold atmospheric plasma. Thermal plasma has electrons and heavy particles (neutrals and ions) at the same temperature. Cold Atmospheric Plasma (CAP) is said to be non-thermal because it has electrons at a hotter temperature than the heavy particles that are at room temperature. CAP is a specific type of plasma that is less than 104°F at the point of application. Due to the ability of CAP to deactivate microorganisms, cause cell detachment, and cause death in cancer cells, researchers have been interested in finding uses for CAP in dentistry and oncology. There are several methods to produce CAP such as Dielectric Barrier Discharge (DBD), Atmospheric Pressure Plasma Jet (APPJ), plasma needle, and plasma pencil. Several different gases can be used to produce CAP such as Helium, Argon, Nitrogen, Heliox (a mix of helium and oxygen), and air. Each unique method can be used in different biomedical areas. In dentistry, researchers have mostly investigated the antimicrobial effects produced by plasma as a means to remove dental biofilms and eradicate oral pathogens. It has been shown that reactive oxidative species, charged particles, and UV photons play the main role. Cold Atmospheric Plasma has also found a minor, but important role in tooth whitening and composite restoration. Furthermore, it has been demonstrated that Cold Atmospheric Plasma induces apoptosis, necrosis, cell detachment, and senescence by disrupting the S phase of cell replication in tumor cells. This unique finding opens up its potential therapy in oncology. Possible applications in Dentistry are Deactivation of biofilms and Instrument Sterilization, CAP enhanced the tooth bleaching,

Composite Restoration as CAP treatment increases dentin/ adhesive interfacial bonding and improves the tensile-shear bond strength between post and composite etc.

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Kerala Dental Journal
Vol. 42 | No. 3 | July 2019

Contents

Contents

Editorial

Dr. Anjana G.

Clinic standardization

Regulations per se, be it for anything, are difficult to accept and made practical. The transition is never easy, though eventually these become mandates, we fall in line and later feel that this wasn't that difficult after all. The latest such issue that has raised concerns with practising dentists in the country is the government move to implement the Clinical Establishment bill. IDA Kerala state, as always, has risen to the occasion and has undertaken a process to facilitate this very transition, in the form of IDA CAN. Clinicians from our midst are being identified and provided with training so as to be able to help practitioners upgrade their practice to the minimum expected quality. There needs to be much emends to the present form of the bill, which again has our state officials working in earnest on.

It is nothing but a reflection of the commitment a professional body functioning in the health sector has, towards the society. It is a long haul, no doubt, but with our concerted efforts, we can make this happen in a certain frame of time.

Change, as they say, is inevitable. Let's therefore, embrace it with grace, and build towards a healthier tomorrow, together.

Dr Anjana G.
Editor, KDJ

Message from the President

Dr Abhilash G S

My dear members in IDA. .

The current IDA year is towards its concluding stage and I believe a lot many appreciable activities initiated by different branches this year. Almost all branches were active this year and conducted various programs which were well appreciated by our members as well as the public

This year we have introduced privilege CDE programs and we have completed five mega Privilege CDE programs and other two state level CDEs. Full credit goes to the state CDE wing. CDH wing, IDA Hope, WDC, Journal, and other subcommittees doing there job in an exemplary manner. As we enter the last term of the current year IDA state office is planning to begin two new projects..the complete oral cancer detection and treatment programme.. Sanjeevini.. and a project in association with Kerala Government with Kudumbashree Mission.. "Sraddha" Oral health for all.. As we are celebrating the centenary year of modern Indian Dentistry, We are planning to start "Sraddha" on December 20th 2019 and will end in December 2020. .. An year long project... Our aim is to extend this project to National level in association with head office. I expect the whole hearted support from our members for all these endeavours. State office realised that there is little difficulty regarding communication with our ordinary members. Considering this fact we have introduced a news letter "IDA NEWS" aiming to reach to each and every member for communication and to share the overall activities.

Regarding Clinical establishment bill we are still in regular followup with Govt. Bodies and we met Health minister. We will be having a meeting with Minister and other officials soon to rectify the confusions and to fulfill our demands.

I take this opportunity to invite you all to IDC 2020... The mega event.. and I can assure you an ever memorable National conference at Kovalam on 24th, 25th and 26th of January 2020. The host branch IDA Trivandrum with its well equipped Organising team really working hard to present a wonderful conference for our members.

KDJ attempts to present articles and various clinical experiences offered for use in clinical practice. This publication offers an excellent platform for exchange of knowledge to attain clinical excllence. I am sure that this excellent publication will help to improve your clinical skills and knowledge.

Our editorial board is doing an excellent job to bring out our Journal by maintaining the quality and high standards. I congratulate the Editor and the whole team for their efforts taken to publish KDJ on time by keeping high quality as always...Wish you all success

Jai Hind, Jai IDA

Dr. G S Abhilash
President, IDA Kerala state

Message from the Secretary

Dr. Suresh Kumar G.

Dear Members,

Wishes to all members.

Representing a State Branch of IDA that sets standards for others to emulate is one of the proudest part in the term of an office bearer of the Association , as always IDA Kerala state stays ahead in its conduct of activities or inception of schemes for the benefit of its members.

The role of the association is fast changing and it should get adapted to shouldering the responsibilities that the recognition of IDA in the Government brings along with it, added to the expectations of the Members, the enormity of the task seems to add up day by day. As an office bearer, It's always welcome to note that the trust the members have in the association and as the Government starts to look upon IDA as a torch bearer of the profession, those challenges seem trivial.

This year we have witnessed the formation of two new Local branches of IDA namely IDA Greater Kochi and IDA Adoor making the total number to 34 local branches.

The newly launched newsletter of IDA Kerala State - IDA News - is an earnest effort to keep the Members aware of the activities of IDA. In this new age of information where social media is used extensively for dissemination of information, one should also be aware of the misuse and dangers when it is used as a tool to malign an organisation or individual.

As an organisation that is growing and getting younger with the increase in youngsters joining, we understand that equal importance should be given to discipline and activities that conform to objectives and procedures that are laid in the IDA Constitution.

IDA Kerala State office is confident that we would be able to tackle the challenges and play a meaningful role in the life of a dental professional. Wishing you all the very best.

Thank you

Dr. Suresh Kumar G.
Secretary, IDA Kerala State

Inflammaging –Acclimatization of Senescence in Periodontics

*Anjana Vasudevan T., ** Anil Melath, ***Subair K., ***Mohammed Feroz T.P.,
* Varun M., *Mahesh Raj V.V.

Abstract

Periodontitis is the inflammatory disease of the supporting tissues of the teeth that results in progressive alteration in the gingiva, periodontal ligament, alveolar bone and cementum. It is stated that incidence of periodontitis increases as the age advances. Increased prevalence and severity of periodontal diseases along with poor patient compliance is often a questioning challenge among the elderly. Host modulation is a newer emerging concept nowadays inorder to modulate the host responses towards the deleterious effects of periodontal pathogens thereby making the individuals eligible for combating these infections. Immune system also has a vital role in the spread of infections. Inflammaging is a natural process by which the tissues get aged thus making the individuals more susceptible to infections. This review article mainly focuses on estabilishing the role of inflammaging in periodontal diseases and also about the differences between inflammaging and immunosenescence. It has been concluded that immunosenescence and inflammaging shares a hand in hand relationship in the development of aging of periodontal tissues.

Key words: Inflammaging, Immunosenescence.

KDJ 2019 | Vol. 42 | No. 3 | Pg 153-157

► Introduction

" Time and tide waits for none". Present era is a promising epitome that substantiates the above proverb. Like time, age is also a growing phenomenon,such that once a number is exceeded, it cannot be revert back. In the same way, the visions and perceptions of the community also changes according to the advancement of aging. Aging, which is, in part, a determinant of the lifespan of a human, can be defined simplistically as the continuing loss of physiological integrity and subsequent impaired function leading to death[1]. Earlier the concept of dentistry was to wrench out the diseased one and then followed by rehabilitation. Later, this ideology got changed into more conservative approach. It became the authority of dentist to preserve the tooth until and unless it exceeds the normal function as the primary motive and extraction being the secondary.

A beautiful smile is always contagious and it is more easy to destroy than creating it. Smile is something that gives us the hope, confidence and it is considered as the non verbal method of communication.Present era demands for increased life expectancy and thus there is increased treatment needs from the old aged for periodontal treatment. Periodontitis is the inflammatory disease of the supporting tissues of the teeth due to various microbial activities that ultimately result in destruction of periodontal ligament, cementum and alveolar bone. Age is considered as an important demographic evidence for periodontitis. Periodontitis is mainly categorized on the basis of age like infancy, childhood, adulthood, middleage, old age or geriatrics. Because of aging, atleast in majority of the population there will be age associated changes in the alveolar bone, leading to attachment loss etc. Aging results in various regressive changes in the oral epithelium,mucous membrane etc and it can be demarcated from these tissues due to some pathology. Immune complex is another entity that is in proportion with growing age. As age advances, immune function starts waning and it becomes exposed to the outer environment. Both the arms of immunity – the innate and adaptive immunity are equally affected. Periodontal diseases mainly occur due to the

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imbalance in host immunity and microbial action and the end products like Lipo poly saccharides, endotoxins etc that are liberated from these cause lysis or breakdown of the supporting tissues and destroys the immune system.Inflammaging or immunosenescence refers to the dysfunction of the immune system in accordance with growing age making individuals more prone to infections. Inflammation is a protective process that occur due to the imbalance in antigen- antibody interaction, resulting in hyperproduction of pro inflammatory mediators at the diseased site. Studies are showing that the coincident loss of normal innate and adaptive immune response capacity with aging, combined with lowgrade chronic inflammation, coalesce to alter immunocompetence and promote the pathogenesis of a diverse number of diseasesInflammaging in periodontal disease occur due to the alterations in the immune cells of the host2. This article is aimed to appreciate the differences between aging due to periodontitis and inflammaging.

The ideology of inflammaging?

Increased and improved health care needs of the community resulted in increased life expectancy. A well developed or nourished immune system is always a treasure for a human being, so that if any stressful events occur this energy boosting system will try to combat all unfavourable events and it act as a outer shell. According to Franceschi et al., 2007, due to the prolonged exposure to inflammatory cytokines in old aged, immune system starts developing negative actions against tissues and organs and this slow and gradual phenomenon is termed as 'inflammaging'. This results in the development of inflammation with the help of certain pro inflammatory mediators. It is characterized by increased production of natural killer(NK) cells and enhances the prostaglandin synthesis ability of macrophages. Prostaglandins mainly PGE2 is responsible for mediating the inflammation.Macrophages play a dominant role by the production of pro and anti inflammatory mediators. Inflammaging is mainly produced due to dysfunctional mitoc hondria,defectiveautophagy,endoplasmic reticulum stress,cell debris activated inflammosomeactivation of DNA damage response, senescent Tcells and dysbiosis.

Immunosenescence

Senescence refers to the biology of aging. Age associated phenomenon that leads to slow and steady deterioration of the immune system, making the individual more susceptible to inflammation. Immunosenescence can be considered the end result of an optimal immune function aimed at maximizing early fitness throughout reproductive age, but also a major and dramatic example of antagonistic pleiotropy, with the possible detrimental effects of such "successful" immune and inflammatory responses developing later in life3. Mainly it affects innate arm of immunity. It is also referred to as oxidative stress induced remodelling of the immune system. Thusinflammaging and immunosenescence is considered as the head and tail of a coin.

How aging influences periodontal tissues?

With increased age, there is gradual thinning and reduced keratinization of gingival epithelium. It is this epithelium which act as a barrier against foreign body invasions, for example bacteria. Once age advances, gingival epithelium loses its ability of defence (like LOC in the army front), thus there is increased permeability to microbes resulting in inflammation. There is no much evidence regarding the flattening of rete pegs. Some reports show migration of junctional epithelium from

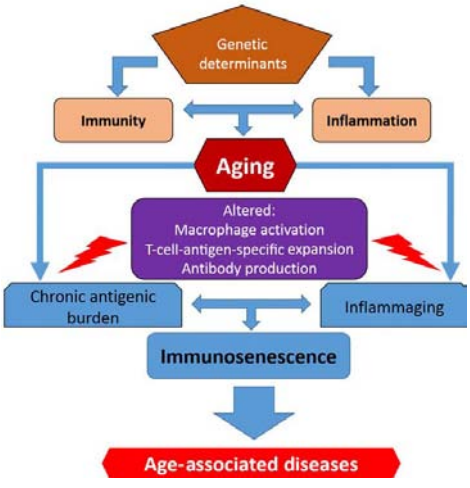

Fig 1: Effects of aging on cellular functions critical for innate and adaptive immunity.

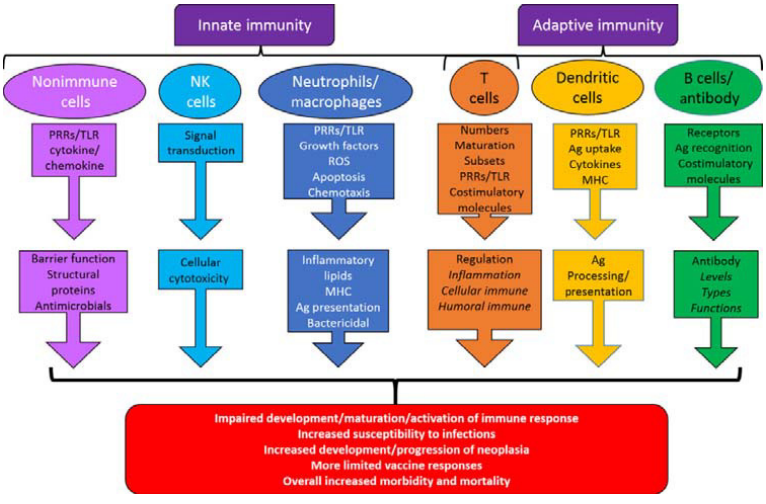

Fig 2: Aspects of genetic contribution to alterations in immunity and inflammation that play a role in the dysregulation of host responses in aging.

its position in healthy individuals to a more apical position on the root surface with accompanying gingival recession 4. Regarding attached gingiva, the controversy still exists. Gingival connective tissue becomes more denser and coarser by advancing age. Gingival fibroblasts undergo numerous modifications with increasing age and and an altered collagen production. With a 5-fold decrease in collagen synthesis and an increased collagen intracellular phagocytosis by old fibroblasts, the balance between the synthesis and degradation of collagen is altered with aging5.Periodontal ligament also undergo different morphological changes like decreased fibroblast population and the structure becomes uneven. Periodontal ligament space widening occurs due to hyperfunction and vice versa.In case of cementum, width increases with increasing age. Since cementum is the outer covering of the root, width is also seen more apically and lingually. Alveolar bone formation is inversely proportional to age. Especially in females due to hormonal imbalance during menopause, there is reduced bone density leading to osteoporosis. Bone becomes more brittle and there is high incidence of fracture.

