

Impressions

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Attingal Branch



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Impressions

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Journal of Indian Dental Association Attingal Branch

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Cover photo: Ultrasonic Cleaner



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President's Message



Dear members,

Greetings to you...

Standing on the shores of the vast ocean of scientific knowledge, I feel proud as the president of IDA Attingal branch to write to you through the 4th issue of IMPRESSIONS. This is the second time in the history of IDA Attingal branch IMPRESSIONS are published in time as a Quarterly publication. I request our members and Editor journal to keep up the support and pace in future also.

This year we had a good membership growth to 333 members. I thank each and every members who have bestowed their confidence and trust to IDA Attingal branch. And I assure you that we would seek every steps to uphold the confidence you have entrusted upon us.

This would be the last President's message that I will have the privilege to write for IMPRESSIONS, since my tenure as IDA Attingal branch President will be over a few days after this issue reaches your hands.

I take this opportunity to thank all our members and office bearers who have helped us to make all our activities a grand success. Looking forward to extend your support and blessings in future too to the leadership of the incoming president Dr Ramesh and his team of office bearers to serve you better there by strengthening the bonds of IDA Attingal branch.

Wishing you all a grand and fruitful IDA year 2018.

Thank you,

Yours in IDA,

Dr Deepak S Das

President

IDA Attingal Branch.

Secretary's Message

Dear colleagues,

As we move on to the end of the association year, it's with great joy and pride I wish to say that the branch with its team work is publishing the four issues of impressions this year. And it is very unfortunate to report the untimely demise of our eminent member Dr Anitha Sushil which was a shocking news to all of us. Our deepest condolences to the departed soul and may the almighty shower strength and courage to her family to face the reality of the void created in them. As these unforeseen mishrap could happen to anyone at anytime, I request all members to join IDA HOPE an make use of this member friendly scheme which all of us professional protection as well as social security.

A state CDE was conducted this month along with Trivandrum branch at Park center, Techno Park, Kazhakkootam. The topic was Enhancing Aesthetics with laminates and veneers by the faculty Dr Narayan which witnessed an overwhelming crowd of 170 participants.

The upcoming programs of this year are the AGM on 10th December 2017 at IMA hall Attingal at 4:00 pm and Installation 2018 and family meet on 17th December 2017 at IMA hall, Chakkai, Trivandrum at 6:00pm. Soliciting your presence for both the programs.

Thank you,

With warm regards,

Dr Anil Kumar D.
Honorary Secretary
IDA Attingal Branch.



ABOUT IDA ATTINGAL

IDA Attingal, symbolizes & represents, updates & educates, promotes & supports the local dental community of erstwhile Attingal, in delivering, quality dental health care to the general public. Maintenance of proper standards & ethical manner in practice, better interpersonal relations, as well as willingness to share knowledge, among members, has provided a high degree of respectability to the organization. Effective follow up of organizational proceedings at the state & national level by the branch executive, ensures that the members are kept abreast of all IDA activities. Regular representation at IDA events & healthy interaction with other branch members, has made IDA Attingal quite popular & a force to reckon. Adding to this would be a plethora of eminent leaders from the branch, who have raised to higher echelons in IDA. Through various Scientific programmes, presentations, journals & newsletters, the branch creates awareness of the latest advancements in dentistry, among members.

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The frantic search for a job

Most of the dental clinics in Kerala are flooded with CVs of young dentists. All the modern communication media are also frequented with requests for jobs. A five year programme is completed and at the end if the professional finds it difficult to get a job is a matter of concern. Many senior dentists are not favouring the presence of more than one or two junior dentists. Most of the clinics have the physical restrictions to accommodate many working personnel and many patients do not like too many people staring at their mouth. Many senior dentists entertain a doubt on the professional competencies of the young dentists. Many of the colleges do not have adequate attendance of patients and many of the patients remain only on paper. Young dentists do not gain confidence when they come out of the college. They apply to the clinics to gain experience on clinical dentistry but unfortunately clinics cannot comply with their wish. Young dentists can be appointed in all the government dental clinics for a period of six months immediately after completing the internship. They need not be given salaries and they should be exempted from remitting fees to the government also. Let each dental college establish five rural clinics where young dentists can be appointed in the same lines. While starting a dental college, the government has

given an essentiality certificate. What was the essentiality based upon? Government should give them an avenue to gain clinical competency at least.

The seventh year

When our branch decided to start a journal, it was with a mission to lead a debate on dental health and to engage, inform, and stimulate dentists, researchers and other health professionals in ways that will improve outcomes for patients. We aim to help dentists to make better decisions while facing complicated clinical situations. In the seventh year, when I took over as editor, I have tried my best to adhere to the motto. My colleague office bearers and the members of the branch stood solidly behind me in bringing out the journal regularly. I am thankful to the contributors who have generously given articles to the journal whenever I needed. The advertisers were also liberal in supporting and I am thankful to them. Mr. Sudhir who designed the pages was very prompt and that was the main reason in bringing out the issues on time. I assure you to include more useful information in the pages of the Journal in the future issues.

Dr. Pradeep C. Dathan

Editor, Impressions

Relationship of edentulism and dentures to oral and general health

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The oral health of the completely edentulous patient is a significant factor related to the quality of life, nutrition, social interactions and general health of denture-wearing patients. Though not life threatening, the presence of oral biofilm on complete dentures has been associated with denture stomatitis, as well as with more serious systemic conditions, especially in the dependent elderly. Oral bacteria have been implicated in bacterial endocarditis, aspiration pneumonia, chronic obstructive pulmonary disease, generalized infections of the respiratory tract and other systemic diseases. Weekly professional cleaning of complete dentures (brushing, cleaning of dentures with a brush, ultrasonic irrigation of dentures with denture cleanser, swabbing of oral tissues with a sponge brush significantly decrease multiple oral bacterial strains when compared with the daily chemical disinfection methods, and suggested this to be a viable strategy for reducing aspiration pneumonia in the dependent elderly.

Denture plaque is a complex aggregate of oral bacteria, fungi and other organisms; it is estimated to contain more than 10 organisms per milligram (wet weight) involving more than 30 spe-

cies. While there is general consensus that the composition of denture plaque is similar to that of plaque in the dentate patient, the biomass may vary between individuals and between sites in the oral cavity and sites on the dentures. Dental biofilms accumulate more readily on rough denture surfaces than on smooth ones. Denture stomatitis is a common occurrence in denture wearers, resulting in an area of erythema beneath the denture. As many as 67 percent of existing denture wearers are thought to have Candida-associated denture stomatitis. The role of *Candida albicans* in the pathogenesis of denture stomatitis has been well investigated, and multiple strains of *Candida* have been found to populate the denture base, as well as the oral tissues.(Fig 1,2)

Care of dentures

Careful daily removal of the bacterial biofilm present in the oral cavity and on complete dentures is of paramount importance to minimize denture stomatitis and help contribute to good oral and general health. To reduce levels of biofilm and potentially harmful bacteria and fungi, patients who wear dentures should do the following:



Fig 1. Denture plaque



Fig 2. Denture stomatitis

1. Dentures should be cleaned daily by soaking and brushing with an effective, nonabrasive denture cleanser.

2. Denture cleansers should be used to clean dentures outside of the mouth and patients should be cautioned about it.

3. Dentures should always be thoroughly rinsed after soaking and brushing with denture-cleansing solutions prior to reinsertion into the oral cavity.

4. Dentures should be cleaned annually by a dentist or dental professional using ultrasonic cleansers to minimize biofilm accumulation.

5. Dentures should never be placed in boiling water.

6. Dentures should not be soaked in sodium hypochlorite bleach, or in products containing sodium hypochlorite, for periods that exceed 10 minutes.

7. Dentures should be stored immersed in water after cleaning, when not replaced in the oral cavity, to avoid warping.

8. While existing studies provide conflicting results, it is not recommended that dentures be worn continuously (24 hours per day). Those who suffer from sleep apnoea may consult the dentist on continued wear of dentures.

9. Patients who wear dentures should be checked annually by the dentist, prosthodontist or dental professional for maintenance of optimum denture fit and function, for evaluation for oral lesions and bone loss, and for assessment of oral health status.

Denture Cleanser

The characteristics of an ideal denture cleanser should include the following:

It should, at a minimum, demonstrate antibiofilm activity and should be antibacterial and antifungal to minimize the level of biofilm and potentially harmful pathogens in the biofilm below clinically relevant levels; however, this acceptable level has yet to be defined.

- It should be nontoxic.

- It should be compatible with denture materials and should not modify (roughen) or degrade the surface of the acrylic resin denturebase or prosthetic teeth.

- It should be short acting (eight hours).

- It should be easy to use for the patient or caregiver.

- It should have an acceptable (or no) taste.

- It should be cost effective.

Ultrasonic cleaning.

