# Impressions

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ATTINGAL BRANCH

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# Messages

## Branch President

Dr.Arun S.

Dear Members,

I am so happy to address you through our journal "IMPRESSIONS" second issue coming under our dynamic editor Dr.Ashok Gopan who once again releasing second issue on time..Hats off to his efforts in bringing this issue on time.

Last three months were so active and fruitful for our branch in state level and branch level activities.We won south zone Inter branch cricket tournament. Congrats to our Cricket team leaded by Dr.Arshad. Our First General Body meeting with talk by renowned psychologist,Dr.Sunil Raj was very useful and well appreciated by the members. Second CDE on Laser by Dr.Rajesh Pillai was conducted successfully and coordinated very well by our CDE convenor,Dr.Afsal.

I request all members to participate in our future programmes which include State Level Sports and Games meet on October 12th at LNCP grounds ,Kariavattom,TVM, General body meetings,CDE Programmes,Community Dental Health Programmes.

Jai IDA
With warm regards,
Dr.Arun.S,President IDA Attingal

## Branch Secretary

Dr.Rudy George

Dear members,

Yet again, we have made news in the Kerala Chapter; we won the zonal trophy for IDA Kerala State Inter branch cricket tournament. Congrats to our team. Special appreciation goes to Dr. Arshad B.H & Dr. Harikumar .R for leading the team.

Our 1st GBM & family get together at the Kayaloram resorts, near Panayil Kadavu bridge, Vakkom was a resounding success. A talk by Dr. Sunilraj on relationships made a tremendous introspection of everyone's family life. The 2nd CDE program on Laser Dentistry was successfully coordinated by our CDE convenor, Dr. Afzal .A. The faculty Dr. Rajesh Pillai, most brilliantly explained on the various clinical manifesto of lasers in dentistry.

The second half of this year lies ahead of us with the most prestigious program, to be hosted at state level, which is the State sports & games meet (SPIDAK 2014) on Oct 12th. I congratulate Dr. Ashok Gopan, our editor, for keeping his word and bringing out the 2nd issue for this year. I request all our members to involve themselves in all possible IDA activities.

Jai IDA
With warm regards,
Dr.Rudy A.George .Hon.Secretary ,IDA Attingal

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# Editorial

My dear members,
Bringing to you yet another issue of impressions ,with great thanks in my heart for all the sponsors,contributors of articles and my fellow mates.
In my editorial, I would like to stress one point- about the involvement of members in branch activities .I humbly request healthy participation of all branch members in all branch activities like CDE,School dental health etc.
Expecting your support, and wishing you all a Happy Onam....

*With warm regards*


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# Lasers

## A promising tool for management of tongue tie

A case report

## Abstract

Ankyloglossia, or tongue-tie, is the result of a short, tight, lingual frenum causing tethering of the tongue tip. Different techniques has been used reported in the management of mandibular lingual frenum like lasers,electrocautry, scalpel each having its on merits and demerits. Advantages of Laser over scalpel surgery or electrocautry are dry , bloodless surgery, Instant sterilization of the surgical site, reduced bacteremia,reduced mechanical trauma,Minimalpost operative swelling ,Less healing time, Minimal post operativepain,nosutures,No periodontal dressing. . This case series discusses the management of a mandibular lingual frenum with a diode laser under topical anesthesia and reevaluation.

**Introduction**

Tongue tie or ankyloglossia is a developmental anomaly of the tongue characterized by an abnormally short, thick lingual frenum resulting in varying limitations of tongue movement. It can be categorized into total and partial ankyloglossia.Ankyloglossia if untreated can result in [6]; Dental caries , Open bite, periodontitis and varying degree of tooth mobility,Snoring and bed wetting at sleep .Ankyloglossia has also been associated with problems with breast feeding among neonates, malocclusion,and gingival recession[7]. . The incidence of tongue tie varies from 0.2% to 5% depending on the population examined. Two independent studies have shown a significant predilection for the male child[2]. There is an increased susceptibility of ankyloglossia various syndromes like Smith-Lemli-Opitz syndrome[3], Orofacial digital syndrome, Beckwith Weidman syndrome, Simpson-Golabi-Behmel syndrome[4] and X linked cleft palate are reported[5].

*Kotlow's Classified ankyloglossia based on free tongue length[8] into* normal range of free tongue > 16mm,Class I: mild ankyloglossia = 12-16mm ,Class II: moderate ankyloglossia = 8-11mm ,Class III: sever ankyloglossia = 3-7mm ,Class IV: complete ankyloglossia< 3mm.

*Clinical assessment in patients:*

*The clinician should examine the tongue appearance when tongue is lifted. The attachment should be approximately 1 cm posterior to the tip of the tongue and inferior alveolar ridge*[9].There is lack of scientific evidences providing a true relationship between tongue tie and speech disorder. In case of tongue tie the sounds such as 't','d', 'l', 'th' and 's' will not be accurate. In certain patients where speech is delayed, the parents may demand surgical correction in the hope of normal speech and language. In these patients audiological and neurodevelopmental factors may be the etiological factors. Surgical repairs of those patients should be delayed until appropriate diagnosis is made[8].

***Laser Surgery*** *can be done with lasers like* Erbium: YAG lasers and diode lasers .Er: YAG is relatively new option and is suitable for neonates, older children and adults. diode laser or CO2 laser , Er; YAG does not need general anaesthesia when used, but an analgesic gel might be applied. The procedure is very quick, taking only 2 to 3 minutes to perform, but some cooperation from the patient in keeping still is required. There is virtually no bleeding, no pain, no risk of infection and the healing period can be as short as 2 hours. It is best to have this procedure performed by a specialist in the area of laser dentistry who is familiar with tongue tie revision. The patient returns for speech therapy in 2 days[10].Encourage tongue movements related to cleaning the oral cavity, including sweeping the insides of the cheeks, fronts and backs of the teeth, and licking right around both lips[12].