There are many changes in the periodontium with age like intrinsic,stochastic and clinical. Cell formation and destruction always goes hand in hand. Basal cell renewal happens in a slow pace in old aged, thus delayed the regenerative capacity also. Stochastic changes occurring in the cells also affect tissues; Structures become stiffer, with loss of elasticity and increased mineralization 7. Regenerative capacity is also reduced. Clinically, it is mainly manifested as attrition due to prolonged contact between the tooth surfaces. Reduction in the overjet pattern results in tip to tip contact as age advances. Due to aging there is notable morphologic alterations leading to progressive destruction, loss of function and integrity of tissues. And these changes can never be surpassed because aging is not a pathology but a physiological process.

Oral microbiome and aging

Microbiome depicts the relationship between the bacteria and the host. Both inflammaging and immunosenescence by the development of chronic low grade infections and deterioration of the immune system respectively, exposes the host to the outer environment and makes them susceptible to various infections. Garcia – Pena in the year 2017 stated that with advancing age there is increase in the number of pathogens that give rise to many infections and reduced microbiota. Oralmicrobiota is constantly undergoing changes and it is highly influenced by the external environment. Right from the nativity, till the end of the life, microbes play an important role as Streptococcus mutans is the first microbe to colonize in the oral cavity during infancy and thus it is responsible for the 'window of infectivity'. As age advances, gingival recession resumes and increased tooth surface area mainly dentin, results in increased colonization of micro organisms. Some studies stated there is increased prevalence of Aggregatibacteractinomycetumcomitans is age related and it progressively decreases with age. Porphyromonasgingivalis is entirely opposite to AA. Newman et al. in 1978 analyzedsubgingival microbial samples from periodontally healthy older adults and observed a predominance of Gram-positive, aerobic bacteria and relatively small numbers of Gram-negative anaerobes. Rodenburg et al., concluded that the presence of AA is age related and is inversely proportional with age. Slots et al.have proposed that older subjects with refractory periodontitis may harbor superinfecting microorganisms. The authors studied the occurrence of subgingival enteric rods, yeasts, Pseudomonas and Staphylococcus species in 3075 subjects with refractory periodontitis with age ranging from 12 to 93 years old 6. Younger individuals have least number of enteric rods and pseudomonas species than elderly. Meanwhile, staphylococcus species stood forefront in case of youngsters. Likewise saliva also plays an important role in microbial growth. Saliva can be further referred to a moisturizing agent which helps in maintaining the integrity of oral cavity. Salivary production tends to decrease as age advances and there may be even chances of developing dry mouth in geriatrics. Saliva due to its cleansing action, it may try to disturb the microbial growth with the help of antimicrobial agents like ptyalin, immunoglobulins, lysozyme etc. But in case of underactivity, there may be predominance of microbial growth.

► Immune response alterations

Innate immunity

Compromised immunity is evident in elderly thus they become highly susceptible towards infections. Neutrophils are considered as the first line of defence. Whenever a foreign antigen comes into the scene they become active and with their phagocytosis and chemotactic ability they produce and release Reactive Oxygen Species and started destroying. Several age related studies have proved that although the total number of circulating neutrophils remains constant with advancing age, their capacity to chemotactically migrate in vitro in response to granulocyte-macrophage colony stimulating factor (GM-CSF) or the N-formyl-met-leu-phe peptide is significantly reduced in old age, even when the neutrophils are obtained from healthy elderly individuals5. After neutrophils, macrophages and dendritic cells appear so that they too can also phagocytose the organisms and releases anti microbial peptides. Natural killer cells are a type of cytotoxic lymphocytes belonging to the group of innate lymphoid cells also critical to the innate immune system. Infiltration of the gingival tissues by natural killer cells has been demonstrated in periodontal disease, whereby natural killer cells are activated in chronic periodontal lesions2. There are 2 types of NK cells mainly CD56low(cytotoxic activity)and CD56hi(cytokine production). In aged individuals, both of them are found to be low.

Adaptive immunity

B cells, helper Tcells, cytotoxic T cells play an important role.in adaptive immunity there are 2 variant cell types-antigen recognizing lymphocytes(naïve) and long lived antigen experienced lymphocytes(memory T cells). In case of advancing age, there is reduced proportion of naïve T cells with increased memory cells.Once the innate immunity fails in eliminating the external stimulus, adaptive immunity starts action. The real hallmark of immunosenescence (or inflammaging) is the alteration in T cell populations and shrinkage in the T cell repertoire. These phenomena are, in part, caused by thymus atrophy (Goldsby, Kuby, &Kindt, 2003), which reduces T and B cell differentiation and decreases the efficiency and regulation of immune responses8. At birth, there are large number of naïve T cell clones, but with aging tis number gradually declines. Inflammatory events mainly depends upon the regulation of IL-10,IL-6 and TNF α.

Inflammaging in periodontics

Is the process of developing a chronic low grade inflammation.Inflammaging state is produced as a consequence of – dysfunctional mitochondria, defective autophagy/ mitophagy,endoplasmic reticulum stress, activation of inflammasome by cell debris and misplaced self molecules, defective ubiquitin / proteasome system, activation of DNA damage response, senescent T cells, their senescence associated secretory phenotype and age related changes in the composition of gut microbiota9. Centenarians are typical example of normal or physiological aging andinflammaging is just aging because of long standing inflammation. Elderly people, since they lost their defence mechanisms, they are incapable of defending against infections. On other words, inflammaging can be referred as a consequence of immunosenescence. Because of the presence of inflammation, there is increased production of inflammatory mediators eventually leads to immunosenescence. The decrease in the adaptive immune response mechanisms stimulates the activation of innate immunity to protect the host from subsequent infections leads to inflammaging. By the development of low grade inflammation, there is deterioration of the immune system. The presence of chronic low grade inflammation with inflammaging aggravates vascular pathology, causes bone resorption etc. There exists a large confusion in the field of aging with respect to the number and distinction between senescent and exhausted cells.Senescent cells may be functionally inert, the other one may be functionally dormant. These dormant Tcells can be stimulated by the help of some surface receptors like PD-1,CTLA-4,LAG-3,TIM-3,TIMIN 9.

Periodontal therapy mainly focuses on reducing the inf lammation,pocketdepth,clinical attachment loss by proper oral hygiene measures followed by surgical and non surgical mode of treatment. There is, however, evidence that signs of inflammation can easily recur if oral hygiene is not maintained at a high level. It is also a common belief that loss of dexterity, which may occur with aging, contributes to dental plaque accumulation with consequences of more common and severe inflammation of the periodontium10. As a host modulating agent, low dose aspirin is considered to be the best and as per the survey conducted by NHANES in the year 2012, doesn't appreciate much difference in the periodontal conditions. Periodontitis afflicted elderly have elevated level of serum antibodies to porphyromonasgingivalis, increased PMN's, decreased neutrophil extracellular traps. Along with the periodontal tissues, implant outcomes also purely depend upon the health and integrity of supporting structures. The 2 terms that estabilish the outcome of implants is success and survival. Survival refers to the physical presence and success means absence of complications. If supportive care and patient compliance is lacking, implant therapy wont be successful because of the presence of progressive inflammation. It is obvious that periodontal diseases due to the underlying pathology and microbial burden it will aggravate the inflammagingprocess thereby leading to immunosenescence.

► Conclusion

Aging is considered to be having a central role in the development of immunosenescence and inflammaging. Both of these conditions thought to have reduced immune responses. Immunosenescence and inflammaging can be considered as the two arms of aging. The progression of periodontitis changes with aging and may, in many cases, be inactive or low-grade slowly progressive forms of periodontitis with few signs of inflammation other than in combination with systemic medical complications10. Because of this inflammatory condition, there develops a chronic infection called inflammaging. Increased pocket depth, clinical attachment loss followed by bone resorption are common in the elderly. Lack of manual dexterity in some old people may also result in the accumulation of local factors leading to the increased production of pro inflammatory mediators. Increased number of PMN's,NK cells and macrophages aggravates the inflammatory load in the periodontium leading to inflammatory condition. Hence in a periodontal apparatus, where there is constant exposure to microflora, both commensal and pathogenic organisms, a pro inflammatory milieu is constantly established which would be more extensive in individuals with immunesenescence leading to severe periodontal destruction5.

This review mainly emphasize on the importance of recall visits to a Periodontist, so that the future development of inflammatory conditions can be prevented in advance and also the existing conditions can be eliminated until and unless the patient is compliant. Oral cavity is considered as the mirror of the human body. Whatever is evident in the oral cavity, it will be

depicted in rest of the areas leading to systemic complications. Better quality of life is observed among those aged individuals who has given due importance to oral health care.Successful aging depends upon good oral health thereby enhancing longevity. A periodontist is a specialist in the field of Periodontics who mainly focuses on the teeth and its supporting apparatus and who is efficient in treating the diseases and conditions. By a planned frequent recall visit to your periodontist will definitely help in controlling or eliminating the initiation of inflammation, which makes you away from getting aged or from inflammaging process. Immunosenescence or immunomodulation is different as it mainly focuses on deterioration of immune system thereby leading to aging."Prevention is always better than cure."

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Epigenetics: Retracing Periodontal Infections

* Hiba Muhammed, **Harish Kumar V.V

Abstract

Epigenetics is the study of heritable changes in gene expression that occur without changes in DNA sequence. They are reversible unlike genetic changes and are influenced by environmental factors. Epigenetic modifications include DNA methylation, modifications of histone protein structure and posttranslational repression by micro-RNA which contribute to alterations in gene expression. Epigenetics has found to be having a potential role in pathogenesis of complex multifactorial disease in humans including periodontitis. This article aims to review the possible role of epigenetic modifications in periodontal disease pathogenesis.

Keywords: Periodontitis, Epigenetics, DNA methylation, Histone modification,Epidrugs.

KDJ 2019 | Vol. 42 | No. 3 | Pg 159-162

► Introduction

Periodontitis is an infectious disease characterized by chronic inflammation in the gingival tissues in response to bacteria colonizing the tooth surface, ultimately leading to tissue destruction with loss of alveolar bone and connective tissue.[1] Although periodontitis has a microbial etiology, its progression can be influenced by several factors such as systemic diseases, environmental factors, and genetic factors.[2]

Genetics explains phenotypic trait in an organism through presence or absence of specific nucleotide sequence of DNA. Epigenetics is the study of heritable changes in gene expression that occur without changes in DNA sequence.[3] An increasing number of recent studies have focused on the role of epigenetic events in the development of various diseases.[4,5,6] It provides an understanding of the role of gene environment interactions on disease phenotype especially in complex multifactorial diseases including Periodontitis.

This review aims at discussing the epigenetic alterations which could help in understanding the mechanisms relating to periodontal disease activity.

► Epigenetics

Epigenome refers to "epi" meaning outside the "genome". The term epigenetics was coined by Conrad H. Waddington In 1940s.[7] The modern definition of epigenetics is "changes in gene expression that are not encoded in the DNA sequence, including chemical alterations of DNA and its associated proteins, leading to remodeling of the chromatin and activation or inactivation of a gene".[8]

The major difference between epigenetics and genetics is that epigenetic changes occur more frequently than genetic changes. The epigenetic changes are reversible by treatment with pharmacological agents. It is through epigenetic marks that environmental factors like diet, stress and prenatal nutrition can make an imprint on genes that is passed from one generation to the next.[9]

Epigenetic mechanisms

Recent evidence suggests that epigenetic alterations are possibly triggered by the host microbiota and environmental cues. These epigenetic alternations (DNA methylation and histone modifications) can have long-term effect on host's immune homeostasis.[10]

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In mammalian cells, there are three types of epigenetic regulation on gene expression

- DNA methylation
- histone modification
- RNA-associated silencing (micro-RNA).[11]

- In periodontitis, during inflammation, epigenetic modifications occur locally at the biofilm- gingival interface around the teeth.[5]
- Recent evidence has shown, bacteria belonging to the orange and red complex can cause epigenetic changes in the periodontal tissues.
- pathogenic bacteria induce alterations of the epigenome in these cells that subsequently affects inflammatory cells,by inducing changes in the signaling pathways and gene expression.

DNA Methylation and Periodontitis

DNA methylation is one of the most broadly studied and well characterised epigenetic modification dating back t studies done by Griffith and Mahler in 1969 which suggested that DNA methylation may be important in long term memory function.[12]

- Within the nucleus, chromosomal DNA is tightly associated with proteins, and these interactions form the ordered structure known as chromatin. DNA itself can be modified, via covalent addition of methyl groups, catalyzed by enzymes known as DNA methyltransferases.[6]
- The methylation occurs in C-5 position of cytosine residues in the CpG islands of the promoter region of a gene.
- DNA methylation directly inhibits binding of transcriptional factors to the site, resulting in gene silencing[13]. Figure 1 shows mechanism involved in DNA methylation.
- DNA methyltransferase-1 reproduces patterns of methylated and unmethylated CpG sites between cell generations.[14] It has the ability to promote 20% of overall genomic methylation and it is recognized, together with DNA methyltransferases 3a and 3b, as a major DNA methyltransferase in humans.[15]
- Lipopolysaccharides might differentially affect the expression of inflammatory mediators in periodontal tissues.[16]
- Other in vitro studies demonstrate that different epithelial cell lineages, such as oral keratinocytes,immortalized human keratinocytes (HaCaT cells), and gingival epithelial cells, when stimulated by Fusobacterium nucleatum, Porphyromonas gingivalis, or purified lipopolysaccharide, show a significant reduction in the levels of DNA methyltransferase-1 expressed.[17]
- It has also been found that downregulation of DNA methyltransferase-1 results in the reduced expression of gingival epithelial adhesion molecules.[18]

Table 1 shows different mechanisms involved DNA methylation.[18]

Histone modification

Histone deacetylation is another epigenetic alteration mechanism observed in human cells.[19] It has been defined as Post-translational modifications of histones, including acetylation and methylation of conserved lysine residues on the amino-terminal tail domains.[20] It removes acetyl groups originally added to lysine residues by histone acetyltransferases.

There are two main classes of histone deacetylations: Class I and Class II. Class I includes histone deacetylations 1 and 2, which are primarily found in the nucleus.[21]

- In general acetylation of lysine residues on the amino-terminus of histones activates gene expression
- hypoacetylation is an indicator of transcriptionally quiescent genes.
- Direct methylation of histones can result in gene silencing or activation, depending on which lysine residue is methylated.
- Figure 2 shows the mechanisms of gene expression modulation during histone modifications

Table 2 summarizes the effects of bacteria and endotoxins on the activity of the histone deacetylases.[18]

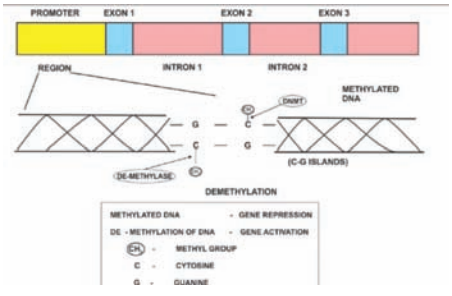

FIG 1: mechanism of DNA methylation

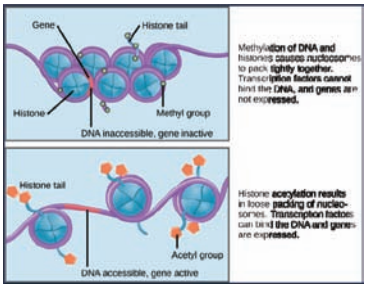

Fig 2: histone modifications

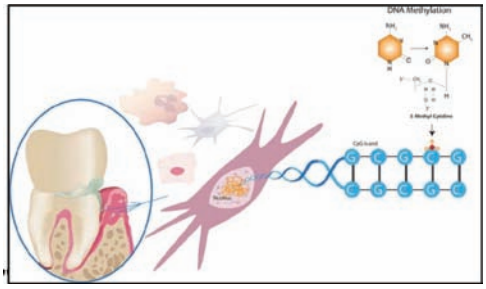

Fig. 3 The periodontal environment in the presence of pathogenic biofilm. Various cell types are depicted, representing fibroblasts, endothelial cells, epithelial cells, and inflammatory cells. DNA methylation changes in the epigenome in response to the microbial and inflammatory stressors.