Ultrasonic cleaning of dentures occurs frequent-

ly in both the dental office and the dental laboratory. The mode of action of ultrasonic devices produce ultrasonic sound waves (20-120 kilohertz), which create microscopic cavities (bubbles) that grow and implode. This implosion creates voids that result in localized areas of suction. Materials adhering to the denture are loosened and removed by this action. This action is commonly known as "cavitation." Two representative types of solutions that are commercially available for use in the ultrasonic cleaner are BioSonic Enzymatic (Coltene/Whaledent, Cuyahoga Falls, Ohio), which contains nonionic detergents, protease enzymes and 400 parts per million isopropyl alcohol, and Ultra-Kleen (Sterilex, Hunt Valley, Md.), which requires the mixing of two solutions that results in the formation of an alkaline-peroxide cleanser. Interestingly, while ultrasonic cleaning demonstrated remarkably improved bacterial elimination, neither of these two solutions tested was completely bactericidal.

The specifically identified ingredient, persulfate, is known to cause allergic reactions. Persulfates are used in denture cleansers as part of the cleaning and bleaching process. Symptoms of the reaction to persulfates include

- irritation of the tissues;
- tissue damage;
- rash;
- gum tenderness;
- breathing problems;
- low blood pressure.

Alternative denture cleansing methods.

Currently, there are few techniques that sterilize complete dentures following intraoral use. Microwave irradiation of dentures immersed in sterile water at 650 watts for three minutes sterilizes dentures without causing surface degradation of the prosthesis. However, the long-term effects of this technique have not been investigated.

Further reading

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Evaluation of various periodontal plastic surgical procedures. A case series study

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Abstract

The main goal of periodontal therapy is to improve periodontal health and thereby to maintain a patient's functional dentition throughout his/her life. Aesthetics represent an inseparable part of today's oral therapy, and several procedures have been proposed to preserve or enhance patient aesthetics. In the last decade a great interest was focused on periodontal plastic surgery as a reliable tool to enhance esthetics. One of the most frequent indications of which is the treatment of buccal gingival recessions. The present case series describes two simple and effective esthetic surgical techniques for gingival hyperpigmentation - scalpel blade surgery and semiconductor diode laser surgery, which have produced good results with patient satisfaction. In this report better results were achieved with semiconductor diode laser than scalpel blade surgery.

Keywords: Periodontal plastic surgery, diode laser, hyperpigmentation, soft tissue laser surgery, scalpel surgery.

Introduction

A pleasant smile is considered a symbol of beauty and well being in the modern society. A variety of factors including teeth form, position and gingival tissue levels may influence the overall smile aesthetics. The main goal of periodontal therapy is to improve periodontal health and thereby to maintain a patient's functional dentition throughout his/her life. However, aesthetics represent an inseparable part of today's oral therapy, and several procedures have been proposed to preserve or enhance patient aesthetics. In the last decade a great interest was focused on plastic periodontal surgery as a reliable tool to enhance esthetics.

The term 'periodontal plastic surgery' (PPS), first suggested by Miller, was defined as 'surgical procedures performed to prevent or correct anatomical, development, traumatic or plaque disease-induced defects of the gingiva, alveolar mucosa, or bone' (The American Academy of Periodontology 1996). One of the most frequent indications of PPS is the treatment of buccal gingival recessions. Along with gingival recessions, the excessive gingival display during smiling and gingival hyperpigmentation are frequent conditions impairing smile esthetics.

In the present publication, periodontal plastic surgical procedure for the management of gingival hyperpigmentation is considered. This publication involves two case series, where a comparative evaluation is made between two surgical techniques for the management of gingival hyperpigmentation: scalpel surgery and diode lasers.

Case Description

The first and foremost indication for depigmentation is patient demand for improved esthetics. Two patients who had physiological moderate to severe gingival melanin pigmentation were selected. Inclusion criteria were the presence of moderate to severe melanin pigmentation. Exclusion criteria included systemic diseases associated with healing disturbances, pregnancy and smoking. The surgical procedure and the follow up were explained in detail to the patients, who then signed a consent form.

CASE 1

A 22-year-old male patient complaining of dark colored gums visited the Department of Periodontics, Sri Sankara Dental College, Varkala. (Fig. 1). Oral examination revealed deeply pigmented gingiva from right first premolar to left

first premolar in maxilla and right canine to left canine in mandible. The patient requested for any kind of esthetic treatment, which could make his 'black' colored gums look better. Depigmentation procedures were planned for this unsightly pigmented gingiva.

The patient was given oral hygiene instructions and underwent scaling. Gingival depigmentation was planned from second premolar to second premolar in the maxillary anterior and mandibular anterior regions using a semiconductor diode laser.

After adequate local anesthesia (lignocaine with adrenaline in the ratio 1:2,00,000 by weight) in the maxillary and mandibular pigmented area, depigmentation procedures were carried out using a semiconductor diode surgical laser unit. (Solar, wavelength 980 nm). The procedure was performed in a contact mode in cervico-apical direction on all pigmented areas with the power set at 0.8 W. Laser ablation started from mucogingival junction towards free gingival margin including papillae. The motion of ablation was performed as light brushing strokes and the tip was kept in motion all the time. Remnants of the ablated tissue were removed using sterile gauze dampened with saline solution. This procedure was repeated until desired depth of tissue removal was achieved.

The patient was advised to use chlorhexidine mouthwash 12-hourly for one week. Oral hygiene instructions were given to the patient and they were recalled for postoperative visits on a weekly basis for three weeks.

Table 1. Clinical Evaluation Scores

Evaluation	Score
Bleeding	A. None, B. Slight, C. Moderate, D. Severe.
Colour	A. Improvement, B. Slight improvement, C. No change, D. Deterioration.
Pain	A. None, B. Slight, C. Moderate, D. Severe.
Difficulty of procedure	A. Very easy, B. Easy, C. Difficult, B. Impossible
Wound healing	A. Complete epithelialization, B. Incomplete epithelialization, C. Ulcer, D. Tissue defect or necrosis.

CASE 2

A 20-year-old female patient complaining of dark colored gums visited the Department of Periodontics, Sri Sankara Dental College, Varkala. (Fig.1). Oral examination revealed moderately pigmented gingiva from right first premolar to left first premolar in maxilla. Depigmentation procedures were planned for this unsightly pigmented gingiva using the scalpel blade technique. The patient was given oral hygiene instructions and underwent scaling.

After adequate local anaesthesia in the maxillary anterior region between first premolars (lignocaine with adrenaline in the ratio 1:2,00,000 by weight), a Bard Parker handle with a No. 15 blade was used to remove the pigmented layer. Pressure was applied with sterile gauze soaked in local anesthetic agent to control hemorrhage during the procedure. After removing the entire pigmented epithelium along with a thin layer of connective tissue with the scalpel, the exposed surface was irrigated with saline. Care was taken

Table : 2. Clinical evaluation

Evaluation	Patient I (Laser surgery)	Patient II (Scalpel Surgery)
BLEEDING		
Immediate	A	D
1 week	A	B
2 weeks	A	A
3 weeks	A	A
COLOUR		
Immediate	A	A
1 week	A	A
2 weeks	A	A
3 weeks	A	A
PAIN		
Immediate	-	-
1 week	A	B
2 weeks	A	A
3 weeks	A	A
WOUND HEALING		
Immediate	-	-
1 week	B	B
2 weeks	A	A
3 weeks	A	A
DIFFICULTY	A	C

to see that all remnants of the pigment layer were removed.

The surgical area was covered with a periodontal dressing. The patient was advised to use chlorhexidine mouthwash 12-hourly for one week. Oral hygiene instructions were given to the patient and they were recalled for postoperative visits on a weekly basis for three weeks.

Clinical Evaluation

Clinical parameters such as bleeding, wound healing, gingival colour, pain and difficulty of procedure were evaluated immediately after and then at 1-, 2- and 3- week intervals. A list of clinical observations and patient responses prepared by

Ishii et al³ and Kawashima et al⁴ was used for evaluation. Each parameter was evaluated as A, B, C or D as described in Table 1. The visual analogue scale (VAS) was used to evaluate the subjective pain level experienced by each patient. It consists of horizontal line 100 mm long, starting at the left end with the descriptor "no pain" and ending at the right end with "unbearable pain". The distance of this point, in millimetres, from the left end of the scale was recorded and used as the VAS score.

Results

Table 1 presents the clinical evaluation for each parameter. Figures 1 and 2 depict the representative

CASE 1



Pre – operative view



Operative view



Immediate post – operative view



1 week pos operative view



2 week post operative view



3week post operative view

CASE 2



Pre – operative view



Operative view



Immediate post – operative view



Coe –pack given



1 week post operative view



2 week post operative view



3 week post operative view

clinical cases. Because the patient was under anaesthesia, no evaluation of pain or discomfort was made during and immediately after the surgery. At the scalpel blade depigmentation side bleeding occurred, Table 2. There was no bleeding at the laser depigmentation site. Compared to scalpel blade depigmentation diode laser depigmentation showed delayed healing. Sites operated with scalpel blade complained of moderate pain compared to sites treated with diode laser, with no pain at all. Both the patients were satisfied with esthetically significant improvement in gingival colour.

Discussion

Pigmented gingival tissue often forces the patient to seek cosmetic treatment. Several treatment modalities have been suggested in the literature, ranging from a simple slicing method to free gingival grafts.