Diode lasers 810 nm is preferred over the other lasers because of the ease of use,excellent hemostatic property, no sutures needed ,minimal postoperative complications make them an excellent tool for tongue tie management when compared to conventional surgeriesand electrosurgery units .

The presentcase report describes the 810nm**GaAlAs** diode laser-assisted lingualfrenectomy procedure.

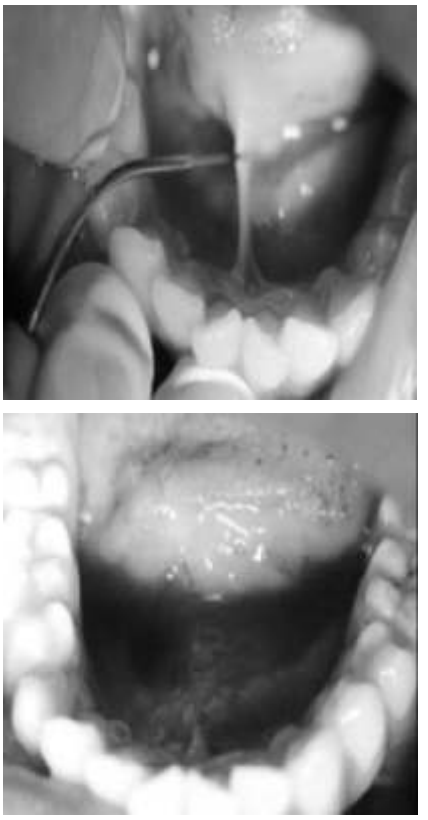
## CASE REPORT

A 14-year-old femalepatient reported in the Departmentof Periodontics, PMS Dental College,Trivandrum, with a complaint of difficulty in speech sincebirth,and no contributory medical history.On intraoral examination, it was found thatthe individual had partial ankyloglossia (Figure 1a)and was classified as class III according to Kotlow'sassessment and was able to protrude the tongue upto the lower lip. Lingual frenectomy by soft tissuelaser was planned for the patient after written consentwas taken from her.

After application of topical anesthesia **GaAlAs**Diodelaser (810 nm) was used for the frenectomyprocedure (Figure 1b). After stripping the fiber-optic wiretip, the tip was initiated by firing it into a piece of cork at1.5 W in a continuous mode. An initiated tip of 600 µwas used with an average power of 1.5 W in a continuous mode. The diode laser was applied in a contact mode withfocused beam for excision of the tissue. The tip of the laserwas moved from the apex of the frenum to the base in abrushing stroke cutting the frenum. The ablated tissue wascontinuously mopped using wet gauze piece. This takescare of the charred tissue and prevents excessive thermaldamage to the underlying soft tissue.

No suturing was done, and the patient wasprescribed analgesics and reviewed after 1 week andhealing was satisfactory(Figure 1c). Patient was again examined afte3 months postoperatively,she reported increase in tongue mobilityfollowing surgery and healing was satisfactory (Figure 1dand e)The speech articulation was improved followingspeech therapy and counselling.

(fig1a)Pre operative



(Fig 1b) Intra operative Immediate postoperative

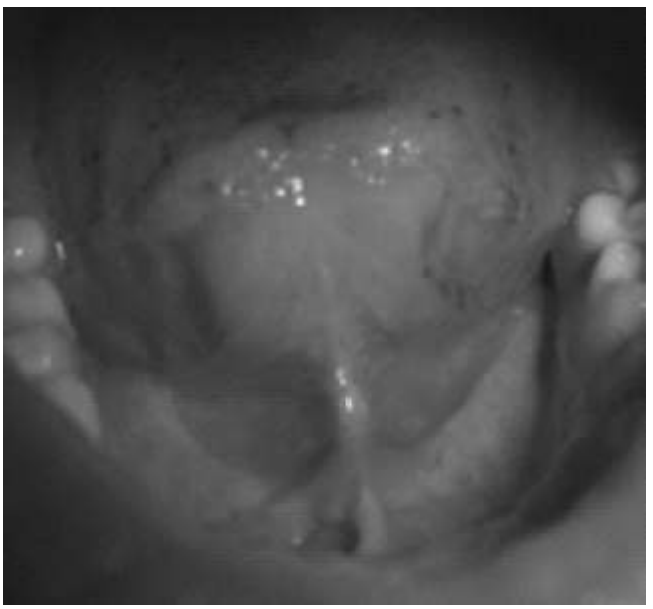
## DISCUSSION

Diode lasers are compact and portable in design, withefficient and reliable benefits for use in soft tissue oralsurgical procedure. Laser light is monochromatic,coherent, and collimated; therefore, it delivers a preciseburst of energy to the targeted area.

Laser-assisted lingual frenectomy is easy to perform withexcellent precision, less discomfort, and short healingtime compared to the conventional technique.Thefrenum was completely eliminated and could protrudethe tongue up to 15 mm. The sealing of capillaries byprotein denaturation and stimulation of clotting factor VIIproduction[14]by the laser results in minimal or no bleeding. The thermal effect of laser seals the capillariesand lymphatics, which also reduce the postoperativebleeding and edema[15]. In addition, sterilization of woundby laser reduces the need for postoperative care andantibiotics. All these properties makes 810nm diode laser simply the best choice for management of lingual frenum.