Chronic inflammation and epigenetic alterations

A regulatory link between DNA methylation and immune system function is now widely accepted because DNA methylation plays an important role in the regulation of inflammatory genes. The epigenome itself is affected by inflammation but epigenetic mechanisms are essential mediators in the development of chronic inflammation through the increased expression of proinflammatory cytokines, including interleukin-1, interleukin-6, tumor necrosis factor-alpha, and interferon gamma, as well as by induction of cyclooxygenase 2 and of transcription factor nuclear factor-kappaB.[22]

Table 3 and Figure 3 illustrate features associated with altered methylation in inflammatory genes examined in samples from subjects diagnosed with gingivitis or chronic or aggressive periodontitis.[18]

► Clinical applications of epigenetics within the field of periodontics

Diagnostics and epidrugs

To be able to correlate an epigenetic pattern/marker with a clinical phenotype is of interest as well as using epigenetics as a tool to identify patients at risk to develop periodontitis. The possible use of buccal swabs, scraping of the oral mucosa or saliva for epigenetic analysis, makes it clinically feasible as a diagnostic tool.[8]

At present, only a few studies combining epigenetic analysis with clinical measurements are available. A negative correlation was found between methylation levels of IL-6 in gingival tissue and probing depth in periodontitis patients.[23]

The fact that epigenetic mechanisms are reversible makes them attractive targets for new treatment models in both cancer and inflammatory diseases. The term epidrugs was coined by Ivanov and co-workers as drugs that inhibit or activate disease-associated epigenetic proteins ameliorating, curing, or preventing the disease.[24]

Epidrugs has been suggested as a tool for improving tissue regeneration.

- Treatment of periodontal ligament fibroblasts with HDACi iSodium butyrate promoted expression of osteoblast-related proteins as well as inhibited production of pro-

TABLE 1: DNA methylation enzymes and endotoxins

Target genes	Tissues/cells	Epigenetic events	Possible mechanism
DNA methyltransferase-1	Oral keratinocytes, HaCaT cells, gingival epithelial cells	Significant reductions in DNA methyltransferase-1 gene expression levels were observed in cells treated with *Porphyromonas gingivalis* and in mice with periodontal disease	Bacterial lipopolysaccharide can modulate expression of genes by reducing DNA methylation
DNA methyltransferase-3a	HaCaT cells	Significant decrease of DNA methyltransferase-3a gene expression levels were observed in cells treated with *Porphyromonas gingivalis*	

Table 2 Summarizes the effects of bacteria and endotoxins on the activity of the histone deacetylases.[18]

Target genes	Tissue/cells	Epigenetic events	Possible mechanisms
Histone deacetylase-1 and histone deacetylase-2	Gingival epithelial cells	The expression of histone deacetylase-1 and histone deacetylase-2 genes decreased significantly in cells treated with *Porphyromonas gingivalis* and *Fusobacterium nucleatum*	Bacterial lipopolysaccharide modulates the acetylation and methylation of histones and perturbs the balance acetylation/deacetylation or methylation/demethylation, resulting in aberrant expression of key regulators in periodontal diseases
Histone deacetylase-2	Immortalized keratinocyte cell line	Expression of the histone deacetylase-2 gene slightly increased in cells treated with *Porphyromonas gingivalis* and *Fusobacterium nucleatum*	
Histone H3	Oral keratinocyte	*Porphyromonas gingivalis*, *Escherichia coli*, and heat-inactivated *Fusobacterium nucleatum* lipopolysaccharide induced acetylation of histone H3	

inflammatory cytokines.[21]

- The use of the HDACi 1179.4b was shown to suppress alveolar bone loss, but did not suppress gingival inflammation.[21]
- BET proteins are epigenetic regulators that interact with acetylated histones influencing the transcription machinery thereby regulating gene transcription.[25]
- In a recent study, it was found that periodontitis gingival tissue had an increase in mRNA expression of HDAC1, 5, 8, and 9, of these HDAC1 was found in a significantly larger amount in diseased tissue compared to non-diseased tissue.[25]
- Treatment of human PDL cells with HDACi Trichostatin A (TSA) resulted in a decrease in HDAC3, increase in histone H3 acetylation, and induction of osteogenic differentiation.[26]
- Using the DNA methylation inhibitor 5-aza-2′-deoxycytidine (5-aza) increased the responsiveness of gingival fibroblasts to TGF-β1 as well as an increase in DNMTs suggesting a new potential tool for improving wound healing and periodontal tissue regeneration.[26]

TISSUE ENGINEERING

The two major tools used for tissue regeneration is scaffolds and gene therapy

- It has been shown that altering a titanium dioxide surface structure at the nanoscale level altered the histone methylation pattern in human adipocytes thereby directing these cells towards osteogenic differentiation.[27]
- Synthetic hydroxy apatit (Hap) is considered a potential biomaterial suitable for scaffolds and implant coating. Bone marrow stromal cells and pre-osteoblasts exposed to nanosized Hap particles were shown to obtain an altered DNA methylation pattern and gene expression of ALP.[28]
- Scaffolds with nanostructured topography have been suggested as a potential tool to improve periodontal tissue engineering.[29]
- a scaffold can also be used as a delivery model for epidrugs. Silica is a material that has been approved by the FDA as a delivery vehicle for DNA methylation inhibitor 5-aza.[30]
- Human gingival fibroblasts (HGFs) present a good cell source for periodontal tissue regeneration.
- In a recent study by Cho and co-workers the authors induced differentiation of HGFs into osteoblasts by inducing demethylation and gene expression of osteogenic factors RUNX2 and ALP.[31]
- in an in vivo mice model transplantation of these cells together with Bio-Oss bone material and Tisseel fibrin gel resulted in an increased bone mineral content and bone formation compared to controls.[31]

Table 3: Epigenetic modulation of gene expression in periodontits

GENE METHYLATION	GENE EXPRESSION
HYPERMETHYLATION	UPREGULATION
IL 6,8	TNF A
INF G	COX2
IL17C	DOWN REGULATION
TLR2	IL 6,8
HYPOMETHYLATION	INF G
TNF A	IL17C
COX2	TLR2

Future concepts

Up to now, it has been widely accepted that the 5mC/5hmC concept is the only form of DNA methylation. However, recently a new form was identified in mouse embryonic stem cells—the N6-methyladenin (6mA or m6A).[32]

In addition, recently a new field within epigenetics has emerged, called epitranscriptome.[33] In addition to methylation of cytosine bases, and recently adenine bases, in the DNA it has now been discovered that adenine bases in the RNA can also become methylated.

Two variants of methylation of adenine within RNA have been identified, i.e., N6-methyladenosine (m6A) and the further methylated form N6,2-O-dimethyladenosine. As for the epigenom, the epitranscriptome is dynamic and reversible and may further add to the regulation of mRNA transcription and gene expression.[34]

► Conclusion

Epigenetics is probably the most important biological discovery since DNA. And it is turning the biological sciences upside down. A few studies mentioned in this review highlights that both DNA methylation and histone modifications occur in the oral mucosa in response to bacteria and the inflammatory processes. Hence, identifying the genetic factors and epigenetic variations in periodontitis will be useful in developing innovative therapeutic interventions.

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CBCT Analysis of bone level in immediate implants using Socket Shield technique – A prospective study

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Abstract

After tooth extraction, the alveolar bone experiences a remodelling process, which prompts flat and vertical bone loss. These resorption forms confound dental rehabilitation, especially regarding implants. Different techniques for guided bone regeneration have been depicted to hold the original measurement of the bone after extraction. Several filler materials and films were utilised to preserve the buccal plate and delicate tissue, to balance out the coagulum and to counteract epithelial ingrowth. It has likewise been recommended that resorption of the buccal bone can be prevented by leaving a buccal root section (socket shield procedure), in light of the fact that the biological integrity of the buccal periodontium stays untouched. In this article, a series of 15 cases who have undergone socket shield procedure have been described. The purpose of this prospective study was to report socket shield techniques with its follow up.

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► Introduction

Main expectation of patients receiving implants in the aesthetic zone besides a low cost-benefit ratio and time efficiency is the aesthetic outcome. In addition to the white aesthetics of the prosthetic restoration, there is a strong focus on the red aesthetics, which are made up by the colour, shape, and character of the marginal gingiva.

Following immediate implant placement in the aesthetic zone, these gingival tissues are subject to volumetric changes as they undergo a remodelling process. A noteworthy issue a clinician will experience for this situation is resorption of the buccal tissues horizontally. Little changes in the red– white aesthetics are visually noticed, hence more preference should be given for both hard and soft tissue preservation.

In 2008, Fickl[1] demonstrated that the bony socket is subjected to both morphologic and dimensional changes soon after extraction.Following an extraction there is a 25% decrease in the width of the alveolar bone and an average 4mm decrease in height during the first year. Following multiple extractions, most of the bone gain in the socket occurred in the first 3 months[2,3].

Immediate implant placement, well-defined as the placement of dental implant immediately into fresh extraction socket site. Its advantages includes highly predictability, patient's acceptability, shortened treatment time.It also providessocket as a guide for determination of parallelism, alignment and helps the surgeon to position the implant more favourably than the original position. It also facilitates final restoration and minimizes the need for severely angled abutments.Numerous treatment approaches have been acquainted and proposed to overcome the negative outcomes of tooth extraction, like immediate implants[4], grafts[5] and membranes[6,7]. But drawback is no prompt method of bone regeneration and preservation of the extraction socket has been recorded.

Elian and co-workers in 2007[8] proposed the indication of extractions and immediate implantation based on the extracted tooth socket: (a) In class 1, hard and delicate tissues are adequate,

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with intact socket. (b)In class 2, small bone loss, but gingival margin is not altered. (c) In class 3, marginal loss of gingiva and bone. In 2003 Tarnow et al9 recommends extraction and immediate implantation in both class 1 and 2 scenarios. For every clinical case assessment of subsequent bone loss after extraction will be a manual for extraction-immediate implantation or to postponed implantation after a sufficient healing period.

Presentation of cases

Only healthy, non-diabetic, non-smoking patients with healthy periodontal tissueswere selected for this study. Interdisciplinary discussions done and treatment options were pre-planned with the help of CBCT. Cone beam computed tomography (CBCT) in most of the cases,demonstrated thin buccal plate and sufficient residual bone apico-palatal to the root.The treatment plan implicated an immediate implant

Figure 1. Socket Shield Technique

Figure 2. Sectioning of roots

Figure 3. Extracted lingual segment

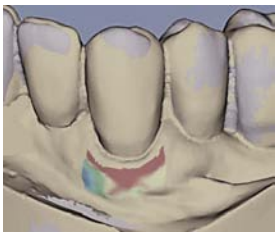

Figure 4. Digital image of cast (baseline), after import in Match3D software

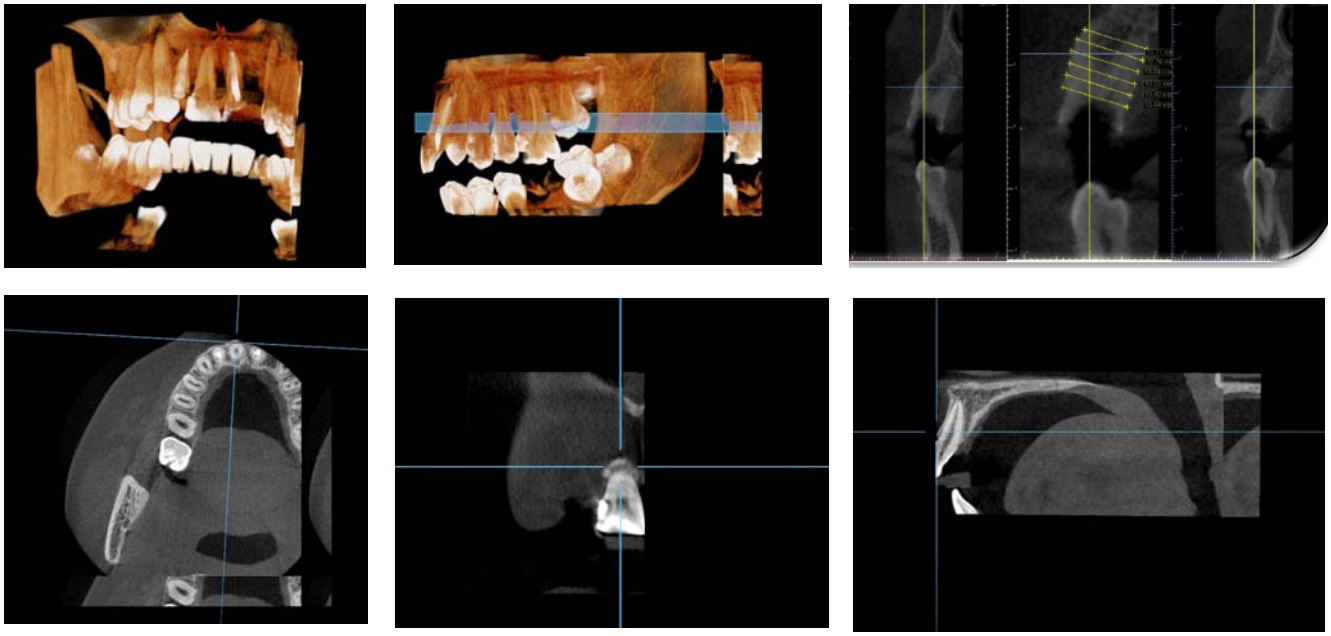

Figure 5. (a, b, c, d, e, f):Pre-Operative CBCT estimation starting from alveolar crest level, and every 2mm apically till 10mm, and alveolar bone bucco-palatal change in cross sectional images

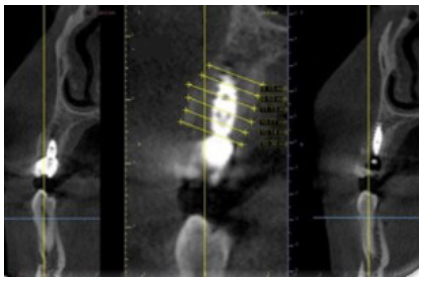

Figure 6. Post-Operative CBCT measurement at bone crest level, and every other 2mm apically till 10mm, and alveolar bone bucco-palatal change in cross section views

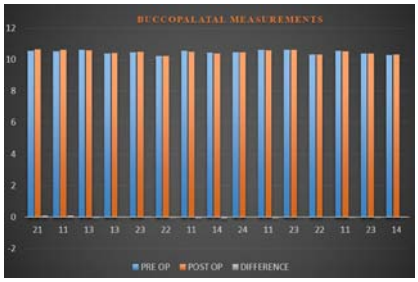

Figure 7. Minimal alveolar bone bucco-palatal change in cross section views

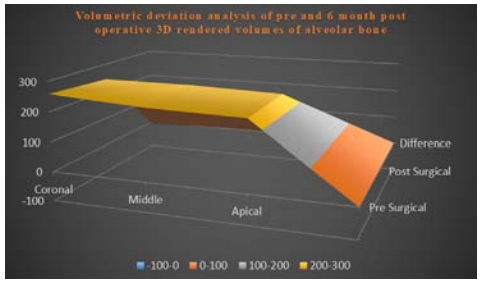

Figure 8. Preservation of alveolar bone with average loss in volume of (-0.052mm, SD 0.48)

placement along with socket shield technique at offending tooth area. Prophylactically 2g of antibiotic (Amoxicillin) were given for all the patients one hour before surgery and mouth rinsingperformed with 0.2% chlorhexidine solution.