The semiconductor diode laser is emitted in continuous wave or gated pulse mode and is usually operated in a contact mode using a flexible fiber optic delivery system. Diode laser is an excellent soft tissue surgical laser. It exhibits thermal effects using the hot tip effect caused by heat accumulation at the end of the fiber, and produces a relatively thick coagulation layer on the treated surface. Tissue penetration of diode laser is less than that of Nd:YAG lasers. The advantages of diode lasers are smaller size of the units as well as lower financial costs. Diode laser do not produce any deleterious effects on the root surface. Thus, it is generally considered that diode laser surgery can be performed safely in close proximity to dental hard tissues.

The healing period of scalpel wound is shorter than with diode laser. However scalpel surgery causes unpleasant bleeding during and after the operation and it is necessary to cover the exposed lamina propria with a periodontal pack for 7 to 10 days. The diode laser causes minimum damage to the periosteum and bone under the gingiva being treated, and it has the unique property of removing the epithelium cleanly. Although healing of laser wounds is slower than healing of scalpel wounds, a sterile inflammatory reaction occurs after lasering. Blood vessels in the surrounding tissue upto a diameter of 0.5 mm is sealed, thus

the primary advantage is hemostasis and a relatively dry operating field.

Mortiz et al showed in an invitro and invivo study the bacterial effect of diode laser.⁶ They found an extraordinary high reduction of bacteria could be achieved. It creates locally sterile conditions, resulting in a reduction of bacteremia concomitant with operation. Thus the advantages of laser used include: a relatively bloodless surgical and post surgical course, the ability to coagulate, vaporize or cut tissues, sterilisation of the wound site, minimal swelling and scarring, little mechanical trauma, reduction of surgical time, high patient acceptance and less postoperative pain.

Conclusion

Growing esthetic concerns require the removal of unsightly pigmented gingival areas to create a pleasant and confident smile. This could be easily attained by using any of the above mentioned methods. The application of diode laser appears to be safe and effective alternative procedure. Its benefits include ease of usage, effectiveness in the treatment of superficial benign pigmented lesions, convenience in dental clinics, and decreased trauma for the patient. The patients were satisfied with the outcome, which is the ultimate goal of any therapy.

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Prolotherapy for TMJ: Use of PRP in recurrent TMJ dislocations

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Abstract

The nonsurgical techniques for the treatment of chronic recurrent temporomandibular joint (TMJ) dislocation consist of injecting different substances into the TMJ area. Here we assess the effectiveness of autologous PRP injection to the TMJ for treatment of chronic recurrent TMJ dislocation. Four patients having chronic recurrent TMJ dislocation were treated by autologous PRP injection into the superior joint space (SJS) and the pericapsular tissues (PT). We could conclude that the injection of autologous PRP to the SJS and PT of the TMJ in patients with chronic recurrent dislocation is a safer and cost effective technique than injecting autologous blood alone.

Key words: TMJ, Dislocation, autologous, PRP injection.

Introduction:

Temporomandibular joint (TMJ) dislocation is a common situation often seen in emergency units. It occurs when the condyle travels anterior to the articular eminence and remains there. Chronic recurrent TMJ dislocation may occur as a result of everyday activities such as yawning and laughing. Also, it may occur after excessive mouth opening during dental treatment and general anesthesia procedures.¹ Some authors have mentioned that this condition is prevalent with TMJ internal derangement. In literature, different surgical and nonsurgical techniques have been used for treating patients with chronic recurrent TMJ dislocation. The conservative methods include restriction of the mandibular motions, applications of local anesthetics, injection of botulinum toxin to muscles of mastication, and injection of sclerosing agents. Non-surgical methods are not always successful; therefore, multiple surgical interventions have been tried including capsular placcation, reduction or augmentation of the articular eminence, temporalis tendon scarification, lateral pterygoidmyotomy, and condylectomy. In the past, some clinicians have successfully treated cases of chronic recurrent TMJ dislocation with

autologous blood injection into the TMJ. Jacobi Hermanns et al. investigated the use of pericapsular injection of homologous blood in recurrent TMJ dislocation². Platelet-rich plasma (PRP) injections have been used and studied since the 1970s. Its use has become more popularized over the last several years in the treatment of foot and ankle tendon & ligament injuries. However, for unclear reasons this technique did not gain popularity for use in TMJ ailments. The purpose of this series was to assess the autologous PRP injection technique as a treatment modality for patients suffering from chronic recurrent TMJ dislocation.

Case Reports:

Case 1: 65 yr old lady suffering from recurrent TMJ dislocation of 4 yrs duration; not self-reducible and occurring with an average frequency of once a week.

Case 2: 47 yr old lady with a history of recurrent self reducing TMJ dislocation of 10 yrs duration with no associated co-morbidities. Conservative measures like crepe bandage, restricted mouth opening and Intermaxillary Elastics for limited period were of no avail and

she was reluctant for surgery.

Case 3: 16 yr old girl with recurrent TMJ dislocation and persistent pain in both the joints following reduction

Method: The skin overlying the TMJ is scrubbed with antiseptic solution followed by infiltration with local anaesthetic. The articular fossa is identified and an 18 gauge needle is inserted into the fossa followed by normal saline or ringer lactate lavage. Blood is collected from the patient and mixed with the anticoagulant followed by multiple centrifugations to separate the PRP. Just prior to injection the supernatant is mixed with calcium chloride acting as an activator.

The prepared PRP (2ml) is then injected into the SJS and PT on each side. This is followed by temporary immobilization for 24 hours with crepe bandage followed by instructions of restricted mouth opening and soft diet thereafter for at least 1 week to allow the uninterrupted action of PRP.

Results: The patients were followed up at 2 weeks, 6 weeks, 2 months and 6 months interval. Postoperative period were uneventful but one patient reported with an episode of dislocation after one week. The procedure was repeated following which patient was asymptomatic.

Discussion:

PRP (platelet rich plasma therapy) is a form of Prolotherapy where the substance used is the patient's own blood. The blood is removed and through a concentration method using a centrifuge, a high numbers of platelets are obtained. Depending upon the type of centrifuge used PRP may contain variable amounts of WBCs & RBCs. The concentrated platelets include growth factors that are vital to initiate and accelerate tissue repair and regeneration by increasing stem cell production. This increases the healing potential for ligaments and tendons. Even the potential for regeneration and repair of cartilage tissue is increased. It also eliminates RBCs and WBCs, lysis products of which are potential irritants. Platelets activate and provide a patchlike matrix to an injury. They also release growth factors that stimulate healing through cell division and release cytokines that attract additional cells, including stem cells, for healing and remodeling. PRP and the releasate of PRP have an anabolic effect on chondrocytes. Akeda et al. (2006) showed in culture PRP stimulates greater production of proteoglycan and collagen when compared to platelet poor plasma and fetal bovine serum in porcine

chondrocyte cultures. Similarly Mishra et al. (2009) showed PRP enhances mesenchymal stem cell proliferation and chondrogenic differentiation. A study using a proprietary platelet enriched plasma product showed an increase in synovial fibroblast secretion of hyaluronic acid (HA) and the angiogenic growth factors VEGF and HGF (Anitua et al., 2009).

The increased levels of the proteins in the joint following PRP administration may be beneficial in healing and inflammatory conditions. A study using a proprietary platelet enriched plasma product showed an increase in synovial fibroblast secretion of hyaluronic acid (HA) and the angiogenic growth factors VEGF and HGF (Anitua et al., 2009).

Inflammation is a key element in the pain and progression of arthritis and synovitis. Following activation platelets release HGF, TNF- α , and IL-4. These anti-inflammatory cytokines have been shown to reduce NF- κ B transactivation in chondrocytes. NF- κ B is a principle transcription factor regulating the inflammatory process (Bendinelli et al., 2010). Another possible mechanism is increased lipoxin release. Lipoxins are endogenous lipid molecules that are increased in PRP compared to whole blood. Specifically LXA4 has been shown to decrease inflammation by increasing TGF- β in resolving exudates, promoting noninflammatory infiltration of monocytes which appear necessary for wound healing and stimulating macrophages to ingest and clear neutrophils (El-Sharkawy et al., 2007). Cenni et al. (2010) showed that PRP impairs osteoclast generation from human precursors in the peripheral blood in vitro.

Chronic recurrent dislocation of the TMJ occurs mainly because of laxity of the TMJ ligaments, abnormal eminence size, and muscle hyperactivity. The surgical techniques carry a risk of complications such as facial nerve injury, altered sensation, swelling, pain, infection, and others. As mentioned by Machon et al., the first individual who reported injection of autologous blood into the TMJ as a treatment for recurrent dislocation was Brachmann in 1964.

Conclusion

The concept of autologous PRP injection to the TMJ follows the pathophysiology of bleeding in the TMJ area, because of trauma to the condylar region or TMJ surgery may lead to fibrous or bony ankylosis. PRP injection to the TMJ may create a

bed for fibrous tissue formation in the TMJ area. Thus by eliminating the non-essential components of blood and increasing the effective local concentration of growth factors PRP can be superior to blood for Intra-Articular injection.