## CONCLUSION

Ankyloglossia is a congenital anomaly characterized by presence of a hypertrophic lingual frenulum which is short and attached to the very tip of the tongue, limiting its normal movements In the present case report, lingual frenectomy was effectively managed by diode laser which provides practical benefit to the patient as it reduces bleeding, postoperative pain, and swelling. Hence diode lasers proved to be an effective tool in management of lingual freneum.



(fig 1c)1 week post operative

( fig 1d&e)3 Months post operative

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# The role of Silanes In Dentistry

## Abstract

The advancements in material study aim at achieving a high bond strength between material phases, which is crucial for the durability of concerned materials. It is here that silanes have a major role to play. The following article enlists the current uses of silanes in dental practice and considers their role in the future.

## Key words

dental silanes ; coupling agents; silanization

## INTRODUCTION

Silanes are organic compounds containing silicon. Silane molecules have dual reactivity, ie ability to bond to inorganic materials (glass, mineral fillers, metals, metallic oxides) **and** organic resins. Hence it functions in promoting adhesion between dissimilar matrices.

Silanes may be:

Monofunctional (one Silicon atom with three alkoxy groups)

Bisfunctional (two Silicon atom, each with three alkoxy groups)

Trisfunctional ( three Silicon atom, each with three alkoxy groups)

The silane most commonly applied in dental laboratories and chairside is monofunctional methacryloxypropyltrimethoxysilane [MPS] .It is used to promote adhesion, through chemical and physical coupling, between metal-composite, ceramic-composite, and composite-composite.

It is mostly applied in polar aqueous alcohol solutions and in ethyl acetate but non-polar solutions may also be used.

Most effective silanes for adhesion(1):

· Silane backbone body short
· Organofunctional part be methacryli
· Hydrolyzable groups be methoxy
· Silane applied from ethanol

## METHOD OF APPLICATION:

The silanating agent has to be applied as a uniform layer and allowed to dry for 1-2 minutes. Manufacturer instructions should be strictly followed. Atmospheric moisture can accelerate condensation reaction and silane solution should be discarded if it is opaque, milky (2).

**ROLE OF SILANE** (3) **:**

1. Adhesion promoters
2. Coupling agents
3.Crosslinking agents
4. Dispersing agents
5. Surface modifiers

**SILANE APPLICATION IN DENTISTRY:**

- CERAMIC RESTORATIONS(4):
  Applied to silica-coated ceramics to give durable bonding between resin and ceramics.
- CERAMIC REPAIR SYSTEMS(5):
  Acid etching with hydrofluoric acid, followed by silanization and bonding to resin composites.
- SILANES ON FILLER MATERIALS(6,7):
  Better dispersion and wetting of filler particles. Also lowers viscosity.
- BASE AND NOBLE METAL ALLOYS(8,9):
  Silane coupling agent is effective only when the surfaces of metal/metal alloy are pre-treated by sand-basting of silica-coated alumina i.e a silica layer is formed onto the surface.
- SILANIZATION OF ORTHODONTIC BRACKETS(10-13)
- GLASS FIBER-REINFORCED COMPOSITES(14,15)
  Silanized glass fibers embedded in acrylic resin to increase impact and tensile strength.
- SILANIZED CERAMIC ROOT CANAL POSTS IN ENDODONTICS(16)

Future research could study the interactions of non-etchable dental materials (eg. alumina, zirconia) and silanes wherein silane-promoted adhesion could play a major role. They are also beneficial in case of newer developments in dental composites( eg. ORMOCER and nanoscale hybrid composites) which applies sol-gel technology.

**CONCLUSION:**

Silanes have a critical role to play in achieving durable bonds while joining of the multitude of dissimilar dental materials. Surface conditioning of dental materials combined with silanation is performed as a standard laboratory protocol and in chair-side repairs. Hence justifying their role in dentistry.

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# The try in stage in Complete denture Fabrication

A previous article in the same journal dealt with the the topic of jaw relations. This article is about the next stage in denture fabrication, namely, the Try-in or Trial stage. This step is also called the Verification step.

## Importance of this step.:

This step is the one which is often given a cursory nod by most dentists. The reason could be that the dentist considers this step a mere formality which need to be ritualuistically followed without ( the dentist thinks) much import for the denture success. This is as far from the truth as one can get.

The Try-in step is very important for two reasons: 1. At this stage of denture fabrication the patient gets to see a prototype of the product he/she has invested in. hence the expectations of the patient are very high and therefore unless the dentist gets a proper feed back from the patient at this stage the success of the prostheses remasin doubtful.

2. This is perhaps the last chance that the dentist gets to correct any errors that may have crept in during the prevcious stage viz. Jaw Relations, as every practitioner would attest to , there would have been atleast one instance when the dentist had the misfortune to look on in horror when a dnture prosthesis which complied with all the rules of success in the previous stages now literally stares at him/her, open mouthed!

The try-in or trial or verification step is usually done in a haphazard manner . this article would like to give a systematic approach to eXecuting this step so that no facet of denture success is overlooked. A check list of items as it were.

CHECK LIST FOR THE TRY- IN /TRIAL/ VERIFICATION STEP.

Before we go any further it is necessary to explain the necceity of introducing a new term to refer to this step. This is because in actuality that I s what we do a veruification of the steos accomplished earlier so as to ensure that no errrords have crept in Trust but verify should be our motto!