Respective tooth was decoronated with a coarse-grained diamond approximately 1mm apical to the gingival margin (Figure 1). Sequentially, the implant osteotomy drills were performed through the lingual aspect of the root. Sectioning of roots (Figure 2) along with removal of lingual segment and retaining the buccal fragment done (Figure 3).

Afterwards the implant was inserted slightly apical to the retained root fragment. The gingival morphology around the implant was preserved after 6 months. At that point a Post-operative CBCT was taken for volumetric investigation. The final impressions were then made for prosthetic rehabilitation.

► Methodology

1. Pre-Operative CBCT

2. Socket Shield Procedure

3. Post-Operative CBCT

Replacement of tooth #11due to a vertical root fracture. Preoperative CBCT was taken. Tooth #11 was decoronated with a coarse-grained diamond approximately 1mm apical to the gingival margin. Sequentially, the implant osteotomy drills were performed through the lingual aspect of the root. Sectioning of roots performed (Figure 1, 2) along with removal of lingual segment and retaining the buccal fragment(Figure 3). Here the periodontal attachment apparatus remains vital and undamaged to prevent the expected post extraction socket remodelling and to support buccal/facial tissues. The buccal portion of the bone which is more prone to atrophy was preserved by retaining a part of buccal root segment which shields PDL on buccofacial aspect of the implant.

Table 1. Pre-Operative bucco-palatal width at the bone are measured and recorded

Tooth no	21	11	13	13	23	22	11	14	24	11	23	22	11	23	14
Bone Crest	10.56	10.54	10.64	10.39	10.46	10.23	10.56	10.44	10.46	10.64	10.64	10.31	10.56	10.39	10.29
2mm	10.65	10.58	10.56	10.59	10.66	10.38	10.65	10.60	10.66	10.56	10.56	10.42	10.65	10.59	10.44
4mm	10.50	10.53	10.48	10.32	10.25	10.26	10.50	10.55	10.25	10.48	10.48	10.35	10.50	10.32	10.89
6mm	10.76	10.44	10.76	10.44	10.34	10.38	10.76	10.84	10.34	10.76	10.76	10.39	10.76	10.44	10.91
8mm	10.65	10.86	10.42	10.84	10.90	10.57	10.65	10.76	10.90	10.42	10.42	10.41	10.65	10.84	10.82
10mm	10.24	10.74	10.39	10.84	10.45	10.48	10.24	10.11	10.45	10.39	10.39	10.29	10.24	10.84	10.33

Table 2. Post-Operative bucco-palatal width at the bone are measured and recorded

Tooth no	21	11	13	13	23	22	11	14	24	11	23	22	11	23	14
Bone Crest	10.66	10.64	10.60	10.42	10.49	10.21	10.51	10.36	10.46	10.59	10.64	10.31	10.54	10.36	10.31
2mm	10.72	10.61	10.59	10.57	10.69	10.37	10.62	10.29	10.66	10.51	10.56	10.42	10.61	10.53	10.45
4mm	10.43	10.58	10.41	10.37	10.31	10.28	10.46	10.72	10.25	10.42	10.48	10.35	10.53	10.30	10.88
6mm	10.86	10.41	10.79	10.49	10.39	10.41	10.68	10.92	10.34	10.71	10.76	10.39	10.71	10.45	10.92
8mm	10.69	10.79	10.51	10.88	10.74	10.59	10.68	9.53	10.90	10.46	10.42	10.41	10.62	10.82	10.84
10mm	10.32	10.78	10.42	10.79	10.53	10.49	10.28	9.15	10.45	10.42	10.39	10.29	10.21	10.81	10.38

Afterwards the implant was inserted slightly apical to the retained root fragment. The gingival morphology around the implant was preserved after 6months. At that point, a Post-operative CBCT was taken for volumetric investigation. The final impressions were then made for prosthetic rehabilitation. Superimposed digital models showed a volume loss in a colour scale (Cerec 3D camera) in digital image of cast (baseline), after import in Match3D software (Figure 4).

A. CBCT Analysis – Pre-operative

In this study, pre-operative CBCT estimation starting from alveolar crest level, and every 2mm apically till 10mm, demonstrated an extremely negligible alveolar bone bucco-palatal change in cross sectional images (Table 1), was underneath the scope of 0.1mm, with evident sudden drop in the width at the apical level to very nearly 1mm(Figure 5: a, b, c, d, e, f).

Table 3. Paired Sample Statistics

T-Test

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	BL.BONECREST.PREOP	10.47	15	.132	.034
	BL.BONECREST.POSTOP	10.4733	15	.14080	.03635
Pair 2	BL.2MM.PREOP	10.5700	15	.08984	.02320
	BL.2MM.POSTOP	10.5467	15	.12057	.03113
Pair 3	BL.4MM.PREOP	10.4440	15	.16466	.04251
	BL.4MM.POSTOP	10.4513	15	.17163	.04431
Pair 4	BL.6MM.PREOP	10.6053	15	.20897	.05396
	BL.6MM.POSTOP	10.6153	15	.21108	.05450
Pair 5	BL.8MM.PREOP	10.6740	15	.18829	.04862
	BL.8MM.POSTOP	10.5920	15	.33650	.08688
Pair 6	BL.10MM.PREOP	10.4220	15	.22454	.05798
	BL.10MM.POSTOP	10.3807	15	.38907	.10046

Table 4. Paired Sample Correlation

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	BL.BONECREST.PREOP & BL.BONECREST.POSTOP	15	.931	.000
Pair 2	BL.2MM.PREOP & BL.2MM.POSTOP	15	.698	.004
Pair 3	BL.4MM.PREOP & BL.4MM.POSTOP	15	.933	.000
Pair 4	BL.6MM.PREOP & BL.6MM.POSTOP	15	.972	.000
Pair 5	BL.8MM.PREOP & BL.8MM.POSTOP	15	.351	.199
Pair 6	BL.10MM.PREOP & BL.10MM.POSTOP	15	.772	.001

Table 5. Paired Samples Test

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	BL.BONECREST.PREOP - BL.BONECREST.POSTOP	.00067	.05133	.01325	-.02776	.02909	.050	14	.961
Pair 2	BL.2MM.PREOP - BL.2MM.POSTOP	.02333	.08649	.02233	-.02456	.07123	1.045	14	.314
Pair 3	BL.4MM.PREOP - BL.4MM.POSTOP	-.00733	.06181	.01596	-.04156	.02690	-.459	14	.653
Pair 4	BL.6MM.PREOP - BL.6MM.POSTOP	-.01000	.04943	.01276	-.03737	.01737	-.784	14	.446
Pair 5	BL.8MM.PREOP - BL.8MM.POSTOP	.08200	.32276	.08334	-.09674	.26074	.984	14	.342
Pair 6	BL.10MM.PREOP - BL.10MM.POSTOP	.04133	.25881	.06683	-.10199	.18466	.619	14	.546

B. CBCT Analysis – Post-Operative

In this prospective study, post-operative CBCT measurement at bone crest level, and every other 2mm apically till 10mm, showed a very minimal alveolar bone bucco-palatal change in cross section views(Figure 6) and depicted (Table 2) that was below the range of 0.1mm, with obvious sudden drop in the width at the apical level to almost 1mm. This apical area had a fenestration where the apex of the buccal root has been resected, although it was filled with the grafting material, it did not prevent ridge dimension loss at this level. CBCT was taken straightforwardly after final prosthesis which demonstrated the bone height interproximal to the implant, the connection among buccal and palatal shields and the implant, and the whole portion of the bone around the implant.

► Discussion

In 2010, Hürzeler et al10 introduced a new method, the socket shield technique, in which a partial root fragment was retained around an immediately placed implant with the aim of avoiding tissue alterations after tooth extraction. The socket shield technique had advanced from the early concept which began in 1950 that retention of root limits tissue change following extraction. The preservation of the root with the periodontal ligament will maintain a strategic distance from the physiologic remodelling of the extraction socket. Baumer and collaborators11, estimated the volumetric change in the alveolar ridge for a situation and demonstrated a mean loss of 0.88mm labially with a greatest of 1.67mm and at least 0.15mm. Afterward, Chen and associates12, in 2013 announced a 0.72 mm of buccal resorption.

The consistency of the hard and soft tissue appearance after reconstructive surgical interventions is constrained, on the grounds that vertical and horizontal bone augmentations are as often as possible associated with consequent tissue shrinkage[13]. Contradictory studies demonstrated that the resorption of the buccal plate couldn't maintain a strategic distance from resorption by use of bio materials[1]. Socket Shield technique is the preparation of root in such a way that buccal/facial section remains in-situ with buccal plate intact. A minimum of 4-5mm bone width and at least 10mm bone length from the alveolar crest safe distance above closest anatomical structures are recommended.Contraindications include presence of pus, lack of bone beyond the apex, close proximity to anatomical vital structures and in those clinical conditions that preventing primary closure.

► Result and Interpretation

Statistical analysis was done using SPSS software and

sample size assessed with G power 3.1. Comparison between the groups were done with students paired t test.

1. In our 15 cases, pre-operative and post-operative CBCT measurement made at bone crest level, and every other 2mm apically till 10mm.(Figure 7). Comparison between pre-operative and post-operative CBCT measurements done and results of the cases showed a promising preservation of alveolar bone (Figure 8).Pre-operative and post-operative CBCT comparison are statistically significant in pairs 1,2,3,4 and 6 with a value of significance <0.01 (Table 3,4,5).

► Conclusion

With the scarcity of the research focusing on optimal aesthetic and functional placement of implants in the aesthetic region of the oral cavity, this study may provide an insight of the importance of providing optimal implant treatment. In this study, the application of socket shield technique combined with immediate implant placement for replacing a failing multi-rooted tooth in the oral cavity obviously maintains the ridge shape. More studies with larger scale of clinical trials and long-term follow up are needed to substantiate the validity of this technique.

Conflict of Interest: The authors declare that they have no competing interests.

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Pouch and tunnel technique for management of gingival recessiondefects

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Abstract

Over the years desire for improved esthetics has increased tremendously. Periodontal plastic surgery deals with regenerative procedures designed to restore form, function and enhance esthetics. The aim of the case report was to evaluate the effectiveness of subepithelial connective tissue graft using pouch and tunnel technique as root coverage procedure. Patient were followed up for a period of 6 months. Gingival recession is a common occurrence and its prevalence increases with age. It can lead to clinical problems, diminished cosmetic appeal and hence esthetic concern. There are various techniques for root coverage. Subepithelial connective tissue graft has shown the best predictability (95%) of root coverage in Millers class I & II cases. This technique preserves the intermediate papilla, accelerates the initial wound healing & also applies less traction. Due to minimal trauma at the recipient site, this procedure may be advantageous in treatment of recession as compared to other treatment modalities.

Key words: Gingival recession, periodontal plastic surgery, subepithelial connective tissue graft

KDJ 2019 | Vol. 42 | No. 3 | Pg 168-171

► Introduction

Periodontal plastic surgery is defined as the surgical procedures performed to correct or eliminate anatomic, developmental or traumatic deformities of the gingiva or alveolar mucosa.[1] Gingival recession is defined as the displacement of the gingival margin apical to the cemento-enamel junction (CEJ) with the loss of periodontal connective tissue fibers along with root cementum and alveolar bone.[2] Studies by Murray and Gorman et al. have shown that recession increases with increasing age. A survey revealed that 88% of people above 65 years of age and 50% of people between 18 and 64 years of age have one or more sites with recession (Serino G, Wennstrom JL, Lindhe J, Eneroth L).[3] Indications for root coverage procedure are esthetic demands, root hypersensitivity, root caries lesions and cervical abrasions. Thus, it is essential to carry out root coverage surgery for the aforementioned conditions.[4] Marginal gingival recession, therefore should not be viewed as merely a soft tissue defect, but as thedestruction of both the soft and hard tissue.[5]

► Causes of gingival recession

Predisposing factors:

- Minimal attached gingiva
- Aberrant frenal pull
- Tooth malposition (fenestration and dehiscence).

Precipitating factors:

- Inflammation related to plaque
- Improper tooth brushing
- Iatrogenic factors such as crown preparations extending subgingivally, impression techniques involving gingival retraction
- Poor orthodontic treatment where the teeth are moved outside the labial or lingual plate
- Anatomical factors include abnormal tooth position in the arch, aberrant path of eruption, individual tooth shape
- Pathological factors such as bone resorption due to periodontal disease.[6]

Accepted procedures for multiple root coverage include

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coronally advanced flap with/without free mucosal graft, subepithelial connective tissue graft (SCTG) and guided tissue regeneration. Other materials like Emdogain (EMD), acellular dermal matrix have also been tried. Connective tissue grafts are an important treatment options for periodontal and implant reconstructive plastic surgery. Connective tissue graft was first used by Edel (1974), Broome and Taggart (1976) and Donn (1978), to increase the width of keratinized gingiva. The use of connective tissue grafts for treatment of gingival recession began in 1985 when Langer and Langer described SCTG technique for covering gingival recession of both single and multiple adjacent teeth.[7] They described a technique in which the graft is covered by the overlying partial thickness flap. Nelson proposed the use of full thickness flap to cover the SCTG.[8]

In 1985 Raetzke, described a different version of connective tissue graft called "Envelope technique."[9] Allen in 1994, in a modification of Raetzke's technique, described the "Tunnel or supraperiosteal envelope technique," for treatment of multiple adjacent gingival recession.[10] Santarelliet al.[11] adapted the tunnel technique using a single vertical incision. Mahn adapted the tunnel approach for acellular dermal connective tissue grafting by using full thickness procedure with vertical incisions.[12]

Indications for pouch and tunnel technique include:

- Miller's Class I and Class II gingival recession
- Lack of adequate donor tissue for lateral sliding flap
- Presence of multiple and wide recessions in maxillary teeth
- Increased recession in areas where esthetic concerns is of great concern
- Exposed root sensitivity.