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Oral lichen planus and systemic diseases

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Abstract

Lichen planus, one of the precancerous condition, is a chronic inflammatory disease of the skin presenting with characteristic violaceous polygonal, pruritic papules. Oral lichen planus, the mucosal counter part of cutaneous lichen planus presents frequently in the fourth decade of life and affects women more than men. Pathophysiology is thought to be altered cell mediated immune response, which cause degranulation of keratinocytes. Incidence of lichen planus are more among patients with systemic diseases like hypertension, diabetes, cardiac diseases, thyroid diseases, auto immune diseases etc

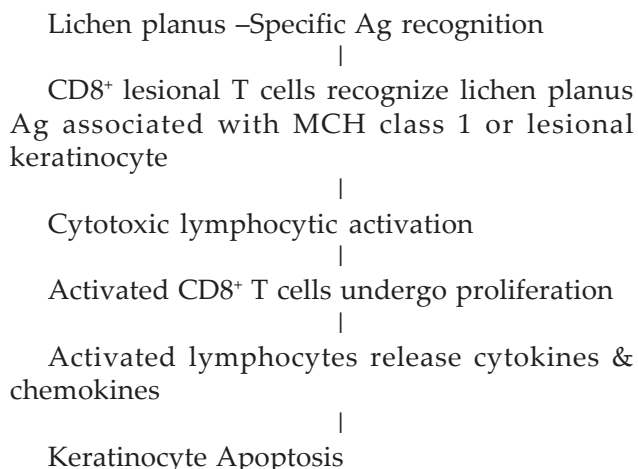
Keywords: lichen planus, hypertension, diabetes mellitus, autoimmunity

Introduction:

The designation and description of the pathology were first presented by the English physician Erasmus Wilson in 1866. He considered this to be the same disease as “lichen ruber”, previously described by Hebra¹. Lichen planus is a chronic mucocutaneous disorder of the stratified squamous epithelium that affects oral and genital mucous membranes- skin, nails and scalp. Oral lichen planus is the mucosal counter part of cutaneous lichen planus¹. Many clinical variants exist that include atrophic, ulcerative, bullous, annular, linear, hypertrophic, lichen planopilaris, actinic and pigmentosus. Lichen planus is estimated to affect 2.6% in Indian population. This disease has most often been reported in middle aged patients with 30-60 years of age and is more common in females than in male.¹

Etiopathogenesis of lichen planus

Oral lichen planus is a T cell mediated autoimmune disease in which the auto cytotoxic CD8+ T cells trigger apoptosis of basal cells of the oral epithelium¹.



Systemic correlation:

Oral lichen planus is related with various systemic disorders such as diabetes mellitus, hypertension, autoimmunity, thyroid diseases, cardiac diseases and squamous cell carcinoma. Oral lichen planus is seen predominantly in individuals, over 50 years old and this also increases chances for coincidental systemic disease.

Diabetes and hypertension:

Oral lichen planus is more prevalent in patients with diabetes mellitus and hypertension. In

diabetes with oral lichen planus, there may be a higher prevalence of lingual involvement and of erosive lesions.¹⁴ Blood pressure when evaluated in oral lichen planus, appears as an independent variable with no significant correlation except for Grinspan syndrome. Grinspan syndrome is a syndrome characterized by presence of triad; essential hypertension, diabetes mellitus and oral lichen planus. Hypertension and diabetes mellitus do not play a direct role in etiology of lichen planus. It could be lichenoid reaction due to the drugs used to control diabetes or hypertension⁴.

Autoimmunity:

Oral lichen planus may occasionally be associated with autoimmune disorders such as primary biliary cirrhosis, chronic active hepatitis, ulcerative colitis and thymoma¹. The liver diseases that seem to be most strongly related to oral lichen planus are chronic liver diseases, especially chronic acute hepatitis and primary biliary cirrhosis. Most cases of oral lichenoid reaction in biliary cirrhosis have been associated with D-penicillamine therapy⁹. There is high prevalence of HCV infection in oral lichen planus patients. In oral lichen planus, hepatitis C virus replication has been reported in the epithelial cells from mucosa of lichen planus lesion by reverse transcription or PCR or in situ hybridization.² Cutaneous lichen planus is more strongly associated with defect of T cell function such as thymoma. Transsternal complete thymoma resection achieve erosive oral lichen planus regression⁶.

Vulvo-vaginal gingival syndrome:

Approximately 20-25% of women with oral lichen planus have vulvo vaginal involvement. They may demonstrate reticular or erosive oral lichen planus with occasional scarring resulting in vulvar destruction and vaginal stenosis⁴. The vulvovaginal gingival syndrome is an uncommon and severe variant of lichen planus characterized by erosions and desquamation of vulval, vaginal and gingival mucosae with a predilection for scarring and stricture formation.⁸

Hormones and oral health in the mid life of women

Hormonal fluctuations are said to have a strong influence on oral health such as puberty, menses, pregnancy and menopause. All these factors influence a woman's oral health. As oral mucosa contains estrogen receptors, variations in hormone levels directly affect oral cavity. Reduced estrogen levels leads to salivary flow and increased psychological stress resulting in increased

incidences of xerostomia, lichen planus, pemphigoid, sjogren's syndrome and periodontal diseases during menopause. Dentist should conduct a thorough examination of oral cavity and rule out other systemic diseases before arising at any definitive diagnosis related to hormonal changes.⁵

Stress :

Stress has been widely held to be an important etiological factor in oral lichen planus. The association of stress and oral lichen planus was first described by Erasmus Wilson in 1869.⁷ The chronic discomfort that can affect patients with oral lichen planus can of course be itself a stressing factor and may partially explain the cases in which the association has been reported.¹⁴

Thyroid Diseases:

There is correlation between lichen planus and autoimmune thyroid conditions such as Grave's disease and Hashimotos thyroiditis. The incidence of hypothyroidism is about 0.78% in oral lichen planus patients. In Hashimotos thyroiditis patients, circulating thyroid antibodies contribute to trigger an organ specific auto immune response also in the oral mucosa or skin leading to development of LP lesions¹⁰. A retrospective study based on medical records of patients with thyroid disease showed that dermatologic disorders associated with thyroid diseases were in order of frequency alopecia areata (22%) followed by lichen planus (18%)¹⁵.

Bowel disease:

The association between ulcerative colitis and lichen planus, has been reported in many papers and has been documented as epidemiologically evident by a multicenters case control survey (GISED,1991)¹⁴. Bowel diseases occasionally concomitant with oral lichen planus include celiac disease and Crohn's disease.¹

Cardiac disease:

Lichen planus is a disease that may increase cardiovascular risk. Researches are going on regarding its significance. It was found that, lichen planus was associated with dyslipidemia in large series of patients. Lipid level screening in men or women with lichen planus may be useful to detect individuals at risk and start preventive treatment against development of cardiovascular disease.¹⁶ The p-wave dispersion, highly sensitive C-reactive protein, LDL cholesterol and triglyceride levels were significantly higher in LP patients. Increased p-wave dispersion in terms of tendency for atrial fibrillation should be considered in these patients¹¹.

Turner's syndrome:

A study on middle aged woman with history of diabetes mellitus, hypothyroidism, irritable bowel disease and Turner's syndrome presented with widespread lichen planus. Occurrence of lichen planus with Turner's syndrome is yet unrecognized¹².

Viral disease:

Increased risk of EBV and HPV infection was noted in oral lichen planus cases. Herpes simplex virus infection is less significant in oral lichen planus patients¹⁷.

Breast cancer:

Lichen planus is found among people with breast cancer especially for people who are female 60 and above old, take medication Aromasin and have adrenal insufficiency. LP has been observed on the skin and mucosa of patients affected by a range of different neoplasms such as with breast cancer and metastatic adenocarcinoma¹.

Squamous cell carcinoma:

Oral lichen planus is one of potentially malignant disorder that may be seen as six subtypes including papular, reticular, plaque like, atrophic, erosive and bullous type. Clinically atrophic and erosive subtypes have the greater malignant transformation risk compared to other subtypes. The study suggest that the probability of some cases of at least Oral lichen planus having an intrinsic property predisposing to neoplastic transformation.¹³

Management:

The aims of oral lichen planus therapy are resolution of painful symptoms, oral mucosal lesions, the reduction of the risk of oral cancer and the maintenance of oral hygiene. There are different therapies for oral lichen planus including drug therapy, surgery, psoralen and UV A (PUVA) and lasers. Drugs used in topical form are corticosteroids, immunosuppressives, retinoids, and immunomodulators. Drugs used systemically are thalidomide, metronidazole, griseofulvin and hydroxyl chloroquine and corticosteroids. Based on the observed increased risk of malignant development, oral lichen planus patients shall be offered regular follow up examination from 2 to 4 times annually.¹

Conclusion:

Lichen planus is a common condition with a multifactorial origin, sometimes induced by drugs or dental materials and often idiopathic lichen planus has an immunopathogenesis involving T cells in particular and also related to many systemic diseases. There is no curative treatment available.

Immunomodulation however can control genetic and environmental aspect into pre- malignant potential and association with systemic diseases.

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Microsurgery in periodontics —an over view

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Abstract

Abstract: Recent advances in periodontal treatment incorporates the concept of microsurgery which is regarded as a minimally invasive procedure which induces less trauma to tissue during surgical procedure. Periodontal microsurgery is the refinement of basic surgical techniques made possible by the improved visual acuity gained with the use of surgical microscope. The improved visual acuity attained helps in better handling of hard and soft tissue leads to improved healing and treatment outcome. This article briefly reviews the basics of microsurgery, various magnifying aids and outcome of microsurgery on different periodontal surgical procedures.