The check list has two parts.
1.Verification - aesthetic
2.Verification- function

**Verification -AESTHETICS.**

FULLNES ,
VISIBILITY ,
MIDLINE ,
PLANES,
TEETH SIZE ,
SHAPE ,
COLOUR,
SMILE LINE,
BUCCAL CORRIDOR

**Verification - FUNCTION**

VERTICAL DIMENSION-VDR VDO -their difference should be 3 OR 4 mm.,
HORIZONTAL RELATION,
CENTRIC OCCLUSION TO HAPPEN WITH MAXIMUM INTERCUSPATION BILATERALLY AND SIMULTANEOUSLY,
PHONETICS
ASK PATIENT TO REPREAT THE LETTERS f, v, s (this is to check the overjet and over bite.)

Each item on the check list should be evaluated using criteria mentioned in the article on jaw relations. Once these have been evaluated by the dentist it is now ttime fro thwe patient to give their assessment .the best method would be for the dentist to hand a mirror ( sufficiently large enough for the patient to visualize the full face) to the patient and request the patient to evaluate the dentures, and quietly move away . this would help thepatient take a lesuirely lok at trhe dentures without the often distractin presenceof nthe dentist.

On returning the dentist should stand behind the patient and observe the dentures along with the patient.this technique called the reverse mirror technique will help the dentist see the dentures from the patients's point of view.while jointly viewing the dentures the dentist can enquire of the patient' s views on the dentures.

Once the the dentures have been approved by the patient and if possible a close associate of the patient's the dentist can dischasrge the patient confidsent that the final product will be success.

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# Psychological stressors in the Profession of Dentistry and its management

## -An overview

**D**entistry can be a stressful profession. This statement undoubtedly would invoke a great deal of discussion, illustrated with personal experiences, from many practicing dentists.Dentists encounter numerous sources of stress beginning in dental school. On entering clinical practice, they can find that the number and variety of stressors often grow. Clinicians experience numerous workplace, financial, practice management and Societal issues for which they often are unprepared. For some dentists, these issues may significantly affect their physical health, mental health or both.Clinical disorders such as burnout, anxiety and depression may result. These disorders may have certain negative effects on dentists' personal relationships, professional relationships, health and well-being. Fortunately, treatment modalities and prevention strategies can help dentists conquer and avoid these disorders. The only limitation is their willingness to take care of themselves

Stress can be defined as the biological reaction to any adverse internal or external stimulus physical, mental or emotional that tends to disturb the organism's homeostasis. If the compensating reactions are inadequate or inappropriate, they may lead to disorders.However, stress is not all bad. Certain stressors inspire people to make a greater effort; for example, a particularly demanding patient may motivate a dentist to work at an exceptionally high level, resulting in the creation of a highly esthetic and natural-looking restoration.Some stressors can stimulate people to grow professionally and personally, learn or improve. Stress is really an essential part of our lives.

## STRESS AND DENTISTRY

Dentists perceive dentistry as being more stressful than other occupations.A study of more than 3,500 dentists found that 38 percent of those surveyed always or frequently were worried or anxious. Moreover, 34percent of the respondents said that they always or frequently felt physically or emotionally exhausted, and 26 percent said they always or frequently had headaches or backaches. These symptoms often are associated with anxiety and depression. Problems with time management and staying on schedule appeared in several surveys. It is interesting to note that anxious patients often create less stress for dentists than running behind schedule. Other stressors that appear in these surveys include coping with difficult or uncooperative patients, the workload, governmental interventions and a constant drive for technical perfection.Many of the psychological signs of stress manifest themselves as physiological responses.The physical disorder reported most frequently by dentists is lower back pain. Other physical manifestations include headaches and intestinal or abdominal problems. Among the psychological disorders associated with stress are anxiety and depression. While in most cases these disorders are not so severe that they require intervention,they may interfere with the dentist's professional performance and quality of life. The stress-related problems associated with dentistry arise from the work environment and the personality types of the people who choose the profession. The operatory usually is small, and the dentist's focus is on an even smaller space,the oral cavity. Dentists are required to sit still for much of their workday, making very precise and slow movements with their hands, while their eyes remain focused on a specific spot. Isolation from other dentists also is common. Additionally, a study has shown that dentistry tends to attract people with compulsive personalities, who often have unrealistic expectations and unnecessarily high standards of performance, and who require social approval and status. In general, as dentists' number of clinical experiences increase, they report a lower overall perception of stress. Only stress resulting from office management remains high, despite the dentists' practice experiences. This may be, in part, a consequence of dental assistants' perception of stressors as being different from those of the dentists with whom they work. Role ambiguity, underuse of skills and low self-esteem are important factors contributing to stress among dental assistants. Unfortunately, dentists receive relatively little training in the interpersonal dimensions of practice management, so they may lack the skills to remedy these conflicts.

## PROFESSIONAL BURNOUT

One of the possible consequences of chronic occupational stress is professional burnout. Burnout is defined by three coexisting characteristics.First, the person is exhausted mentally or emotionally. Second, the person develops a negative,indifferent or cynical attitude toward patients,clients or co-workers; this is referred to as depersonalization or dehumanization. Finally, there is a tendency for people to feel dissatisfied with their accomplishments and to evaluate themselves negatively. The effects of burnout, although work-related, often will have a negative impact onpeople's personal relationships and well-being. Burnout is best described as a gradual erosion of the person. One study showed that certain aspects
Of dental practice, such as time pressures, patient-related problems and management of Auxiliary staff, all was relevant stressors. However, lack of career perspective was the most crucial aspect in the development of burnout. It is interesting to note that health professionals who burn out relatively early in their careers were more likely to stay in their chosen career and adopt a more flexible approach to their work routines. This suggests that burnout does not necessarily have to result in far-reaching negative consequences.