This case report outlines the advantages of SCTG using pouch and tunnel procedure, as outlined by Allen in 1994, for treatment of multiple gingival recessions over other treatment modalities.

► Case report

- 48 year old female patient came to the department with a chief complaint of receding lower gums and also difficulty in maintaining oral hygiene practices.
- Medical history was non contributory.
- Class11gingival recession 41 &class 1 recesion 31

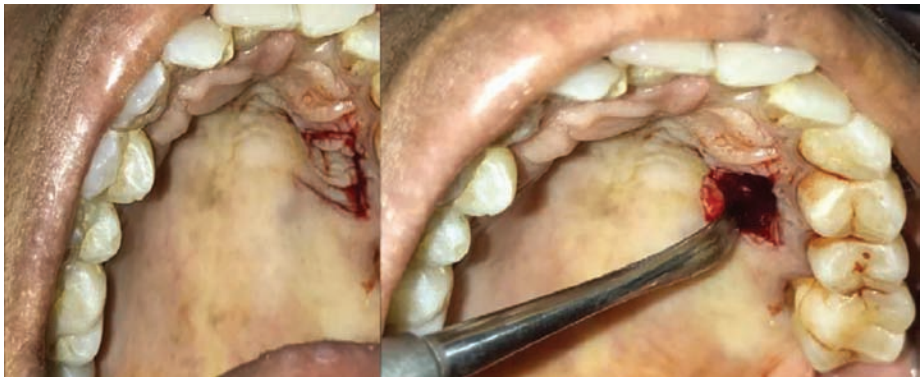
Surgical technique

Recipient site preparation

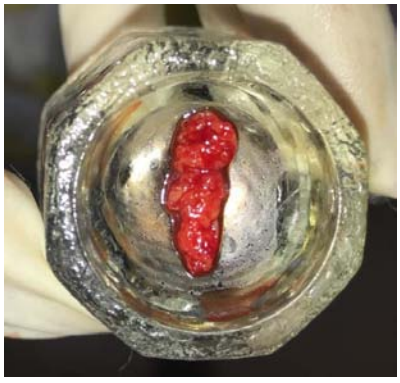
Following administration of local anesthesia, i.e., local

Preoperative

Tunnelpreparation



Graft Procurement



Graft

infiltration of 2% lidocaine with a concentration of 1:200000 epinephrine, sulcular incisions through each recession area were given with a number 15 blade. Care was taken not to extend the incisions till the tip of the interdental papilla. A full thickness mucoperiosteal flap was reflected, extending beyond the mucogingival junction. This was done so as to reduce the tension on the flap to facilitate coronal displacement following placement of the graft. Each pedicle adjacent to the recession was undermined gently, without detaching it completely to prepare a tunnel. The undermining of tissues to prepare the tunnel was done by extending it laterally about 3-5 mm.

Donor site preparation

SCTG was harvested using Lui's Class I incision from the palate.[13] The incision was placed between distal aspect of canine and mesial aspect of first molar area. After the graft was harvested, pressure was applied to the donor area with gauze soaked in saline, to control bleeding. The palatal flap was then sutured with 4-0 direct interrupted suture.

Graft placement

The graft was stabilized using a 5-0 silk suture. The mesial aspect of the graft was pierced with the needle, and the needle was passed passively underneath the tunnel created between the adjacent recessions. The suture was passed from the mesial aspect of the tunnel and pushed gently to the distal direction with a periosteal elevator so that the graft could slide underneath the tunnel. The graft was positioned coronal to CEJ. After positioning, the graft was secured to the mesial and distal aspect with sling sutures in order to prevent movement of the graft.

A periodontal dressing (Coe Pak) was placed over the foil to stabilize and protect the donor tissue.

Post-operative instructions

The patients were advised to use 0.2% chlorhexidine gluconate mouth rinse twice daily for 2 weeks. Post-operative home care instructions were given and they were prescribed analgesic to reduce post-operative pain and discomfort. Sutures were removed after 10 days. The patients were further followed up at 3 and 6 months intervals for supportive periodontal therapy. All the sites healed uneventfully. The donor site appeared normal in color and healthy after 4 weeks and the recipient site was healthy with excellent color match with adjacent tissues. The patient reported satisfactory esthetic results and loss of hypersensitivity.

► Discussion

Gingival recession is a very common occurrence nowadays and requires treatment to prevent further complications. In the past, periodontal treatment procedures were mainly aimed at preventing and treating the existing periodontal diseases. However, with increasing esthetic demands these surgical procedures are modified so as to preserve and enhance esthetics by various periodontal plastic surgical procedures. Periodontal

Suturing

Preoperative

Postoperative

plastic surgery deals with procedures that are designed to enhance esthetics, restore form, function and also include regenerative modalities too.

Obtaining predictable root coverage has become an important part of periodontal therapy. Many surgical procedures have been attempted to obtain root coverage. Some techniques when attempted produce unsatisfactory results. The reasons could be; poor case selection, improper technique selection, inadequate root preparation, insufficient height of interdental bone and soft tissue, poor surgical technique, insufficient blood supply from the surrounding tissues due to in adequate recipient site preparation, flap penetration.

There have been a number of treatment modalities for managing gingival recession such as free gingival graft, coronally advanced flap, use of barrier membranes, EMD, various growth factors etc., SCTG has become a popular treatment modality for coverage of denuded roots because of its high degree of success. It has shown the best predictability (95%) of root coverage in Millers Class I and II cases.[14] The clinical advantage of SCTG is apparent not only at the recipient site, where there is good tissue blending, but also at the palatal donor site, as it uses a more conservative approach to harvest the graft causing reduced degree of discomfort to the patient.

Langer and Langer[7] published an article that introduced and outlined the indications and procedures necessary for achieving success with the SCTG. They indicated that their technique had "the advantage of a closer color blend of the graft with adjacent tissue avoiding the "Keloid" healing present with free gingival grafts. The success of these grafts has been attributed to the double blood supply at the recipient site from the underlying connective tissue base and the overlying recipient flap. It can be used to gain total root coverage in isolated and multiple sites.

When histologically evaluated, use of SCTG over recession defects results in periodontal regeneration.[15]

In this study, all the sites treated with pouch and tunnel technique showed 100% root coverage. The pre-operative recession height ranged from 3 to 4 mm and width around 2-4 mm.

The tunnel technique was developed as a modification of the envelope technique. This technique was designed specifically for the wide multiple recessions frequently found in the maxilla where root coverage seems to be most difficult to obtain. The results of the tunnel procedure demonstrated favorable root coverage. The use of the tunnel technique not only preserves the papillary height between two mucogingival defects, but also helps maintain adequate blood supply to the underlying graft. It also provides excellent adaptation of the graft to the recipient site. Produces highly esthetic results and also increase the thickness of keratinized gingiva.

► Conclusion

Both functionally and esthetically gingival recession is a serious concern. The surgical technique of choice depends on several factors, each having their advantages, disadvantages, indications and contraindications. The clinician should choose from among the different surgical protocols available, selecting the least traumatic technique for the patient. Success of any root coverage procedure is determined by various factors that are critical at each step of the procedure starting from case selection to long-term maintenance (supportive periodontal therapy) and patient compliance. SCTG with pouch and tunnel technique produces significantly superior and predictable results with greater advantages.

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A review on the influence of periodontal treatment in diabetes mellitus

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Abstract

Abstract: Periodontal diseases can induce or perpetuate an elevated systemic chronic inflammatory state. Inflammation induces insulin resistance and can occur in patients with and without diabetes. In the individual with type 2 diabetes, who already has significant insulin resistance, further tissue resistance to insulin induced by chronic gram negative periodontal infection may result in poor glycaemic control. Considering the role of inflammation in type 2 diabetes mellitus, periodontal treatment may have a beneficial effect in reducing insulin resistance, thereby improving glycaemic control. This review provides a current update on the available evidence regarding the effect of periodontal therapy in the diabetic patient with periodontitis.

KDJ 2019 | Vol. 42 | No. 3 | Pg 172-174

► Introduction:

Periodontal disease and diabetes mellitus have a complex bidirectional interrelationship[1]. Epidemiological and experimental studies have demonstrated that diabetes mellitus is a riskfactor for periodontal disease and that periodontal disease is more prevalent and severe in diabetic patients. Evidence also points out that periodontal diseases can adversely affect metabolic control of diabetes, playing a role in its pathogenesis and its complications.[2,3,4] There are several proposed pathogenic mechanisms linking periodontal disease and diabetes mellitus in a bidirectional manner.[5] Pro-inflammatory mediators play a significant role in this relationship. Both diseases present possible genetic underlying mechanisms as evidenced by their strong familial inheritance. They may also share immunological mechanisms of exaggerated immune response to exogenous factors.[1,6] Insulin resistance which is more typical of type 2 diabetes mellitus may result from oxidative stress[7] or a chronic inflammatory state possibly associated with obesity or untreated periodontal disease.[8] Insulin resistance can manifest as hyperglycaemia leading to the production of advanced glycation end products with the potential to bind to specific high-affinity cell surface receptors triggering the production of pro-inflammatory cytokines by macrophages.[1] The excessive formation and accumulation of advanced glycation end products in tissues results in diabetic complications, interferes with collagen turnover in fibroblasts (impaired wound healing) and also amplifies neutrophil response to periodontal pathogens.[9] Because of the role of inflammation in type 2 diabetes mellitus, periodontal treatment may have a beneficial effect in reducing insulin resistance, therefore improving glycemic control. This review is a synthesis of current evidence on the potential influence of periodontal therapy on diabetes mellitus.

To study the effect of periodontal therapy on diabetes mellitus, Teewuet al.[10] conducted a systematic review and meta- analysis,which included five studies. Time durations of included studies ranged from 3 to 9 months. All studies described a study population having type 2 diabetes with periodontitis. In total, there were 199 patients in the intervention group and 183 patients in the control group. All subjects in the intervention group received scaling and root planing with or without local

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or systemic administration of antibiotics, whereas no subject of the control group received any form of periodontal intervention. Theyconcluded thatperiodontal therapy for type 2 diabetic patients with periodontitis is favourable and can reduce HbA1c levels on average by 0.40% more than in the non-intervention control subjects.

Simpson et al11 also concluded from their systematic review and meta-analysis that the treatment of periodontal disease does improve glycaemic control in people with diabetes, with a mean percentage reduction of 0.29% in HbA1c at 3-4 months.

Engebretson & Kocher[12] in their systematic review and meta-analysis, conducted an update to the systematic reviews of Teewuet al.10 and Simpson et al.[11] They included 9 randomized clinical trials(RCT's). A total of 719 subjects who met the inclusion criteria (398 in the treated group and 321 in the untreated group) were studied. After 3–4 months follow-up, they reported a modest reduction of –0.36% glycated hemoglobin (95% confidence interval: –0.54, –0.19 P < 0.0001) in type 2 diabetes mellitus with periodontal diseases. The nine RCT's included patients who underwent nonsurgical/surgical periodontal treatment with or without adjunctive topical or systemic antibiotics.

In a recent systematic review13seven randomized controlled trials involving 940 participants with a primary outcome of change in glycated hemoglobin and/or fasting plasma glucose and having a minimum of 3 months follow-up were included. There was a reduction of glycated hemoglobin of 0.48 % (95 % CI: 0.18–0.78) after 3 months follow-up and 0.53% (95 % CI: 0.24–0.81) at the end of the intervention period. There was also a significant reduction of fasting plasma glucose level, 8.95 mg/dl (95 % CI: 4.30–13.61) in the intervention group at the end of the intervention.Duration of intervention periods in the studies varied from 3-6 months. In this meta-analysis, subgroup analysis of the studies was done depending on their intervention type (adjunctive antibiotic/mouth wash use or not). There was a statistically significant reduction of HbA1c in both the intervention groups with adjunctive therapy; 0.51 (95 % CI: 0.03, 1.00; p = 0.04) and non-adjunctive therapy: 0.53 (95 % CI: 0.19, 0.87; p = 0.002). These results point out that the reduction of glycated hemoglobin is due to periodontal therapy and the presence of adjunctive antibiotic or mouth wash has no effect on glycaemic control.

A large multi-site, single-blind, randomized, controlled clinical trial by Jones et al[14] examined the efficacy of periodontal care in the improvement of glycaemic control in veterans with poorly controlled diabetes. 193 patients with a mean baseline glycated hemoglobin of 10% received periodontal therapy. In 132patients who completed the study, no statistically significant difference in glycated haemoglobin was obtained at 4 months between the periodontal treatment group and untreated group. They reported that subjects who received periodontal therapy were more likely to achieve reductions in HbA1c of 0.5% and 1% (although results were not statistically significant at the 0.05 level), and were less likely to receive increases in insulin dosage.

Soorya et al.[15] in a small sample interventional study divided 45 type 2 diabetes mellitus patients into 3 groups of 15 patients according to their glycaemic control at baseline (well, moderately and poorly controlled diabetes, 6–7%, 7–8% and > 8% glycated hemoglobin, respectively) and re-evaluated them 3 months after nonsurgical periodontal treatment. They reported improvements in glycated hemoglobin and gingival crevicularfluid level of tumor necrosis factor alpha. The reductions in mean values of glycated hemoglobin and gingival crevicularfluid levels of tumor necrosis factor alpha were related to their baseline levels.

Findings contrary to the above mentioned evidence were reported byEngebretsonet al.16 from the results of 'The Diabetes and Periodontal Therapy Trial'. The trial duration was 6-months. It was a single-masked, multi centric randomized clinical trial involving 476 type 2 diabetes mellitus patients who received periodontal therapy. The investigators found no improvement of glycaemic control resulting from periodontal treatment in patients with moderate to advanced periodontal disease. The majority of these patients were taking diabetes medication (oral hypoglycaemic agents, insulin or both) and presented at baseline a mean glycated hemoglobin % of 7.84 (treatment group) and 7.77 (control group). Well controlled type 2 diabetes mellitus patients are defined as having < 7% glycated hemoglobin.17They concluded that non-surgical periodontal therapy did not improve glycaemic control in patients with diabetes mellitus and moderate to advanced chronic periodontitis.