Keywords: Microsurgery, surgical microscope, periodontal regenerative procedures.

Introduction

Microsurgery is defined as surgery performed under magnification of 10 x or more which is only possible using a surgical microscope.¹ It's a philosophy that consider three parameters which include enhanced motor skill for surgical performance, minimum tissue trauma at surgical site accomplished by small incisions and primary wound closure obtained by micro suturing leading to eliminate gaps and voids between flaps. Reduced incision size and less retraction directly relates to reduced post-operative morbidity and rapid healing.²

History

In 1694, Anton van Leeuwenhoek constructed the first compound lens microscope. Saemisch, a German ophthalmologist, introduced simple binocular loupes to ophthalmic surgery in 1876. In 1921, Carl Nylen, who is considered the father of microsurgery, first used a binocular microscope for ear surgery. Apotheker and Jako first introduced the microscope to dentistry in 1978. Daniel, 1979 defined microsurgery in broad terms as surgery performed under magnification by the microscope. Serafin, 1980 described microsurgery as a methodology / a modification and refinement

of existing surgical techniques using magnification to improve visualisation, with applications to all specialties. In 1993, Shanelec and Tibbetts presented a continuing education course on periodontal microsurgery at the annual meeting of the American Academy of Periodontology.³

Indications for microsurgery⁴

- Horizontal augmentation
- Vertical augmentation
- Guided tissue regeneration (GTR)
- Guided bone regeneration (GBR)
- Accurate split thickness flaps
- Apical or coronal repositioned flaps
- Connective tissue grafts
- Pedicle or sliding flaps

Micro surgical instruments

Magnification systems used in microsurgery

Two types of optical magnification systems available—

- Loupes and Surgical Operating Microscope

A. Loupes

The most common magnification system used in dentistry is magnification loupes. Loupes are

fundamentally two monocular microscopes, with side-by-side lenses, angled to focus on an object.

Three types of loupes are commonly used:

1. Simple loupes.
2. Compound loupes.
3. Prism loupes.

1. Simple loupes - Simple loupes consist of a pair of single, positive, side-by-side meniscus lenses. It is relatively inexpensive apparatus with disadvantages includes spherical and chromatic aberration, which distorts the image of the object, have no practical dental application beyond a magnification range of 1.5 diameters, where working distances and depths of field are compromised. When positioned close to the eye, simple loupes sacrifice depth of field for working distance. When positioned close to the object viewed, they sacrifice working distance for depth of field. Size and weight constraints make simple loupes impractical for magnification beyond 1.5 \times .

2. Compound loupes - Compound loupes consist of converging multiple lenses with intervening air spaces to gain additional refracting power, magnification, working distance, and depth of field. They can be adjusted to clinical needs without excessive increase in size or weight. Compound loupes become optically inefficient at magnifications above 3 \times .

3. Prism loupes - Prism loupes are the most optically advanced type of loupe magnification presently available. They are superior to other loupes in terms of better magnification, wider depths of field, longer working distances and larger fields of view. The magnification is increased up to 4 \times . Inclusion of coaxial fibreoptic lighting has improved properties of illumination.⁵

B. Surgical Operating Microscope

Surgical microscopes employ Galilean optics, which have binocular eyepieces joined by offset prisms. They establish a parallel optical axis and permit stereoscopic vision without eye convergence or eyestrain. They have coated achromatic lenses and high optical resolution. Depth-of-focus and field-of-view characteristics are greatly enhanced. Digital images can be captured using a beam splitter and camera attachment. A foot-control switch permits a surgeon to record, as the procedure unfolds, without interrupting surgery. It is much more expensive than others. The operating microscope offers flexibility and comfort superior to magnifying loupes.¹³

Micro surgical instruments

Basic set of microsurgical instruments comprises of a needle holder, micro scissors, micro scalpel holder, anatomic and surgical forceps, and a set of various elevators. Several types of

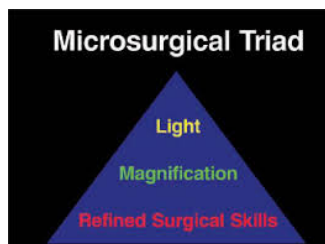


Fig. 1 Microsurgical triad

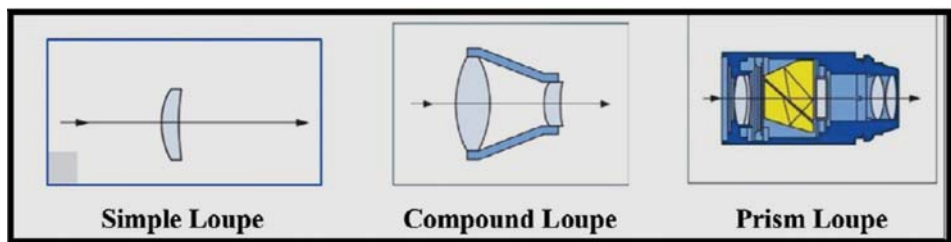


Fig 2. Schematic presentation of various loupes

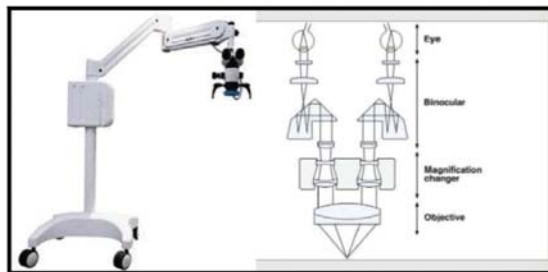


Fig. 3 Surgical microscope

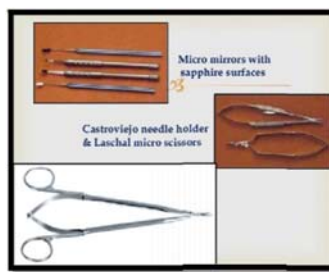


Fig 4. Showing various micro surgical instruments



Fig 5. Periodontal microsurgical knives: 1-blade breaker; 2-crescent; 3-minicrescent; 4-260° spoon; 5-lamella, and 6- sclera knife

ophthalmic knives such as the crescent, lamellar, blade breaker, sclera and spoon knife can be used in the field of Periodontics. These instruments help to limit tissue trauma and promotes faster healing.⁶

In the field of dentistry, particularly Periodontists frequently use a reverse cutting needle of significant size of 16mm to 19mm. Although 4-0 or 5-0 sutures are typically used in Periodontics, in periodontal microsurgery 6-0 and 7-0 sutures are appropriate.⁷

Use of microsurgery in periodontics

Periodontal surgery viewed under the microscope reveals the coarseness of most surgical manipulation.⁷

Periodontal plastic surgery

Plastic surgery relies on mobilization of soft tissue flaps for advancement or retraction in combination with the addition or removal of tissue beneath the flap. Such techniques are capable of moulding tissues to restore a lost part or improve function and esthetic appearance. The application of plastic surgical principles to periodontal tissues comprises the field of periodontal plastic surgery.⁸

Correcting Gingival Recession

Most periodontists have found that gingival recession represented a significant cosmetic

impairment, which through conventional surgical means, was difficult to return to normal appearance and function. Periodontal microsurgery has proven to be an effective means of improving the predictability of gingival transplantation procedures used in treating recession with less operative trauma and discomfort.⁹

Improved Root Visualisation

Lindhe and co-workers (1984) suggested that the critical determinant of the success of periodontal therapy is the thoroughness of debridement of the root surface rather than the choice of grafting modality. Because stereomicroscopy is used to evaluate residual calculus on extracted teeth, it seems logical that a surgical operating microscope can enhance the operator's ability to see and remove calculus in vivo.⁶

Minimal Invasive Surgery (MIS) For Regeneration

MIS was introduced in 1999 by Harrel.¹¹ The salient difference between the minimally invasive approach and more traditional approaches for regeneration is in the use of much smaller incisions to gain surgical access and debride the

Comparison between loupes and surgical microscope

Table 1. Showing differences between loupes and surgical microscope

Loupes	Operating Microscopes
1.5x to 10x magnification	2.5x to 20x magnification
Need additional illumination for magnifications of 4x or greater	Use excellent coaxial Fiber-optic illumination, hence does not need additional light source
Operator eye comfort is less as the eyes must converge to view the image	High comfort as it has parallel binoculars
Initially easy to use	Basic training required to use surgical microscope
Less expensive	Main disadvantage is that these are expensive
Cannot provide variable magnification	Has the advantage of providing variable magnifications

periodontal defect prior to placing the bone graft and membrane.

Contraindications of MIS

- o Generalized horizontal bone loss
- o Multiple interconnected vertical defects.

Establishing an Esthetic Smile Line

An abnormal smile line may result from many causes, including gingival recession, abnormal eruptive patterns, incisal wear, and excessive tissue growth of various etiologies.⁶

Restoring the Edentulous Ridge

Ridge augmentation can involve a variety of techniques, including guided bone regeneration, block and particulate grafts, soft tissue grafts, and a combination of these. In addition to establishing adequate vertical height, sufficient soft tissue thickness must be created to provide an emergence profile for pontics or dental implant prosthesis.