## STRESS, DEPRESSION AND ANXIETY INDENTISTS

Many of the personality traits that characterize a good dentist also can predispose dentists to Depression. Studies have indicated that both anxiety and depressive disorders are observed frequently in dentists. Despite the fact that dentists have been portrayed as being prone to commit suicide, there is no statistical evidence to support this, and most reliable evidence suggests the opposite. Dentists do tend to enjoy better physical health and live longer than people in other occupations, but their mental health has been shown to be poorer.

Overall, the medical community has been shown to exhibit a relatively higher level of depression than other professional groups. Complicating this situation is the fact that health care providers can be embarrassed by the thought of seeking professional help.

**HOW TO HELP YOURSELF IF YOU ARE DEPRESSED.**

· Set realistic goals.

· Break large tasks into small ones.

· Try to be with other people and to confide in someone.

· Participate in activities that may make you feel better.

· Participate in mild exercise, go to a movie or a ballgame, or participate in religious, social or other activities.

· Expect your mood to improve gradually, not immediately.

· Postpone important decisions until the depression has lifted.

· Practice positive thinking that will replace the negative thinking that is part of the depression.

· Let your family and friends help you.

* Source: Regier and colleagues.

**COPING WITH STRESS**

The goal of coping with stress is to offset the negative effects of stress by using appropriate coping strategies. The literature suggests that stress management programs should be directed at two levels of practitioners: dental students and dentists. Studies have emphasized the importance of stress management training during dental education.It also has been suggested that the dental curriculum be modified so that students have a chance to work outside the dental school in a general practice environment

Practicing dentists also can benefit from using stress management techniques. Stress management workshops focusing on stress relievers may include deep breathing exercises; progressive effective relaxation of areas of the body; listening to audiotapes of oral instructions on how to relax; meditation; information on the topics of practice and business management, time management, communication and interpersonal skills; and the use of social support systems such as study groups or organized dental meetings. These workshops should be structured to help improve dentists' coping skills and equip them to deal more effectively with the stressors intrinsic to the profession. Professional help or counseling services may be necessary if the effects of stress are affecting the person's normal lifestyle.The researchers suggest that some reasons may be lessened isolation, increased self-esteem in response to the attention of students, a sense of autonomy over what and when to teach, power over those in a more junior position, added interest in patients as a source of teaching opportunities, and a sense of helping the students future patients.

Physical exercise, such as regular walking or working out at a health club, cannot be underestimated as a stress reliever. Such activities result inburning up the additional supply of adrenaline that results from stress, and they allow the body's functions to return to a more normal state. Physical fitness offers a greater energy reserve, allowing people to become more energetic and more efficient. In addition, exercise helps develop greater self-esteem, self-control and self-discipline. People's personalities and temperaments have a significant impact on their perceptions of stress. It has been observed that people who display high levels of decisiveness, are self-reliant, maintain high self-worth and have developed good problem-solving and information-seeking skills cope better under stressful conditions. Those who have strong, positive self-images and know how to relax so as to reduce mental and emotional pressures also cope better with stress, as do people who are open to being helped by others. However, not all stress-producing situations in the dental practice can be eliminated. Stress or such as failing to meet personal expectations,seeing more patients for financial reasons, working quickly to see as many patients as possible for financial reasons, earning enough money to meet lifestyle needs and being perceived as an inflictor of pain are all stress-producing situations. These issues generally require a reassessment of one's own attitudes and expectations in the light of whether they are realistic, achievable or rational.

## CONCLUSION

Dentists often perceive dentistry as being stressful. The sources of stress arise from the work environment (for example, workplace, financial and practice management issues) and from the personality types of the people who choose the profession. Stress can elicit varying physiological and psychological effects on a person. With professional burnout, people become emotionally and mentally exhausted; develop a negative, indifferent or cynical attitude towards patients, clients or co-workers; and evaluate themselves negatively. Depression affects the body, mood and thoughts. Its onset often involves a combination of genetic, psychological and environmental factors. However, episodes of depression may be precipitated by mild stresses.Some stress is inherent in dental practice,requiring that dentists learn coping strategies to minimize the effects of stress. Stress management should be targeted to dental students and practicing dentists. The dental educational curriculum should be modified to include business management, stress management and communication skills. Some dental associations offer stress management workshops, professional help, counseling services and support networks. In addition, dentists should assess their own attitudes and expectations to determine if they are realistic, achievable or rational. Finally, dentists must realize that help is readily available if the effects of stress become overwhelming.

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# Storage media
## for avulsed tooth

A review

Dental avulsion is a traumatic injury characterized by the complete displacement of the tooth from its socket, with damage to the periodontal ligament, cementum, alveolar bone, gingival and pulp tissues.1,2 The most indicated procedure for this kind of dental trauma is reimplantation, which is a surgical technique consisting of reinserting a tooth in its socket after it has been extracted on purpose or accidentally.3,4 The prognosis of the tooth reimplantation depends on the existence of feasible cells in the periodontal ligament and also depends on those which are able to proliferate on the damaged areas of the root.5The vitality of the periodontal ligament on the surface of the root, increases the probability of reinsertion of dental fibers with the alveolar ones, when reimplantation is immediate; that is, when it is done up to one hour after avulsion.6

Besides the promptness of reimplantation and the storing medium in which the tooth is placed is also a determining factor to extending the life of the tooth. The maintenance of vitality of periodontal ligament attached to the tooth is lower in a dry environment. The tooth should, necessarily, remain in a humid place.2,3,4,6

The present review summarizes the role of storage media in periodontal healing , the available media and the ongoing developments in the field.