It may be reasonable to conclude that baseline levels of glycaemic control might be an influencing factor in the results of studies reporting no statistical significance of periodontal treatment effect on levels of glycated hemoglobin, alongside several other possible confounding factors.[18]

In the aforementioned studies, glycated haemoglobin was used to assess blood glucose levels over a period of three months. Glycated hemoglobin management and control is important since it has been reported that a reduction of 1% glycated hemoglobin can be associated with a 27% risk reduction for diabetes end point complications or 37% for micro vascular complications.[19] Also, a reduction of approximately 0.4% glycated hemoglobin is clinically similar to the addition of a second drug to a pharmacological regime for the management of diabetes mellitus.[20]

Considering the important role of inflammationon insulin resistance,Correa et al.[21] assessed the effects ofnonsurgical

periodontal therapy on 23 type 2 diabetes mellitus patients. Circulating concentration of glycated hemoglobin, Creactive protein, fibrinogen, interleuken-4, interleuken-6, interleuken-8, interleuken-10 and tumor necrosis factor alpha were assessed. Patients were on an average obese, and also medicated for diabetes mellitus, but reported no changes in their medication regime or lifestyle throughout the duration of the study. Three months after the end of the nonsurgical periodontal treatment the re-evaluation of the patients resulted in a significant reduction in fibrinogen and tumour necrosis factor alpha. Although not statistically significant, atrend for the reduction of the remaining biomarkers were reported. Periodontal treatment also reduced HbA1c and hs-CRP levels. (Though not statistically significant)

Another systematic review[22] was conducted to assess the effect of periodontal therapy on serum levels of inflammatory markers in people with type 2 diabetes mellitus (T2DM). Nine studies were included.The meta-analysis showed a statistically significant mean difference for TNF- α (-1.33 pg/ml, 95% CI: -2.10; -0.56, p<0.001) and CRP (-1.28 mg/l, 95% CI: -2.07; - 0.48, p<0.001) favouring periodontal intervention versus control.The results of this meta-analysis support the hypothesis that periodontal therapy reduces serum levels of TNF- α and CRP in T2DM individuals. The decrease of inflammatory burden has important implications for metabolic control and can, in part, explain the mechanisms linking periodontitis and increased risk for complications in people with T2DM.

► Conclusion:

Amidst the existing mixed results and controversy, we underline the conclusions of the Joint EFP/AAP Workshop as reported by Chapple et al.20who stated that current evidence affirms that periodontal disease has a dose-dependent negative impact on glycemic control in diabetic patients. Periodontal therapy could help achieve better glycaemic control in the diabetic patient with periodontitis.

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Two conventional root coverage procedures for isolated gingival recessions: A case series

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Abstract

The evolution of periodontal plastic procedures has allowed the clinician to meet the desired expectationsand the aesthetic demands of the patient. Various techniques have evolved to treat the exposed root surfaces.Techniques such as a coronally repositioned flap, lateral pedicle flap, double papilla flap, and semilunar flap in combination with sub epithelial connective tissue graft (SCTG) can be employed to treat gingival recession.This article illustratescases with encouraging results, treated with sub epithelial connective tissue graft (SCTG) and another case with lateral pedicle flap.

Key words: sub epithelial connective tissue graft, lateral pedicle flap, gingival recession, root coverage.

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► Introduction

The loss of attachment caused by periodontal disease is clinically represented either as periodontal pocket or gingival recession (GR). GR is the exposure of the root surface by a shift in the gingival margin apical to the cementoenamel junction (CEJ)[1]. Several etiological factors that account for the recession appearance are traumatic toothbrushing, tooth malpositioning, periodontal disease, aberrant frenal attachment, occlusal trauma, orthodontic tooth movement, iatrogenic factors and bone dehiscences[2]. Marginal tissue recessions may result in compromised periodontal health, aesthetic, and comfort of the patient. The gingival recession is very common clinical condition and may be localized or generalized can be a result of bacterial action combined with predisposing factors. According to some authors[3], the lower incisors were the teeth that showed higher frequency of recessions.

Numerous techniques have been proposed for root coverage procedures including lateral pedicle flap, coronally advanced flap, guided tissue regeneration, free soft tissue autografts, and subepithelial connective tissue graft (SCTG). The root coverage procedure using SCTG is a predictable and versatile technique[4]. It creates a bilaminar vascular environment to nourish the graft. It was first introduced by in Langer and Langer in 1985[5] to increase the width of keratinized gingiva later on modified by Nelson in 1987 which was used to treat gingival recession[6].

This article brings forward two cases with single gingival recession in the mandibular arch treated with subepithelial connective tissue graft (SCTG) and lateral pedicle flap with successful outcome.

► CASE 1

A 22 year old male patient reported at the Department of Periodontology of KMCT Dental College, Mukkam, Calicut with the chief complaint of receding gums in the lower front tooth region. On clinical examination, there was Miller's class II gingival recession in the lower left central incisor (31) with recession depth of 5mm and width of 3mm (Fig. 1).

Phase I therapy was done and patient was recalled to re-evaluate gingival and oral hygiene status.

Clinical Procedure

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Preparation of the recipient site

After administration of local anesthetic agent, a sound anesthesia was achieved. A partial thickness flap was then raised at a distance to the area of recession (fig.2 and 3). The flap was raised beyond mucogingival junction and the root surface was planed meticulously.

Harvesting of connective tissue graft

The area on the hard palate, from where the connective tissue graft has to be harvested was anesthetized using a local anesthetic agent (fig. 4). The connective tissue graft was harvested from the palate using a "trap door" approach. Vertical incisions were given at the mesial and distal extent of the graft to facilitate removal of connective tissue. Periosteal elevator was used to raise a full thickness periosteal connective tissue graft (fig. 5). The palate wound was sutured by primary closure (fig.6).

Grafting to the recipient site

The donor connective tissue was secured to the papillae with 4-0 mersilk suture. The overlying partial thickness flap was then replaced over the donor tissue and interrupted sutures were placed in the mesial and distal papillae so that the flap covered as much of the donor tissue as possible. A periodontal dressing was placed over the recipient site (fig. 7) and the donor site was left uncovered after suturing.

Post-operative care

Post-operative instructions were given. The patient was advised to take medications such as antibiotics and analgesics as prescribed for 5 days. The periodontal dressing and sutures were removed 10 days post operatively.

Sutures were removed 10 days post-surgery. A good root coverage and significant aesthetic improvement was observed in the denuded root area (fig.8). Patient was satisfied with the treatment outcome. Oral hygiene instructions were reinforced, and patient was instructed to come for regular check-up.

► CASE -2

A 27-year-old healthy female patient reported to the Outpatient Department of Periodontology, KMCT Dental College, Mukkam, Calicut with a chief complaint of "an elongated tooth" in the front region of lower jaw (fig.9). Patient also had mild sensitivity to cold in relation to the mentioned tooth. Medical history of the patient was non-contributory. Intraoral clinical examination revealed, Miller's Grade II gingival recession in

CASE 1- SUB EPITHELIALCONNECTIVE TISSUE GRAFT

Figure 1: Pre Operative

Figure 2: Incisions Placing

Figure 3: Recipient Site Preperation

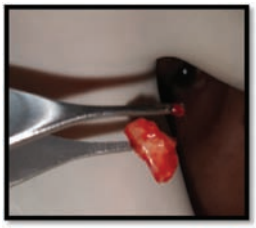

Figure 4: Donor Site

Figure 5: Tissue Obtained

Figure 6: Suturs Placed

Figure 7: Periodontal Pack Placed

Figure 8: Post Operative

Case 2-Lateral Sliding Flap

relation to lower left mandibular central incisor (31) measuring 4 mm in height. There was an adequate attached gingiva present in relation to tooth 32. Adequate vestibular depth was observed for mandibular labial vestibule. Intra-operative periapical radiograph revealed no interdental bone loss in 31, 32 region. Trauma from occlusion and tooth malposition in respect to the involved tooth was ruled out clinically.

► Clinical procedures

Thorough scaling and root planning was done and the patient was recalled to assess her oral hygiene before planning periodontal surgical procedure.

Preparation of recipient site

Local anesthesia was used to anaesthetize the surgical site (31, 32 region). The area was de-epithelisation approximately 3mm laterally and apically to the gingival margin. After this root surface was thoroughly curetted to achieve a smooth surface.

Repositioning of the pedicle flap

Donor site was prepared by extending sulcular incisions from the distal surface of 31 till mesial surface of 33 (fig.10). Two vertical incisions were made, one at distal line angle of 31 and other at mesial line angle of 33. Vertical incisions were made continuous with horizontal incisions, and were extended apically to the mucosal tissue to permit adequate mobility of the flap. The flap was raised using a sharp dissection. A cut back releasing incision was made to ensure that the flap is free of tension and is free enough to permit movement to the recipient site (fig.11).

The flap was then sutured at the recipient bed using 4-0 mersilk suture by interrupted sutures (fig.12). The area was secured by periodontal pack (fig.13).

Post-operative care

Post-operative instruction were given. The patient was advised to take medications such as antibiotics and analgesics as prescribed for 5 days. The periodontal dressing and sutures were removed 10 days post operatively.

After suture removal, examination of surgical site showed complete coverage of root surface of 31 with excellent color matching (fig.14). Patient was satisfied with the treatment outcome. Oral hygiene instructions were reinforced, and patient was instructed to come for regular check-up.

► Discussion

The desired results after mucogingival surgical procedures are root coverage up to the CEJ, firm tissue attachment to the tooth, sulcular probing depth <2 mm, an absence of bleeding on probing, presence of an adequate keratinized tissue, color, and contour match to the adjacent tissues[7]. Various techniques for root coverage have been described in the literature. Among them, sub epithelial connective tissue graft and lateral sliding technique were performed to cover the denuded root surface in the above cases. The choice of adequate technique and the long-term success of the procedure depends on the careful evaluation of the defect type, recession's etiology, operator's ability, presence of keratinized tissue, tissue width, predictability, single or multiple gingival recessions, healing, aesthetic result, and risk factors[8].

SCTG can be indicated for the treatment of single or multiple gingival recessions, correction of the papilla's volume, and increasing the amount of the keratinized tissue or deformities of the edentulous gingival border [9] and perspective improvement of the root coverage associated with restorative procedures, abrasion, or dental caries[10]. Vertical incisions at the recipients' site are eliminated, thus preserving the blood supply for the flap[11]. The advantage of using an SCTG is that it provides a good tissue blend at the recipient site while being conservative during its harvest at the donor site[12]. The connective tissue carries the potential to induce keratinization in the newly forming epithelium. Additionally, this technique is less invasive at the palatal area, causing a minimum post-operative discomfort to patient and offering a great predictability of coverage. Some of the disadvantages include; need of a greater amount of tissue than the required for covering the area due to the contraction suffered by the tissue, from the surgery to its functional incorporation within the receptor site[13]; and difficulty of standardization of the graft thickness, which may result in aesthetical alterations[14]. Accordingly, these aspects must be observed during the surgical procedure.

Grupe and Warren in 1956[15] suggested that laterally repositioned flap has shown to be the most successful procedure for the treatment of gingival recession. The procedure was then improved and named: the laterally positioned flap. Staffileno recommended the use of a partial-thickness pedicle flap; consequently maintaining the donor area covered by periosteum[16]. Sugarman reported with human histologic studies that new connective tissue attachment occurred with laterally positioned flap[17].

Advantages of using lateral pedicle graft over the root coverage procedure is that it requires only a single surgical site, with no separate donor site and offers an excellent color matching of the graft tissue in harmony with surrounding tissues as observed in present case. The disadvantage of using lateral pedicle graft is possible bone loss and gingival recession on the donor site. Guinard and Caffesse reported an average of 1 mm of post-operative gingival recession on the adjacent donor site[18]. Therefore lateral pedicle flap is contraindicated

where the width, height, and thickness of adjacent keratinized gingiva of the donor tissue is inadequate or where an osseous dehiscence or fenestration exist.

► Conclusion

The elimination of the etiologic factors along with the conservative approaches and of SCTG and lateral pedicle flap to treat both the gingival recessions resulted in the success of the case. To conclude, these techniques can be used as effective treatment modality for managing isolated recession defects affecting aesthetic zones of the mouth.

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CDE Report

Dr Jose Paul
Chairman CDE

Report for 3rd issue of KDJ 2019

The CDE activities are going on full swing in majority of the branches with active participation of our members. IDA as an organization is bound to provide opportunities for updating the knowledge of its members. The state office fully understands this duty and many steps are being taken to provide our members with the latest in knowledge and technology. Privilege CDEs introduced by the CDE wing is well accepted by our members which can be ascertained by the huge turnout of our members for such CDEs.

The fourth CDE, which again was a program, free of registration charges was held at karunagapilly on June 30th. The Topic was 'Rendezvous with the rising stars – An update on recent concepts on restorative dentistry' and the faculty were Dr George Jacob, Dr JojoKottoor, Dr ShibuSreedhar and Dr Vijit Narayana. The post lunch panel discussion was moderated by Dr George Jacob. 280 members benefited from this program. The event was jointly hosted by the branches of Karunagappilly, Mavelikkara, Kollam and Kottarakkara

The 5th CDE (3rd Privilege CDE) was held at Trivandrum on July 21st. The topic was 'Complicated Endodontics' and the faculty was Dr Niti Shah, Endodontist from Mumbai. A total of 125 members attended the program jointly hosted by the branches of Trivandrum and Attingal.

The 6th CDE (4th Privilege CDE) was held on August 25th at Annoor Dental College, Muvattupuzha. Dr Sameera Sheikh conducted the program on 'Full mouth rehabilitation – a step wise planned approach'. More than 185 members attended the program jointly hosted by the branches of Malanadu, Central Kerala Kottayam and Green Valley.

CDH Report

Dr Subash K. Madhavan
Chairman CDE

We are happy to inform that till 31st August 2019, The council on Dental Health Kerala state completed its 286 programs through the state branch and local branches in Kerala. This includes various charity programs,awareness and screening camps,check up camps,exhibitions,parent-teacher orientation programs and observation of various important days.

Among these programs the important state events were Dentist day, world oral health day, No Tobacco day and National oral Hygiene day.

The Dentist day was hosted by IDA Trivandrum branch at Kanakakkunnu Palace,Darbar hall on March 6th Wednesday 2019, which includes a scientific deliberation by Dr. Binu Purushothaman on the topic Title path of future. The official programme was inagurated by Dr. Shashi Taroor, member of Parliament which was presided by IDA Kerala state president Dr. Abhilash G.S in the presence of IDA national Vice President Dr. Prathap Kumar K.N, IDA Kerala state Hon Secretary Dr. Suresh Kumar. G, IDA Kerala state CDH Chairman Dr. Subash K. Madhavan, President elect Dr. Joseph C.C, IPP Dr. Ciju A.Poulose, Vice Presidents Dr. Anil Thunoli, Dr. George Abraham and state treasurer Dr. Arun. R.

IDA media awards and IDA Excellence awards were awarded to winners.

The World Oral Health Day observations conducted on March 20th by IDA Kerala state which was hosted by IDA Tripunithura at Layam Koothambalam Tripunithura. The function presided by Dr. Abhilash G.S IDA Kerala state president and was inagurated by Adv. M Swaraj MLA in the presence of Municipal chairperson Smt. Chandrika Devi, State CDH chairman Dr. Subash K. Madhavan, Dr. Krishna Kumar branch president, Dr. Noushad branch secretary and Dr. Mathews Baby branch CDH convener.

Oral cancer awareness talk, dental exhibition and dental check up were conducted and was well attended by the public.