Microsurgery in Implant Therapy

All phases of implant treatment may be performed using a microscope. One of the novel applications of microsurgery is in the sinus lift procedure. The surgical microscope can aid in visualization of the sinus membrane. Magnification achieved by the surgical microscope is instrumental in implant site development and placement.¹¹

Advantages of microsurgery

Along with reduced patient morbidity and better healing phase, through microsurgery ergonomic and body posture advantages are also obtained when using surgical microscope.¹²

Motor skills are enhanced through instruments designed for precision grip of the hand.

Based on study conducted by Dr. Pierpaolo Cortellini, 2001 on periodontal regeneration using guided tissue regeneration membranes with the aid of an operating microscope and microsurgical instruments, concluded that use of a microsurgical approach was associated with very high ability to obtain and maintain primary closure of the interdental tissues over the barrier membranes. The procedure resulted in clinically important amounts of CAL gains and minimal recessions.

(Burdhardt & Land 2005) — Comparative study of connective tissue grafts using microsurgical and macrosurgical techniques showed substantially improved vascularization of the grafts and the percentage of root coverage compared with the conventional macroscopic approach.

Conclusion

End-point appearance of microsurgery is undoubtedly superior than that of conventional surgery. The final and critical element of microsurgery to achieve passive primary wound closure. All together this minimally invasive approach, provide improved aesthetics, rapid healing, reduced patient morbidity and discomfort and enhanced patient acceptance.

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Significance of attached gingiva and its augmentation

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Abstract

In recent years much attention has been focused on the width of attached gingiva. It has been suggested that the presence of band of attached gingiva represents the most significant diagnostic clue in estimating the prognosis of periodontal treatment. The keratinized attached gingiva provides increase resistance to external injury and stabilized the gingival margin against physical forces and helps patients plaque control measurements.

In individuals with inadequate width of attached gingiva mucogingival surgeries like connective tissue grafts, free gingival grafts are used with other surgical procedure to widen the zones of attached gingiva. The purpose of this paper is to highlight the significance and importance of attached gingiva.

Key words: Gingival recession; Connective tissue graft; Width of attached gingival, Root coverage

Introduction

According to glossary of periodontal terms (1972) "Attached gingiva is that portion of gingiva that extends from the base of gingival crevice to mucogingival junction. Orban (1948) first described it and it is a part of keratinized gingiva which aids periodontium to increase resistance to external injury and contribute in stabilization of gingival margin against frictional forces and also aids in dissipating physiological forces exerted by the muscular fibers of the alveolar mucosa on the gingival tissues.¹

Normal width of attached gingiva:

It is the distance between mucogingival junction and projection on external surface of bottom of sulcus. Width of facial gingiva is different in different area of mouth; it is generally greatest in the incisor region. 3.5-4.5 mm in maxilla anterior and 3.3-3.9 mm in mandible anterior. It is narrower in posterior tooth region: 1.9mm in maxilla premolar 1.8 mm in mandible premolar.

Friedman stated that "inadequate" zone of attached gingiva would facilitate subgingival plaque formation because of improper pocket closure resulting from the movability of the

marginal tissue². The amount of attached gingiva is generally considered to be insufficient when stretching of the lips or cheeks to induce movement of free gingival margin.

It may be due to:

- Some people are born without sufficient attached gingiva, resulting in the muscles in alveolar mucosa to pull the gingiva down. Gingival recession as well as bone loss is seen.
- Abnormal frenal attachment, which exaggerates the pull on gingival margin.
- Vigorous brushing in people with naturally thin tissue or when the tissues have been stretched during orthodontic treatment.
- Deep pockets that reaches the level of mucogingival junction.

Indication to increase width of attached gingiva:

- Patient experiencing discomfort during tooth brushing and chewing.
- In cases where orthodontic treatment is planned and final position is expected to result in recession.
- Recession coverage procedures can increase width of attached gingiva and improve aesthetics.

Method of increasing the width of attached gingiva (gingival augmentation)

➤ The earliest of these techniques are the vestibular extension operations.⁸

➤ Denudation techniques. (Ochsenbein 1960, Corn 1962, Wilderman 1964)⁷

➤ Periosteal retention procedure or Split flap procedure (Staffileno et al. 1962, 1966, Wilderman 1963, Pfeifer 1965)⁷

➤ Free grafts have been used for gingival augmentation (Haggerty 1966²⁶, Nabers 1966, Sullivan & Atkins 1968, Hawley & Staffileno 1970, Edel 1974).⁶

Ø Connective tissue grafts are used with other surgical procedures (Langer and L. Langer⁴ in 1985. Nelson (1987)⁵

Case report

A 30-year-old female patient reported to the Department of Periodontics at Sri Sankara Dental College, Akathumuri, Varkala with a chief

complaint of receding gums on lower front teeth. She noticed it since eight months and also have sensitivity on the lower front tooth since 2-3 months.

On clinical examination gingival margin and inter dental papilla is erythematous, in relation to 31, 32. Gingival margin is blunt and rounded and inter dental papilla is flat and rounded. There was a Miller's class I gingival recession on 31. Bleeding on probing was present in relation to 31,32. Papillary mandibular labial frenum was present. The vestibular depth was 3mm and width of attached gingiva 2mm in relation to 31. We arrived at a diagnosis of Chronic localized periodontitis with millers class I gingival recession.

A treatment plan of two stage surgery was planned based on the clinical and radiographic findings. To correct the shallow vestibule and to remove the aberrant mandibular frenum, a vestibuloplasty was planned in the first stage.

BASELINE PHOTOS



Fig.1 Class I gingival recession



Fig.2 Measuring recession depth



Fig.3 Measuring width of attached gingival

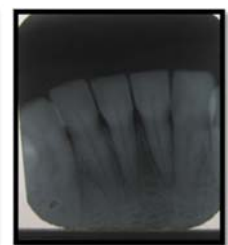


Fig.4 Pre operative IOPA



Fig.5 Vestibuloplasty



Fig.6 Two weeks after Vestibuloplasty



Fig.7 Recipient site prepared



Fig.8 Tin foil template



Fig.9 Template tin foil place on donor site



Fig.10 Graft secured with sutures at the recipient site



Fig.11 After 10 days



Fig.12 After 3 months

First stage surgery

- ♦ Phase I therapy was done with through scaling and root planing, followed by a demonstration of proper brushing habits.

- ♦ One week later, vestibuloplasty was done under LA with a No. 15 blade, a horizontal incision was done to the depth of the vestibule on the lower anterior region extending from the mesial of 33 to the mesial of 43. Periosteal separation was performed.

- ♦ Hemostasis achieved, no sutures were given.

- ♦ Tin foil supported coe pack placed and patient was recalled after two weeks

- ♦ Post operative instructions given

- ♦ Antibiotics (Cap. Amox 500 mg tds for five days) & Analgesics given (Tab. Ibuprofen 400 mg SOS)

- ♦ Chlorhexidine mouthwash : twice daily for 2 weeks.

Due to creeping attachment a slight reduction in recession and increased vestibular depth was obtained in relation to 31 after vestibuloplasty, but the thickness of tissue remained thin, which can lead to further recession, so a connective tissue graft was planned in relation to 31 in a second stage surgery.

Second stage surgery (was planned one month after vestibuloplasty)

- ♦ Under LA, the recipient site was prepared by incising the MGJ and denuding the epithelium to the desired depth.

- ♦ Hemostasis achieved at the site.

- ♦ An aluminium foil template at a size slightly larger than the recipient site was prepared. Measurement was taken for donor tissue with the help of tin foil.

- ♦ Recipient site was covered with moist gauze piece. Donor site was selected for graft harvesting. Graft was removed from right palatal vault, 10 mm away from the gingival margin and just mesial to the first maxillary molar. Using a trap door approach, connective tissue graft of desired width (1.5mm) was removed from the palate and was kept in moist gauze piece and trimmed to correct size and thickness.

- ♦ Graft was placed on the recipient site, stretched and stabilized with the help of 5-0 resorbable suture.

- ♦ Periodontal dressing was placed on the recipient site.

- ♦ Post operative instructions given

- ♦ Antibiotics (Cap. Amox 500 mg tds for five days) & Analgesics given (Tab. Ibuprofen 400 mg SOS)

- ♦ Chlorhexidine mouthwash : twice daily for 2 weeks

The patient was recalled after 10 days. Proper healing and graft acceptance was seen on the receptor site and donor region. Sutures were removed. Oral hygiene instructions were reinforced.

The patient was reviewed in the first, third month and a significant root coverage and aesthetic result was observed. An increase in the width of attached gingiva and vestibular depth was obtained. Local examination showed that graft was completely accepted and recession was markedly covered with the graft tissue. Donor site was completely healed.

Discussion

The success of surgical procedures for increasing width of attached gingiva and root coverage depends on several factors, such as elimination and control of the etiology of gingival recession, evaluations of the interproximal bone level and choice for the most appropriate surgical technique, which are inherent to each clinical situation and region to be treated. The most important factor determining treatment modality is the presence of appropriate (height and width) gingival papilla, which guarantees good vascular supply of the graft and creates the possibility of its proper placement to the cemento-enamel junction.