Effect of storage media on periodontal healing

Teeth are usually subjected to a period of desiccation between their avulsion and replantation. As dry storage detrimental to the preservation of the periodontal ligament , avulsed tooth must be prevented from drying by the use of storage media of correct osmolarity and pH.

The ideal storage medium should be capable of preserving the feasibility of cellular periodontal ligament, so that the cells could go through mitosis and form clones of the damaged fibroblasts of the periodontal ligament and its generating cells. This is essential so that the nude surface of the root be repopulated by fibroblasts, thus avoiding the adherence adherence of osteoclasts on this area.7,8

Clinical aspects of storage media

The three main factors on which the efficacy of storage media is dependent are extra-alveolar duration, osmolarity and temperature.

Extra-alveolar duration

Avulsed teeth usually experience an extra-alveolar duration of as long as 5 h before replantation, and longer duration is associated with a decreased incidence of PDL healing. According to Andreasen et al, among the various clinical factors, the length of the dry extra-alveolar period seems to be most crucial.9 Incidence of root resorption is higher in the groups in which more than an hour had passed before replantation, due to the damage that occurred to the PDL during the extra-alveolar period and the best predictor of overall resorption is total time of dryness and/or the total extra-alveolar time.

Osmolarity

Storage media differ significantly in electrolyte concentration and osmolarity.10 Cell growth usually occurs in the range of 230 to 400 mOsm, with optimal growth occurring between 290 and 300 mOsm. Regarding pH, optimal growth is obtained between pH 7.2 and 7.4. Hypotonic solutions have been reported to cause more irreversible cell membrane damage than hypertonic solutions.

Temperature

The temperature of the storage medium appears to have little influence on periodontal healing and vitality of the cells of the periodontal membrane, as long as it is kept below 37°C .There is good evidence that the extra-alveolar storage of avulsed teeth is improved by using chilled storage media.11,12 It is suggested that the lower temperature could reduce evaporation from the PDL, causing less damage to PDL cells.

Commonly used storage media

Saline

The saline solution provides osmolality of 280 mOsm/kg and despite being compatible to the cells of the periodontal ligament, it lacks essential nutrients such as magnesium, calcium and glucose; necessary to the normal metabolic needs of the cells of the periodontal ligament. Andreasen concluded that the storage of avulsed teeth in saline offered good protection against root resorption for extra-alveolar durations of up to 2 hours.13

Thus it can be concluded that storing avulsed teeth in saline is only acceptable when other storage media (HBSS) are not immediately available and when required for a short period of time

Tap water

Tapwater is an unacceptable storage medium for avulsed teeth.13 Blomlof et al found that storing cultured human PDL cells in tap water for 1 h caused more PDL cell damage than the other physiological and non-physiological storage media tested.14 They attributed the increased cell damage to the cell lysis caused by the very low osmolarity of tap water.Thus, tap water is not a suitable interim storage medium for retaining the viability of PDL cells.

However as it is readily available, even at athletic fields, it can be used as a media of last resort, as opposed to allowing the tooth to dry out.

Saliva

Many authors consider patient's own saliva as the best immediate transport medium for an avulsed tooth as it is immediately available at all the accident sites. However, more recent studies have indicated that saliva may not be the most suitable medium for extended (greater than 1 hour) storage of avulsed teeth.11,15

Non physiological osmolarity, less favourable composition, and the presence of microorganisms makes saliva a less desirable storage medium.Storage of avulsed teeth in saliva for two to three hours causes swelling and membrane damage of PDL cells. In 1 hour, it can cause approximately twice as much damage as HBSS or milk. However, saliva storage produces one-third less cell damage than dry storage or storage in tap water.

Thus saliva can be considered to be an acceptable short-term storage medium (less than 30 min) and its use should be limited to cases where the extra-alveolar duration is less and other superior storage media are not available.

Milk

Milk has been studied extensively and has gained acceptance as a medium capable of maintaining PDL viability.Because of its physiological osmolarity, composition, and markedly fewer bacteria, milk is a superior storage medium. The nutritive value of milk and the presence of growth factors in milk are considered to be the contributing factors.Cultivated human PDL cells, stored in milk for one to three hours, displayed approximately the same (minimal) cellular leakage as occurred with storage in HBSS.

Lekic etal demonstrated that milk was as effective as HBSS for storing avulsed teeth for up to 1 h, and superior to saline, saliva or water.11 Trope and Friedman concluded that milk is an excellent storage medium for up to 6 h, after which it loses its effectiveness.16

However milk is not always available, and may contain many antigens that could act negatively from an immunological standpoint on the reattachment process and also not all types of milk are equally effective as storage media. Regular pasteurised milk has a short shelf life and requires refrigeration, which makes it less readily available at the trauma site .

Some evidence supports the use of chilled milk as an interim storage medium for avulsed teeth.Avulsed teeth stored in chilled milk for up to one hour can maintain sufficient numbers of viable periodontal ligament cells to support replantation of the tooth and the possibility of periodontal healing.11,12 Thus a long shelf-life milk having identical composition, pH, and osmolarity to regular milk with a storage capability of 6 months without the need for refrigeration has gained more acceptance . Therefore milk, chilled or otherwise, can be used as a storage medium of choice for extended extra-alveolar storage (1 to 6 h).