On May 31st 2019, No Tobacco Day was observed by IDA Kerala state at Kottayam, which was hosted by IDA central Kerala Kottayam. A mini marathon was flagged off by IDA Kerala state president Dr. Abhilash G.S in the presence of state CDH chairman Dr. Subash Madhavan, Dr. Raju Sunny branch president, Dr. Nithin Joseph branch secretary and Dr. Subi branch CDH convener.

A well organised car rally was conducted and a flash mob by the students of School of Medical Education followed by a public programme presided by IDA Kerala state president Dr. Abhilash G.S and was inagurated by sri. Thomas Chazhikadan, member of Parliament in the presence of Smt. Esha Priya IAS sub collector of Kottayam, state CDH chairman Dr. Subash Madhavan, Dr. Raju Sunny IDA branch president, Dr. Nithin Joseph branch secretary followed by an anti-tobacco pledge led by Dr. Subash Madhavan.

On August 1st 2019, National Oral Hygiene Day was observed by IDA Kerala state at Ashraya Sanketham, Kalayapuram hosted by IDA Kollam branch.

Inaugural ceremony presided by Dr. Abhilash G.S IDA Kerala state president, inagurated by Adv. Aysha Potty MLA in the presence of Mr. Riyas Bin Sharaf Sr. producer Kaumudi channel, IDA Kerala state Honorary secretary Dr. Suresh Kumar. G, state CDH chairman Dr. Subash Madhavan, Kerala state past secretary Dr. Shibu Rajagopal, Dr. Manoj Varghese branch president, Dr. Annie George branch secretary, Dr. Rinu Francis branch CDH convener.

The support of IDA Kottarakkara in this programme was well appreciable and their big presence with Dr. Byju P. Sam branch president, Dr. Reji M. John branch secretary who introduced the chief guest was well noticed.

The Swanthana Smitham award presented to Shri. Kalayapuram Jose and Hridhaya Smitham programme was inagurated by IDA Kerala state Honorary secretary Dr. Suresh Kumar. G.

IDA Kerala state CDH wing is on the way to execute one of our dream project this year, 'SANJEEVANI' (an oral cancer detection and control programme through out Kerala) in association with Cochin Cancer Institute. The details will announce soon.

Another programme associated with the Lakshadweep Administration is also in progress and hope to get executed in the end of this year.

The humanity face of IDA is CDH wing and the same CDH wing can perform only with the support and effort of local branches and members. A big salute for them and also expecting the same support for our future programs also.

THE IMPLICATIONS OF THE CLINICAL ESTABLISHMENT (C.E) ACT AND IDA CAN (Indian Dental Association - Clinic Accreditation Network)

The Clinical establishment act (CEA) passed by the Kerala assembly earlier this year has been a landmark legislation which could be a watershed moment too, for the health care sector in our state. The state C.E act is actually a sequel to the clinic establishment act that was passed by the central govt in 2010.

RATIONALE BEHIND THE CLINICAL ESTABLISHMENT ACT:

A rising asymmetry and a lack of transparency in health care delivery were the main reasons that prompted the govt to think of introducing the clinical establishment bill.

The spiralling cost of medical care, the inequity in pricing and a lack of standardisation in treatment procedures were also factors that contributed to it.

OBJECTIVES OF THE C.E. ACT: -

The two most important objectives of the C.E. act are..

1) Registration: - To make all the clinical establishments in the state accountable and to bring them under a single umbrella.

2) Regulation:- To set minimum standards for the services provided by different clinical establishments.

We can access more details with regard to the Kerala C.E. act from the following site, https://www.clinicalestablishments.kerala.gov.in/

IDA REPRESENTATION IN THE C.E COUNCIL:-

The C.E. act proposes to have a state C.E Council which would be the apex body with respect to the decisions taken under the act and to implement it's objectives. Along with many other functions, the state C.E Council is vested with the important duty of formulating the standards for each category of clinical establishment.

In the first draft bill that was tabled in the assembly, the proposed C.E. Council had representatives from all systems of medicine, but the only professional association to represent the entire spectra of modern medicine was the Indian Medical Association (IMA).

This draft bill was referred by the Kerala legislative assembly to a subject committee for further scrutiny, before being presented in the subsequent session.

The IDA Kerala state office put this valuable time to the best possible use. The office bearers of IDA Kerala and their representatives met all the MLAs in the subject committee, at various districts, and presented our concerns and demands in detail.

They pointed out that dentistry, being a unique speciality with a separate regulatory body and specific needs, required a separate representative and that IMA alone would be clearly inadequate to deal with our issues.

This was also raised by our state office bearers in the three C.E bill hearings organised by the Ministry of health, at Trivandrum, Kochi and Calicut.

After these meaningful interventions, the health minister and the department were convinced of our demands and in the official C.E act, along with IMA and professional associations of other medical systems, IDA was also given a representation in the state C.E Council. This was a certain victory for the IDA Kerala state office, since it was for the first time our authorities were acknowledging the fact, that dentistry and IDA had an identity of its own.

THE CLINIC STANDARDISATION PROG OF IDA KERALA:

The idea of initiating a Clinic standardisation prog by IDA Kerala was to have certain minimum standards implemented in the clinics of IDA members across the state. More than anything else, it was a reflection of the commitment, a professional association functioning in the health sector had towards the society.

WHAT IS STANDARDISATION, ACCREDITATION & CERTIFICATION:-

Standardisation, particularly with regard to health care organisations, is a process by which a body formulates a set of standards or rules that conforms to established scientific norms and practices across the world. The standards can be broadly classified as 1)Patient oriented, 2) Clinic oriented and 3) Management oriented.

Certification:- If a clinic fulfils the necessary requirements, the authorised body will do an assessment to ensure whether the standards have been satisfactorily met. If they are convinced, a certificate of approval would be awarded to the establishment, which would be valid for a stipulated period.

Accreditation:- The process or mechanism by which an organisation assesses the standards of a clinical establishment is known as accreditation.

IDA CAN (Indian Dental Association Clinic Accreditation Network)

IDA CAN is the standardisation, accreditation and certification prog of IDA Kerala, customised to suit the socio-economic conditions of Kerala. It is actually an offshoot of the clinic standardisation prog which began six to seven years ago.

WHY, WHAT & HOW OF 'IDA-CAN'

WHY:-

1) SOCIAL COMMITMENT

As a professional association committed to the well being of the society, it's our moral responsibility to render quality service to the public and make sure that it is provided in a safe and healthy environment.

2) TO PREVENT CORPORATE MONOPOLY IN DENTISTRY

The infiltration of corporates into the field of dentistry is threatening the practice equations of this speciality and trying to topple a level playing field. Today, corporate dental clinics are posing themselves as the apostles of quality dental care in our state. But if we look deep, we can understand that this is absolutely baseless and in most cases only a pretension. In reality, no corporate clinic can match the care and attention that a traditional single dentist owned clinic can impart to their patients.

Usually the corporate clinics flaunt a better visual appeal, by improving the quality of the decor and design of their clinics and this is often interpreted as an improved quality in the treatment provided, which is misleading.

The standardisation and accreditation prog, IDA CAN, aims to make IDA, a brand synonymous with quality, that can compete with any corporates in the state. The vision is to make an IDA CAN certfied clinic, the gold standard, as far as quality dental care in Kerala is concerned.

3) TO PROVIDE A POINT OF REFERENCE GUIDING GOV'T POLICIES

The foremost objective of the CE act is to create and set certain minimum standards for every category of clinical establishments.

In dentistry when the standards are being formulated by the CE council, the standards prepared by IDA should function as the point of reference. If not, in the absence of any other models in the state, the CE council would set their own standards, which may not match the practice scenario here, and hence would be difficult to follow.

So one objective of our standardisation prog is to serve as a reference point to guide govt policies.

4) TO BRING IN A MINIMUM STANDARD IN THE CONSULTATION CHARGES

Though the IDA Kerala state office has time and again tried to implement a minimum standard rate for our treatment procedures across the state, they haven't succeeded so far for a number of reasons.

By ensuring a minimum standard in the treatment procedures, we can in-directly ensure that a minimum treatment fee is always collected, since only by compromising on the standards, would one be able to reduce their fees and that could be identified.

WHAT:-

The standards are classified into three

a) Patient oriented standards (related to patient care)

b) Clinic oriented (related to clinic requirements)

c) Management oriented standards (related to the responsibilities of the administration and management)

The detailed text of our standards can be accessed from the IDA Kerala website, https://docs.google.com/viewerng/viewer?url=http://www.idakerala.org.in/public/pdf/guidelinesw_print.pdf

HOW:-

The process of accreditation can be done, by employing any of these three methods

a) Self assessment

b) Independent agencies

c) Peer reviewed

IDA CAN follows a self assessed and peer reviewed process of accreditation.

IDA CAN- THE MODUS OPERANDI

The Certification Panel:-

The local branches under IDA KSB would be marked as three zones. a) North, b) Central and c) South

A Vice- President of IDA KSB would be the coordinator of a particular zone.

There will be three panels of assessors, one corresponding to each zone.

Each panel would have 30 assessors. Every local branch can nominate two assessors to the panel. Rest of the assessors would be nominated by the state office.

The Certification process:-

There would be an IDA CAN technical committee to oversee the whole certification process. This committee would be in charge of formulating the standards and bringing modifications to it periodically.

Every local branch should select an IDA CAN co-ordinator who would be in charge of the clinic certification with respect to that branch.

The whole process of certification would be an online process.

Once a self assessment is done as per the IDA CAN standards available on the website, an online application form should be submitted duly filled with all the required details along with an attached proof of the certification fee.

The Certification fee for IDA CAN certification is currently Rs 3000 which would be valid for a period of 3 years.

An inspection date within a span of 45-60 days from the date of application would be intimated to the applicant.

On processing the form, a panel containing a list of assessors would be sent to the applicant from the state office.

The selection of the panel to be sent to an individual applicant would be the discretion of the zonal co-ordinator.

The number of assessors visiting a clinic would be 4, out of which 2 can be selected by the applicant and 2 nominated from the state office. The applicant can select only 1 assessor from his own branch.

The assessors would then visit the clinic on a mutually agreed date and after assessment would report the IDA Kerala state office and the certification would be granted, if found satisfactory..

THE RELEVANCE OF IDA CAN WITH REGARD TO THE C.E. ACT.

The Clinical Establishment act, every clinical establishment in the state has to take a provisional registration once the standards are formulated and the notification is given. After the provisional regn, there would be a stipulated period in which the establishment should get themselves equipped, to meet the prescribed standards. After that, the assessment team of the C.E Council would conduct an inspection and verify that the standards have been met. If found satisfactory, the permanent registration would be given. Even after the permanent registration is given, there would be periodic inspections to ensure a continuous compliance with the standards.

But there is a clause (Sec:19; Cl.13) in the act which says, that all clinical establishments which have an NABH accreditation or similar accreditation progs approved by the Govt/ C.E Council would be exempted from these inspections. This is an added incentive for IDA Kerala to have an accreditation prog like IDA CAN of their own.

An NABH accreditation is an enormously expensive and laborious process which only an elite few can afford.

In it's place we are planning to have an affordable and alternative system, customised to suit the socio-economic conditions prevailing in our state, without compromising on the quality of the process or the standards. The challenge before us now is get our certification prog approved by the govt and the C.E Council.

In the meantime, IDA CAN would also function as an entry level accreditation system which can make life easier for those dental clinics in Kerala which actually aspire to go for an NABH certification.

IDA CAN:- CURRENT STATUS

70 dental clinics in Kerala have so far registered to receive IDA CAN certification. The hard copies of the standards and the relevant hand-outs have been sent to these registrants.

The assessments can be started only after the online technical support and infrastructure is fully functional.

New registrations for IDA CAN would be invited only after the assessments for the existing applicants are started which would be informed through the IDA Kerala website.

Dr Mili James
WDC chairperson

WDC Report

Dr Priya Rajendran
WDC secretary

WDC of branches across the state have reported a host of activities over the second and third quarters of the current term, all of which have been informative, wide-reaching and with a touch of creativity and innovation.

Of the CDE programmes conducted, many were women-centric (Coastal Malabar, Kodungallur, Trivandrum), as well as with WDC members as faculty (Ernad, Tripunithura).

Talk shows on radio/TV had been organized by WDC Kodungallur and Kollam.

Special day observations included National Safe Motherhood day, World day for Safety and Health at work, International Menstrual hygiene day, Mothers' day, World Health day, International day of Families, World No-tobacco day, World Environment day and International Yoga day, with active involvement from WDC Palakkad, Kodungallur, Tripunithura, Attingal, Kollam and Trivandrum.

Several special events were also organized, such as blood donation campaign by WDC Kochi and Karunagappally, setting up of a Free dental clinic by WDC Kochi and adoption of an institution by WDC Kodungallur.

Many WDC teams also found the time for fun and frolic in the form of tours and get-togethers, like WDC Thiruvalla, Coastal Malabar, Kodungallur andAttingal

CDH activities of various branches like Malanadu, Kochi, Kodungallur and Kollam were also largely supported by the respective WDC members.

Trichur Branch

CDE Programmes

The 2nd CDE programme was held on 28th July on "Reconceptualize your practice" by Dr. SabhisSivadas with demonstration of each procedure at Elite International. 61 members attended the class. The practical oriented view that was given by the faculty was well appreciated by all the members.

An Interbranch CDE was held on a topic of Periodontics, "Pink-White love story" by Dr. G R. Manikandan at Hotel Trichur Towers. 59 members attended the lecture.

Family meet

The Family meet for Onam Celebrations was held on 20th September at Dass Continental. A variety of games and entertainment programmes was organized for the kids and family. 83 members attended the event with their families.

CDH Activity

A dental camp was organized in asscociation with Lions Club on 17th August between 9:00 am to 11:00am at Mar Timotheus Church, Nellikkunnu, Thrissur. DrBenil P and DrArjun V Dev took part in the camp and screened nearly 50 people.

Other activities

The IDA Zone 3 cricket tournament was hosted by IDA Thrissur on 29th September at Athreya Cricket Academy. Teams from IDA Chalakkudy, IDA Ernad, IDA Kodungallur, IDA Palakkad, IDA Malappuram, IDA Valluvanad and IDA Thrissur took part in the tournament. 9 pool matches, 2 semi-finals and the finals was conducted throughout the day in which IDA Ernad turned out to be the Zonal champions and IDA Malappuram took the Runners up trophy. DrMuhammedAjmal N M from IDA Ernad was declared the Man of the Series.

Trophies awarded: Man of the Match (9 nos for pool matches), Man of the series, Man of the semi-finals (2 nos), Man of the finals, Best Bowler, Best Batsman, Best 40+ player, Best wicket-keeper, Runners up trophy and the Champions trophy.

Dr G.R. Manikandan giving lecture on Periodontics

Dr. Sabhish conducting class- Renconceptualize your practice

Zone 3 Finalists with the Organizing team

North Malabar Branch

CDH: May 31st NO TOBACCO DAY was observed with a rally starting from IMA Hall premise to the Kannur Town Square.50 of our members and students from Mahe Dental college participated.There was a meeting conducted at Town Square in which awareness was given to the public by Dr Raj A C.Dr Jasna secretary of womens wing welcomed the gathering and Dr Thasneem President gave inaugural address. An oath was taken by the members and public which was prompted by Dr Jayasree K T. Media coverage was present for the programme.