Connective tissue graft was first introduced by Langer & Langer (1985)⁴ and modified by Harris (1992), Allen (1994) and Bruno (1999). It combines the advantages of the pedicle flap procedure and guarantees a double blood supply from both the overlying pedicle flap and the underlying periosteum. Other advantages of connective tissue graft are the good colour match with neighbouring soft tissues which was found in this case.⁴ Although all periodontal plastic surgery procedures are effective in reducing the extent of exposed root surface, with a concomitant gain in Clinical attachment level (CAL) and in width of keratinized tissue but from an aesthetic and subjective point of view, complete root coverage represents a desired treatment goal.

There are many factors, which influence the degree of root coverage e.g., patient related factors,

which include maintenance of oral hygiene, method of brushing and smoking; Site related factors, like interdental periodontal support and extent of recession (complete coverage is possible only in Miller class I and II recession, while in III and IV, only partial coverage is possible).

The excellent results obtained in the case discussed can be attributed to proper case selection, technique used and patients commitment to treatment. Frequent recall and review is necessary to maintain the gingiva in healthy condition.

Conclusion

The adequate width attached gingiva cover the essential component for maintaining healthy periodontium. Adequate keratinized gingiva provides a firm and stable base for maintaining good oral hygiene, restorative and esthetic procedure. The dentist should be aware of the biology of keratinized gingiva and methods for increasing the attached gingiva for a successful treatment outcome.

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OBITUARY

Dr. Anita Sushil, 53 yrs, passed away on 15th November, 2017, following a road traffic accident. She received her bachelor's degree from Dr. R. Ahmed Dental College, Kolkata, in 1989. She worked at Government Dental College, Kozhikode, for 3yrs. Presently she was working as Lecturer at Sri Sankara Dental College, Trivandrum, since 2010. She was a member of IDA Attingal branch. She is survived by her husband, Mr. Sushil and son, Adithya.

Special treatment options in FPD– a series of case report

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Abstract

Fixed prosthodontics is the area of prosthodontics focused on permanently attached (fixed) dental prostheses. Such dental restorations include crowns, bridges (fixed dentures), inlays, onlays, and veneers. This article highlights certain clinical conditions which require a unique fixed partial prosthesis design. The clinical scenarios includes replacing missing tooth in cases which had a long standing abutment (pier abutment), to replace single tooth using conservative approach and a laminate veneer replacing discolored anterior tooth.

Introduction

Fixed prosthodontics is the area of prosthodontics focused on permanently attached (fixed) dental prostheses. Such dental restorations include crowns, bridges (fixed dentures), inlays, onlays, and veneers. It can be used to restore single or multiple teeth. Superior strength and the ability to create an aesthetically pleasing appearance makes fixed dental prosthesis an integral part to rehabilitate the missing dentition. Easiness in the technique and low cost made it more popular among dentist and patients.

This article highlights certain clinical conditions which require a unique fixed partial prosthesis design. The clinical scenarios includes

1. Replacing missing tooth in cases which had a long standing abutment (pier abutment)
2. To replace single tooth using conservative approach
3. Laminate veneer replacing discolored anterior tooth.

1. Dovetail connector

Pier abutment is one with edentulous spaces present on either side. In this case as the central (pier) abutment is subjected to leverage and

torsional forces, specially designed fixed partial denture with non-rigid connectors are used in order to protect the central abutment. The connector that permits limited movement between independent members of the fixed dental prosthesis is the Non rigid connector. The non-rigid connector used here is called Dovetail or key-keyways or tenon mortise connector. It was introduced by Prof. Beyeler.

Indications

1. The existence of Pier abutment, which promote a fulcrum-like-situation that can cause the weakest of the terminal abutments to fail and may cause intrusion of the pier abutment
2. The existence of malaligned abutment, where parallel preparation might result in devitalisation.
3. The presence of mobile teeth, which need to be splinted together with the fixed prosthesis
4. Used in posterior FPD with minor alignment problem of the abutments and as a connector.

Case Report-1

A 40-year-old lady came to our Department, with the chief complaints of replacement of some missing teeth in the upper right antero-posterior region.

Patient was edentulous for approximately 3 months. Oral examination revealed missing lateral incisor, first and second premolar. Canine is the pier abutment. And it was slightly supraerupted. (Fig. 1)

Radiologic examination revealed good bone index of the abutments, without any periapical pathology. Central incisor was root canal treated.

Preparation of central incisor and canine was done for metal-ceramic fixed dental prosthesis with



Fig.1



Fig.2



Fig.3



Fig.4



Fig.4



Fig.5



pre operative



postoperative

buccal ceramic facing and a non-rigid connector between the canine and first premolar. The preparation on molar was done to receive a full metal retainer. The buccal margin was deep chamfer and all the other margins were chamfer finish line. The distal aspect of the canine was prepared to accommodate a non-rigid connector. The 6 unit bridge consists of first 4 units as facing ceramic and remaining two as full metal crowns. (Fig. 2)

Single step putty-wash impression was made for the preparation of the working model. It was poured in high strength die stone. The provisionals prepared were cemented with temporary luting cement.

Fixed partial denture with non-rigid connector was prepared. First, the anterior segment of central incisor, lateral incisor, canine with the keyway

(Mortise) on its distal aspect was fabricated. Then the second and first premolars with key (Tenon) on its mesial aspect was fabricated in wax and then cast.

Metal trial is done to check the marginal fit and clearance of the prosthesis. (Fig. 4)

After finishing of the fixed dental prosthesis, application of ceramic was done on the buccal surface. First the cementation of anterior segment was done and then followed by the cementation of the posterior segment. (Fig. 5)

2. Maryland bridges

There are various treatment options to replace a single missing tooth in fixed partial prosthesis. But if the patient demands a conservative and non-surgical approach, resin bonded bridges are the ideal indication. Rochette Bridge, Virginia Bridge,



Fig.6



Fig.7



Fig.8



Fig.9



Preoperative



Postoperative

Maryland Bridge and Cast mesh fixed partial denture are the different types of resin bonded prosthesis. Here we will discuss about replacement of single maxillary lateral incisor with Maryland Bridge. This bridge was invented by a dentist in

Atlanta, Dr. Stewart R Halbauer, and was discovered and popularized by the University of Maryland.

A resin-bonded bridge consists of a cast metal framework that is cemented with resin composite



Fig.10



Fig.11



Fig.12



Fig.13



Fig.14



Preoperative



Postoperative

to an abutment(s) which has preparation(s) confined either entirely or almost entirely to enamel.³ They are made of porcelain, porcelain fused to metal, or plastic teeth and gums supported by a metal or porcelain framework. Metal or porcelain wings on either side of the bridge are bonded to the existing teeth.

Case report-2

A 32-old man came to our Department, with the chief complaints of replacement single missing lateral incisor in the upper left anterior region.

Period of edentulism was approximately 7 months. Oral examination revealed missing lateral incisor with slightly reduced mesiodistal width of the edentulous space. (Fig. 6)

Radiographic examination reveals lack of mesiodistal width to place an implant. Also patient was not interested in 3 Unit Bridge as he wanted no preparation in his natural tooth. Patient was introduced to Maryland Bridge and made him aware about its conservative preparation.

Conservative tooth preparation (dovetail-shaped) was done on the lingual aspect of maxillary central and canine. Preparation is extended to proximal surfaces of the teeth to enhance the retention. Care should be taken that it should not extend more labially resulting in metal exposure and compromises the esthetics. (Fig. 7)

Putty light body impression is made using single step technique and the impression is send to lab for casting. (Fig. 8)

Final prosthesis is cemented in patient's mouth using resin bonded cement. (Fig. 9)

3. Laminates

The laminate veneer is a conservative alternative to full coverage for improving the appearance of an anterior tooth⁵. It was first introduced by Dr Charles pincus in 1940s. A porcelain laminate veneer is an extremely thin shell of porcelain applied directly to the tooth structure⁶. Tooth preparation is minimally restricted to dentine and it derives its strength from a composite resin luting agent, with a silane coupling agent to bond with etched porcelain and etched enamel.

Indications

1. To improve the colour of stained teeth
2. Alter contours of misshapen teeth
3. To close interproximal spaces

Case report-3

A 22 year old boy came to our department with the chief complaint of discoloured central incisor. Patient gave a history of trauma since 4 months.

Oral examination reveals intact discoloured central incisor in the first quadrant. (Fig. 10)

Radiographic examination reveals that the tooth has undergone root canal treatment and no evidence of periapical pathology is noted.

Conservative tooth preparation done on the enamel on the labial side of the tooth extending to its lingual aspect without including the cingulum. (Fig. 11)

Suitable shade is selected using stump shade guide and vitamaster. (Fig. 12)

Impression is made with putty light body material and it is sent to the lab. Final cementation is done in the second appointment using resin bonded cement after proper etching and bonding using etchant and dentine bonding agent respectively. (Fig. 13).