Hank's Balanced Salt Solution (HBSS)

Hank's balanced salt solution is a standard saline solution that is widely used in biomedical research to support the growth of many cell types . This solution is non-toxic; it is biocompatible with periodontal ligament cells, pH balanced at 7.2 and has an osmolality of 320 mOsm/kg.4

It is composed of 8 g/L sodium chloride; 0.4 g/L of D-glucose; 0.4 g/L potassium cloride; 0.35 g/L sodium bicarbonate; 0.09 g/L sodium phosphate; 0,14 g/L potassium phosphate; 0.14 g/L calcium chloride; 0.1 g/L magnesium chloride and 0.1 g/L magnesium sulfate (Biological Industries, Beit Haemek).It contains ingredients such as glucose, calcium and magnesium ions which can sustain and reconstitute the depleted cellular components of the periodontal ligament cells.4

The literature indicates HBSS to be superior to many other storage media in its ability to preserve cell vitality and viability.12,17 It is a desirable storage medium for avulsed teeth, even when the extra-alveolar period is extensive (between 72 and 96 hours). Ashkenazi et al showed that the highest mitogenicity after 8 h and 24 h of storage was found in HBSS.7

Hank's balanced salt solution is commercially available as Save-A'tooth TM(Save-A-Tooth TM, Inc., Pottstown, PA), with ideal osmolality and pH. It has an inner net to receive the avulsed tooth and to minimize cells trauma during transport.

Unfortunately, HBSS is rarely available at an accident scene.

ViaSpan

The ViaSpan is a medium used for the transportation of organs which are going to be transplanted and it has been very effective for storing avulsed teeth.17 It has an osmolality of 320 mOsm/kg, which enables excellent cellular growth. Its pH is around 7,4 at room temperature; ideal for the cellular growth.

Hiltz and Trope observed ViaSpan to be an effective storage medium, with 33% vital cells at 144 h.18Trope and Friedman reported that replanted dog incisors that were stored in ViaSpan for up to 12 h showed no signs of replacement or inflammatory resorption.16

However, since this product is presumably even less available than HBSS, the practicality of using ViaSpan as a storage medium must be considered judiciously.

Eagle's medium

Eagle's Minimal Essential Medium contains 4 ml of L-Glutamine; 105 IU/L of Penicillin; 100µ g/mL of Streptomycin, 10µg/mL of Nystatin and calf serum (10% v/v).14

In accordance with Ashkenazi et al Eagle's medium had relatively high viability, mitogenic and clonogenic capacity up to 8 hours of storage at 4°C.7The mechanism at work could be the proliferation of PDL cells on the root surface, thereby covering denuded or damage parts. A second contributing factor could be pulp survival, which can reduce inflammatory resorption.

Although culture media have shown promising results as storage media, availability at the trauma site is a practical issue.

Contact lens solution

Contact lens solution is a convenient preservation medium . They contain buffered, isotonic saline solutions with the addition of preservatives that may preserve the viability of PDL cells.

Although various single-bottle systems have been examined as potential temporary storage media for avulsed teeth, no significant difference in the ability of different contact lens solutions to maintain cell viability has been found.19

The solutions preserve significantly more viable cells than tap water and Gatorade but are not as effective as HBSS and milk.

Propolis

Propolis is a sticky resin that seeps from the buds or bark of trees, chiefly conifers.

Flavonoids are thought to account for much of the biological properties of propolis. Propolis has antiseptic, antibiotic, antibacterial, antifungal, antiviral, antioxidant, anticarcinogenic, antithrombotic and immunomodulatory properties.

Margaret and Pileggi reported that teeth stored in propolis demonstrated the highest viability for PDL cells, when compared with HBSS, milk and saline.20

Coconut water

Biologically pure tender coconut water, which aids in replenishing the fluids, electrolytes and sugars lost from the body during heavy physical work, has been suggested as a promising storage medium for avulsed teeth

Gopikrishna and coworkers observed that coconut water was superior to HBSS, milk or propolis in maintaining the viability of PDL cells.21,22

Transport Of An Avulsed Tooth

The way which the tooth is transported also affects significantly the degree of success. The dental root should not be touched, for each time this happens, the cells of the periodontal ligament are damaged and they die . The container for the transport of avulsed teeth must be unbreakable,non-toxic, leaking proof, and of easy handling, with internal walls made of soft material, sterile and it must protect the tooth during transport, besides making the removal of the tooth easy without any traumas.4

Conclusion

When immediate dental reimplantation is not possible, the tooth must to be in some storage medium for the maintenance of the viability of periodontal ligament cells on root surface for extended time and in some cases it even stimulates its proliferation. The storage medium must simulate periodontal ligament cells of avulsed teeth a normal biological condition, like physiologic osmolality and pH. Periodontal ligament cells with normal anatomy and physiology present osmolality of 320 mOsm/Kg and pH of 7.2. HBSS,Viaspan and propolis can be considered as near ideal storage media, but their availability at the trauma site is a major challenge. Though not as efficient as Hank's balanced salt solution as storage medium for avulsed teeth for the maintenance of vitality and proliferative capacities of periodontal ligament fibroblasts, milk is better than saliva, saline or tap water.

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# An over view of periodontal therapy in routine clinical practice

**Abstract**

Periodontal therapy is one of the most reluctantly selected procedures by both patients and clinicians and often the extent of treatment stops at an ultrasonic scaling. The concept that periodontal therapy is a cumbersome surgical procedure is the prime reason why it is been less practiced. Periodontal therapy comprises of both nonsurgical and surgical procedures based on the individual need of the patient. This paper is aimed at alleviating the misconceptions about periodontal therapy and providing an overview on the various available procedures in treatment of periodontal diseases.