THE INTERNATIONAL DAY AGAINST DRUG ABUSE AND ILLICIT TRAFFICKING was observed at Central Jail in collaboration with Malabar Cancer Care Society Kannur on June 26th.This was followed by a screening camp for inmates.Dr Thasneem, and Dr Jayasree K T participated.

August 11th a dental awareness and screening camp was conducted at Manjapaalam Lions Club auditorium in collaboration with a medical camp by The Lions Club Kannur South. Dr Thasneem, Dr Valsalan,Dr Meethu, Dr Raj A C etc participated. About 50 of the public was screened.

Rs 88500/-has been donated to IDA KSB CHARITABLE SOCIETY.

Rs 20000/-was donated to C H Mohamed Koya Charitable Centre to facilitate Dialysis to poor patients.

IDA NMB cricket team participated in the Zonal cricket meet at Calicut on September 1st.The match was dissolved due to heavy showers.

CDE:

3rd CDE of the branch,Dental practice management by Dr Civy Pulayath was conducted on 8th June in our hall at Podikundu.22 doctors attended.

9th June Clinical Assistant Training programme was conducted in our hall at Podikundu by Dr Civy Pulayath 34 persons attended.

July 6th and 7th first session of Tri Series Mega CDE Programme was conducted on Rotary Endodontics at Hotel Blue Nile Kannur The facultires were Dr Jose Thomas,Dr Ajith Shaligram, Dr Niharika Jain, Dr Rajeeve S Pillai, Dr Yohan Chacko,Dr Jojo Kottoor.The lecture was attended by 80 doctors.

The Second Session of the Mega CDE was conducted at the same venue on 4th August by Dr Santosh Ravindran on the topic Simplified Rotary Endodontics. 60 doctors attended the programme.

Third Session of the Mega CDE the hands on was conducted at Hotel Malabar Residency on August 31st and September 15t. Dr Pavan Kumar, Dr Rajeeve S Pillai, Dr Yohan Chacko guided the participants.65 doctors attended.

A Pedodontics CDE on Rotary Endodontics In Primary Teeth was conducted on September 22nd at Hotel Malabar Residency with faculty Dr Rupesh S and Dr Ganesh Jeevanandan. 41 doctors attende the lecture and 14 doctors attended the Hands on.

The Onam celebrations of the branch was conducted on 15th September evening at Hotel Malabar Residency.The fun filled programme was inaugurated by the senior member Dr Abdul Samad. The programmes included Maveli and Vamanan, Skit, dances, Songs, and of music. The Programmes ended with Ona Sadhya Vadakkan style.

Kasargod Branch

1. Executive committee meeting was held on 2nd January 2019, at IMA hall Kasargod. Office bearers and programmes to be conducted in the year 2019 were discussed.
2. Installation ceremony was conducted for the office bearers of 2019 on 25th January 2019, Friday, at IMA hall Kasargod
3. 1st CDE programme was conducted on ABC's Of Implantology on 25th January 2019, Friday at IMA hall Kasargod. Total of 53 members participated in the programme.
4. Dentist day was celebrated on 6th march 2019 at IMA Hall Kasaragod.
5. World Oral Health Day on 20th march 2019
6. Executive committee meeting was held on 4th April 2019, at IMA hall Kasargod regarding a complaint from a patient against Dr.Hasheer for overcharging and the issue was discussed. Dr Hasheer agreed to join IDA and take up HOPE membership as per the order from state office.
7. ORAL HEALTH AWARENESS CLASS at Fisheries School Kasaragod on 4th September 2019.Basic dental awareness class which was attended by 75 students [classes 1-4] in association with JCI Kasaragod,Heritage City as a programme for JCI week.
8. Oral Health Awareness Class in association with Lions Club of Kasaragod conducted a basic awareness class for 50 students [class 7-9] on 5th September 2019.
9. Free dental checkup camp at Amey Colony on 9th September 2019.Basic dental checkup and awareness which was attended by 50 people in association with jci kasaragod, as a programme for jci week.
10. 2nd CDE programme was conducted on FAILURES IN FPD on 20th September 2019, Friday at COSMOS CLUB Kasargod. Total of 53 members participated in the programme.

Coastal Malabar Branch

CDE PROGRAMS

IDA Coastal Malabar Branch conducted seventh CDE PROGRAM at K K Residency Payyannur on June 2nd. The topic was ESTHETICS WITH CERAMICS- AN ARTIST'S SCIENCE. The faculty of the program was Dr. A, V Sreekumar. The eighth CDE program of IDA coastal Malabar branch was held on 14/07/19 at Hotel K.K Residency Payyanur. Topic of the CDE was RECENT ADVANCEMENTS IN DIRECT RESTORATIVE THERAPY with LIVE DEMO OF ANTERIOR AESTHETIC RESTORATION. Faculty was Dr. SHAIKH SHAFE KHALID Md SHAKIL. The Ninth CDE program of IDA coastal Malabar branch was held on 23/08/19 at Hotel K.K Residency Payyanur. Topic of the CDE was INVISIBLE ORTHOODNTICS: AN INSIGHT TO CLEAR ALIGNER THERAPY. Faculty was Dr. AKHIL SHETTY. WDC also conducted a woman centric CDE on June 30that Hotel K.K Residency Payyanur.

CDH ACTIVITIES

IDACoastal Malabar Branch conductedCDH activities like dental checkup and treatment camps, awareness classes at various places like ISD SS School on 01/07/19, at AmalothmathaChurch Payannur on 26/07/19,at Chinmaya Vidyalaya Payannur on August 1st, at Payannur BELM LPSon 03/09/19, at Mukkothadam LPS on 05/09/19, Arrigo, Karakuzhi on 09/09/19 and free clinic visit on 15/09/19 at old age home Snehalayam, Kanhangad. An awareness class on oral cancer at Chemeni open jail on 19/09/19.

SPECIAL DAY OBSERVATIONS

1) International Yoga Day

IDA COASTAL MALABAR BRANCH celebrates International Yoga Day on 21st June 2019, as Volunteer with IDA's HO campaign for creating awareness on yoga by various programs as suggested by IDA HO.

2) Doctors Day

IDA Coastal Malabar Branch observed Doctors Day by conducting Dental healthCheck up at ISD SS School onJuly 1st

3) Oral hygiene day

Oral Hygiene Day observation of IDA coastal Malabar Branch has been conducted at Latheefiya School, Perumba, Payannur with various programs

4) Teachers day

IDA Coastal Malabar Branch observed teachers day by conducting Dental health Check awareness class at Mukkothadam LPS onSept 5th

5) Mouth cancer awareness day

IDA Coastal Malabar Branch hosted the state program of mouth cancer awareness day at Cheemeni open Jailby different programs on September 19th.A free dental clinic was inaugurated in presence of State president and CDH Chairman

OTHER PROGRAMS

Second issue of our Journal MIRROR has been released onJuly 14th.In addition to that sixth, seventh, and eighth issue of monthly News Letter of IDACoastal MalabarBranch about the activities of branch has been released. IDA CMB participate in the state protest called by state office on 17th June, conducted family programs like Iftar on June 2nd, Onam Celebrations on September 8th, and various intra branch sports activities in September month.



Alappuzha Branch

CDE

IDA Alappuzha conducted the 4th CDE on 4.8.19 at Hotel Royal Park Alappuzha.

Topic "Pink And White: Made For Each Other, Adding A Perio Dimension To Dental Practice By Dr. Manikandan. G.R M.D.S

The CDE Started at 10. am with Introduction of Speacker by Dr.Rajesh C.V. The First Session Cover Periodontal Diagosis, Surgical and Non Surgical Periodontal Therapy and Antibiotic Therapy.

The Afternoon Session was about Interdisiplinary Periodontics, Supportive Periodontal Therapy.The Programme ended at 3.30Pm.

After the Program The Speaker Dr.Manikandan was Presented with a Memento as a token of Appreciation from IDA Alappuzha Branch by Dr.Balaji R Shenoy. Vote of thanks by Dr.Rajesh C.V

Dental Camp

IDA Alappuzha conucted a Dental Camp with awareness camp in associtation with JCI Alappuzha Chapter for the SPC Students at Lajanath Mohammadiya School at 11.00Am on 9 September 2019.

The Chief Guest K.M.Tomy IPS Alappuzha District Police Chief inagurate the function.Dr.Mili James M.D.S Junior Consultant Taluk Hospital, Chertala and WDC Kerala State President had given the Dental Awareness Session.

The Screening Camp was Conducted for 80 Student. The Camp finished aroud 1.00 pm.


Malanadu Branch

Family Meeting:

20-09-2019: the Onam fest and family get together of IDA Malanadu was celebrated on 20-09-2019 at hotel kabana, Muvattupuzha, various cultural activities were organised as part of onam celebration.

Executive committee meeting:

11-06-2019: 4thExecutive committee meeting was held at hotel Kabani palace, Muvattupuzha

25-07-2019: 5th Executive meeting was held at hotel kabani, Muvattupuzha

CDE Activities:

14-06-2019: 6th CDE on "Current concepts of CBCT" was conducted in association with Annoor Dental college,Muvattupuzha.The faculty for the program was Dr Jayanth Kumar V from saveetha dental college, Chennai

25-07-2019: 7th CDE on " Tips and Tricks for successful Endodontic Practice"by Dr Sinju Paul was conducted at hotel Kabani, Muvattupuzha. It was attended by 40 members.

25-08-2019: 8th CDE of IDA Malanadu(4thprevilage CDE of IDA Kerala state) on " FULL MOUTH REHABLILITATION OF MUTILATED DENTITION- A STEPWISE,PLANNED APPROACH" by Dr Sameerashaikh was held at Annoor dental College, Muvattupuzha. It was attended by 175 members

CDH Activities:

14-05-2019:IDA MALANADU CDH along with WDC conducted charity progrmme (Snehasparsham project)and dental camp on 14/5/2019 at Azzezi Love Home Madakkathanam.Screening and oral kit distribution done for 135 patients.As part of charity programme, distribution of dress also done. Dr Merlin Alias, Dr Amal E. A, Dr Neena Deepak were attended the programme.

31-05-2019:IDA MALANADU observed World No Tobacco Day at Alazhar Campus for the Dental and Medical students of Al azhar group of institutions Which Includes Awareness class, Pencil Drawing Competitions, Esaay Writing Competitions, And Short film festival, All the programmes was based on the "Anti tobacco Theme" Dr Amal E. A, Dr Litto Manuel, Dr Jayesh and Dr Sreelakshmi were conducted the programme and 150 students attended the programme.

20-07-2019: Dental camp was conducted atAzzezisnehabhavan, Moolamattam. Dental check up,dental kit distribution, dress distribution was done as part of Snehasparsham project.

01-08-2019: "Dent O Fest" was held in association with Annoor dental college at Annoor dental college, Muvattupuzha as part of oral hygine celebration.

15-08-2019: Independence day was celebrated at st Paul's old age home, Odakalli, Perumbavoor. A charity program was organised for the inmates of old age home.Dental kit distribution was done.

WDC Activities:

14-05-2019:IDA MALANADU CDH along with WDC conducted charity progrmme (Snehasparsham project)and dental camp on 14/5/2019 at Azzezi Love Home Madakkathanam.Screening and oral kit distribution done for 135 patients.As part of charity programme, distribution of dress also done. Dr Merlin Alias, Dr Amal E. A, Dr Neena Deepak were attended the programme.

15-08-2019: The WDC of IDA Malanaducelebrated Independence day St Paul's old age home, Odakalli, Perumbavoor. A charity program was organised for the inmates of old age home. Dental kit distribution was done

PUBLICATIONS:

27-06-2019:2nd Issue of Malanadu dental journal was released on 27-06-2019 by State IPP Dr Ciju A paulose.

20-09-2019: 3rd issue of Malanadu dental Journal was released by Past National President Dr Alias Thomas during the branch Onam Celebration.

Kollam Branch

MEETINGS

a)Branch: 4th ECM

31st July, Hotel Shah Intl., attended by 21 members

PRESS MEET

31ST July, Kollam Press Club, with regard to CDH & WDC State prog.

5th ECM

30th August, Hotel Shah Intl, attended by 24 members

b)State:

IDA HOPE

8th September, Hotel Legacy,Kochi, attended by 2 members

4th ECM

22th September, Karunagapally, attended by 9 members.

IDA CAN

5th August, Hotel Mascot, TVM, attended by 6 members

CDH:

15th July:Talk by Dr Shanima Nizam, Quiz Competition,Camp, Exhibition at SNDP,Pattathanam.

28th July:Train. Prog for Assistants & Doctors in collab with DMOH, Kollam, Inaug.- Dr.Harikumar S, D PM, National Health Mission.

1st August:CDH State prog at Ashraya Saketham,, Chaired by Presid. IDA KSB, graced by Hon. Sec. IDA KSB, CDH Chairman,IDA KSB & Presid., Sec & Drs. of neigh. branches

Chief Guest:Adv.Aisha Poti, Guest of Honor:Sri Riyas Bin Sharaf

Screening camp, Treatment camp, Swanthana Smitham Award with Donation - rs 50,000, Eye Donation campaign, Treat.Adoption, Entert..Prog &Car Rally

22nd August: Talk by Dr Rinu Francis, Dental Photography Exhibition, Donation- rs 10,000 at Govt.LPS, Odanavattom

WDC

28TH July:Talk by Dr Anney George, Docum.Present, & Distrib of awareness pamphlets at TKMCAS.

1st August:Painting competition-Govt LPS, Karicode .

3rd,4th & 5th September:WDC State Prog. – Honoring Ceremony with 3day Teachers Training Progs at Govt.TTI, Karmela Rani Training college & Fathima Memorial Training College.

Chaired by 1st VP IDA KSB

Chief Guest: Adv. V Rajendra Babu- Worshipful Mayor,Kollam Guest of Honor: Chair. WDC IDA KSB & Sec.WDC IDA KSB

Faculties: Dr Bilal Ahmad-Jr Cons Emerg Medicine -Medicity, Dr Aswathy R, MDS, Dr Aswathy S,MDS & Dr Swetha VR, MDS

29th September:Talk with Ppt on Heart Disease & Oral Health by DrAnney George-St.Mary's School.

SPORTS:IDCL:Hosted IDCL Zone 1 Tournament of IDA KSB

At KCA Cricket Ground,Ashramam,Quilon,Inaug by President IDA KSB

WINNERS:

IDA Attingal & IDA Trivandrum -Joint Winners

Appreciation Prize: IDA Karunagapally

Best Batsman: Dr Justin –IDA Attingal

Best Bowler: Dr Ajeesh Latheef-IDA Trivandrum

Best Player above 40 yrs:Dr John Shibu-IDA Quilon

Player of the Tournament: Dr Ciju P Cherian