Then resin cement is mixed and applied on the inner surface of laminate and is cemented. (Fig. 14)

Conclusion

Ideally, the long axes of abutments should be parallel to each other, but the preparation of fixed dental prosthesis gets complicated by mal- aligned teeth and/or edentulous space. This could be avoided by the use of non-rigid connector.²

The resin-retained bridge is increasingly being used in modern dentistry as an alternative to more destructive treatments. This has been driven by the advent of evidence-based dentistry showing the benefits to patients of reduced tooth preparation and the importance of an intact enamel structure for the long-term health of the teeth. Indeed, recent contemporary research shows resin retained bridges have better success rates than implants.⁴ Self-adhesive resin cements eliminate the need for separate etchants and primers for bonding ceramic and metal restorations to tooth structure. These cements are available in tooth-colored, translucent, and opaque shades, and are dual-cured. Esthetic resin cements require a bonding agent for adhesion to tooth structure and separate primers for bonding all-ceramic restorations. These cements are available in a variety of VITATM and translucent shades, and most are dual-cured. Special light-cured esthetic resin cements are available for bonding all-ceramic veneers.

Etched porcelain veneer technology has demonstrated long-term clinical success. It has proved to be one of the most successful modalities of treatment that modern dentistry has to offer. It is kind to the soft tissue and adjoining periodontium. It avoids the use of any metal structures and thereby possesses excellent esthetic quality. It is also the most conservative restoration, which preserves a significant proportion of the natural enamel. Development of new products and materials is expected to bring longer term success⁷.

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A clinical approach to fabricate customised post for rehabilitation of tooth with wide root canals

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Abstract

The use of fibre posts along with direct composite resin restorations is a faster therapeutic option that restores lost tooth structure. This case report address the problem of restoring wide root treatment spaces using fibre post, flowable composite, core composite and resin cement. This has been done to avoid excessive removal of residual dentin and modify the width of root dentin according to the proportionality concept in post and core treatment.

Introduction

Anterior tooth trauma frequently occurs in children and young adults. Among anterior teeth, the maxillary central incisors are reported to be most susceptible to trauma, followed by lateral incisor and mandibular central incisor because of their location and morphology¹.

The successful restoration of badly broken down tooth with pulpal damage depends not only on good endodontic therapy, but also on good prosthetic reconstruction after endodontic therapy². This case report is about the management of fractured central incisor with wide root canal space.

Case Report

A 20 years old male patient reported to the OPD of Pushpagiri College of Dental Sciences, Thiruvalla, complaining of broken upper front tooth. He had a history of trauma during basketball play 8 years back. Later the tooth was endodontically treated and restored. The restored tooth was fractured due to fall one week back. Medical and dental history of the patient was non-contributory.

Clinical findings

Clinical examination revealed fracture of crown structure of maxillary right central incisor with only cervical one third remaining.

Radiographic findings

The canal space was filled with radiopaque material suggestive of endodontic therapy. The root canal space was so wide compromising the width of root dentin. Bone support was adequate.

Treatment plan

Based on clinical and radiographic findings it was planned to create a nearly ideal post space using flowable composite and fabricate a custom post using composite resin coated glass fibre post followed by all ceramic crown.

Treatment Procedure

1. Post space was prepared using Peeso reamers at low speed. Any residual gutta-percha and root canal sealer was removed from the dentinal walls to ensure proper bonding of resin to dentin. On retrieval the entire gutta-percha extruded, so it was planned to give MTA as an apical barrier. Thorough rinsing of the canal space was done using sodium hypochlorite and EDTA irrigants.

2. Post space impression was made using orthodontic wire and poly vinyl siloxane impression material in one step technique. Cast was poured in type 3 dental stone.

3. Glass fibre post of size 1.5mm was etched and coated with composite resin and cured. Try in of post was done in cast and further build up of composite was done so that there is adequate space to modify dentin.

4. Patient was recalled and post was tried intraorally.

5. Modification of the canal space.

The objective of management was to create ideal post space based on proportionality concept. A lentulo spiral was used to carry acid etchant into the post space, while a fine-tipped applicator was used to coat the canal walls with bonding agent. Flowable composite was coated on canal walls circumferentially. Simultaneously prefabricated post coated with petroleum jelly was moved in and out while light curing was done. This will increase the width of dentin. The width of post and root dentin on either side was evaluated using an IOPA.

6. In vivo bonding of prefabricated post to the dentinal wall of the root canal space was done using resin cement.

7. After post cementation composite core build up was done. Removal of the smear layer through acid treatment and the wet bonding of dentin without contamination were done as with other restorative procedures using resin-based composite to achieve success.

8. In the next appointment all ceramic crown was cemented with resin cement. Patient wanted a relatively quick and conservative treatment approach. He was satisfied with esthetic outcome of treatment. Follow up was done after 12 months and the tooth was symptom free.

Discussion

Studies suggest the use of a post only when

there is insufficient remaining tooth structure to support the final restoration. The main function of a post is the retention of a core to support the coronal restoration. Also the post distributes the stress along the root. Several factors influence the success of post and core treatment. With the concept of "crown down" technique in endodontic therapy, more sound radicular dentin are removed for efficient cleaning and shaping of the root canal system.

In general, the post width should not exceed one-third of the root width at its narrowest dimension. A minimum of 1 mm of sound dentin should be maintained circumferentially, especially in the apical area where the root surface usually becomes narrower and functional stresses are concentrated. The cleaning and shaping procedures used in modern endodontic treatment are aggressive in the removal of dentin within the root canal space.³ An increase in the post width will increase the risk of root fracture.

Over the past several years, many new restorative materials have become available but the basic concepts in restoring endodontically teeth remains the same. According to proportionist approach post width should not be more than 1/3rd root width at its narrowest dimension. Increase in post width has no significant effect on retention³. Large diameter posts provide least resistance to fracture.

A cast metal post was avoided in this case due to possible wedging forces. As metal is highly rigid



Fig 1. Materials used



Fig 2. Customised post



Fig 3, 4. Post cementation



Fig 5, 6. Light curing and composite build up



Fig 6,7. Pre-op and Post-op radiographs



Fig 8. Post treatment photograph

lateral forces are transmitted without distortion to the less rigid dentin and lead to a higher chance of root fracture.

The ideal post and core material should have physical properties such as compressive strength, modulus of elasticity and coefficient of thermal expansion that are similar to those of dentin. In addition, prefabricated posts should not be corrosive and should bond easily and strongly to dentin inside the root using suitable cement so that the entire assembly of a post and core resembles the original tooth. Unfortunately, no such material is available to date even though fibre-reinforced posts look promising.⁴

Since fibre-reinforced posts are metal-free, they do not cause metal allergies or corrode. They offer good aesthetics especially under the all-ceramic crowns and bridges. Glass fibres possess a translucency which makes aesthetic restoration more easily obtainable. They also allow some degree of light transmission so that dual-cure cement can be used as the translucency helps to provide adequate polymerization of dual-cure cements. Also fibre-reinforced posts can be removed easily in case of an endodontic failure requiring retreatment. Ferrari et al evaluated three types of fibre-reinforced posts over one to six years and reported a failure rate of only 3.2 percent. They concluded that these posts can be used routinely in combination with bonding materials.⁵

A success rate of nearly 95 percent was also reported while using fibre reinforced posts to restore endodontically treated teeth⁶. Like the ceramic posts, fibre-reinforced posts are relatively new, and data on their long-term clinical performance are not available yet.⁷

The lower flexural modulus of fibre-reinforced posts (between 1 and 4 x 10⁶ psi) measures closer to that of dentin (~ 2 x 10⁶ psi) and can decrease the incidence of root fracture.^{8, 9} Connecting fibre post with resin cement offers good retention and provides a monoblock effect as it has low modulus of elasticity equal to dentin. Successful bonding minimizes the wedging effect of the post within the root canal. Successful bonding also means that the shape (parallel versus tapered) of the fibre-

reinforced post may be less significant in relation to its retention than for a metal post.¹⁰ The use of resin cement for cementation decrease microleakage and increases the fracture resistance of teeth.

Conclusion

The prognosis of endodontically treated teeth depends not only on the success of the endodontic treatment, but also on the type of reconstruction. The considerations include the decision in selecting post. The success and failure of procedure depend on using proper bonding protocol for which a dry, clean operative field is necessary. The entire procedure has to be performed meticulously, as it is technique-sensitive. It is necessary for dental practitioners to evaluate each clinical situation carefully to deliver a treatment with long term clinical success.

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IDA Attingal Branch Reports & Activities

A camp was conducted at Gokulam Medical College on 1st October in connection with World Geriatric Day. In December 1st AIDS Day also observed.

A state CDE was conducted this month along with Trivandrum branch at Park center Techno Park, Kazhakootam the topic was Enhancing Aesthetics with laminates and veneers by the faculty Dr Narayan which witnessed an overwhelming crowd of 170 participants.

This year we conducted eight CDE programmes.

Two executive committee meetings were conducted.

Election for the office bearers for 2018 done.

AGM is planning to conduct on 10th December and our Installation 2018 and family get-together on 17 December.

Our branch is hosting State Executive committee meeting on 17th December at IMA Head quaters, Anayara.



*Family tour
conducted by WDC*



*State CDE at technopark
Trivandrum organised by the
IDA Attingal & Trivandrum.*