**Key Words:** Periodontal disease, Nonsurgical periodontal therapy, Surgical periodontal therapy

**Introduction.**

Periodontal disease is one of the most common ailments in the world. It can be safely stated that every person exibits one or the other forms of this disease at some point of their life. The extent and severity may be so sublime that the person or his dentist fails to notice this. The disease spectrum ranges from a simple plaque induced gingivitis to a generalized chronic or aggressive periodontitis which further confuses the clinician in prompt diagnosis and treatment. [1]

**The question of periodontal therapy.**

The extent of success of therapy is often questioned by the clinicians in weighing whether a tooth need to be saved by extensive periodontal procedure or rather a simple extraction followed by a prosthetic rehabilitation may suffice. In the present clinical scenario we follow the most conservative approach in all wakes of dentistry. It is a golden rule that states that 'The preservation of what is left is more important than the meticulous replacement of what has been lost'. The sentence essentialy means that we as doctors must be prudent enough to treat and conserve the diseased tooth rather than butchering it and replacing with a prosthesis. Imagine the horror if a general surgeon decides to chop off a diseased limb and propose an artificial one !

That being said, let us examine the other end of the spectrum, Is it worth subjecting an aged patient with a multitude of risk factors[6,7] a surgical procedure that may or maynot save a mobile tooth? This is where the reasoning ability of the clinician is needed the most. Each patient must be considered a unique entity. Periodontal disease follows different patterns in different patients and hence a magic bullet is not viable. Each must be examined clinically and radiographically to understand the extent and severity of the disease and an individualized treatment plan must be formulated.

The purpose of this paper is to discuss all the factors that have to be considered in the management of a periodontal patient, factors that influence determination of therapeutic objectives as well as the selection of treatment procedures. The patient factors include physical, biological and behavioural while the operator dependent factors include technical aspects and collaboration with other specialities.[5]

In clinical practice, defining the objectives of therapy is a pivotal step in the management of the patient as this drives the entire treatment plan. The objectives of treatment have to be determined on the basis of the patient's needs and the patient's profile.[5]

**Diagnosis of a periodontitis patient.**

A patient's chief complaint and reasons for seeking care are valuable information to the health care provider. In many instances, periodontal destruction is a silent process, and the disease goes undetected by the patient. Symptoms are noticed only when the disease has reached an advanced stage. The reasons are most often related to esthetics, teeth migration, mobility or functional problems.[2,5]

The most common clinical signs of periodontal disease includes soft edematous gingiva, bleeding from gums, pus formation, bad breath, increased probing depth(using a William's periodontal probe), recession, tooth mobility, migration and eventual exfoliation.[2,13] (Figure-1, Figure-2,Figure-3)

It is a delicate matter to integrate the patient's chief complaint into the objectives of the treatment, as the priorities may be different between patient and clinician. It should be explained to the patient that esthetic or functional demands can only be met after eliminating the causes of disease. The patient should be fully informed of the objectives, the treatment plan and the sequence of treatment. It should be made clear that the treatment plan sequence is to arrest disease progression, to restore function and esthetics, followed by supportive periodontal care.[9]

Radiographs are valuable tools in the diagnosis of periodontitis. Interproximal bone loss leading to a flat appearance of the crestal bone and the formation of angular bony defects suggest a past or ongoing disease process. Intra oral periapical radiographs (IOPAR) are a cheap and readily available method that can help to identify the bone loss in a location. If a generalised bone loss is suspected due to mobility of numerous teeth or heavily inflamed gingiva, a panoramic radiograph (OPG) can be used instead of multiple number of IOPARs. However these are only secondary devices for diagnosis as clinical examination and the doctors judgement must be the prime armament for any clinician. (Figure-4, Figure-5)

It is also well known that periodontitis can result from and also reflect several systemic conditions including uncontrollled diabetes, blood disorders including leukemia, agraunocytosis; several viral and fungal infections including HIV, herpes, candida etc. Ff such a condition is suspected, the patent must readily be referred to a medical practitioner for further treatment before attempting any invasive procedures.

Figure-1: Severely inflamed gingiva

Figure-2: Bleeding on Probing

Figure-3: Periodontal probing depth

Figure-4:
IOPAR showing bone loss distal to 36

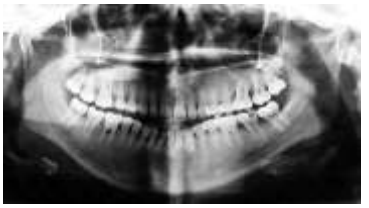

Figure-5:
OPG shows generalized horizontal bone loss,

**Decision making.**

Once a proper diagnosis is established, the clinican must have a provisional prognosis for the teeth in question. Prognosis is nothing but an educated guess from the part of the dentist based on his clinical experience, patient`s condition and the probable out come of the treatment. Prognosis can broadly be Excellent / Good / Fair / Poor / Questionable / Hopeless. With an excellent, good or fair prognosis the decision must be to save the tooth while for a hopeless prognosis, it is safer to extract the tooth and to go for a prosthetic rehabilitation. When the prognosis is poor or questionable, the clinican is often at a dilemma. In such conditions, the patient must be made aware of all the possible outcome of the treatment and the risk of failure and only in a competent willing patient, the periodontal procedure be carried out.

**Treatment procedure.**

The treatment of a periodontal patient begins with an etiotropic phase[5]. The aim of this phase is to remove all the local facors including plaque, calculus, hopeless teeth, faulty resorations and prosthetics etc that had initiated the disease process.[2] A thorough scaling must be carried out with special care to remove all the possible subgingival irritants. The thin interdental tips available in the ultrasonic units can be used to debride the deeper pockets and inaccessible areas like furcations. If necessary, the area can be anesthetized by a local infiltration and then debrided. The patient must be adviced to follow a strict oral hygiene including usage of an antibacterial mouth rinse like chlorhexidine. The patient can then be dismissed and recalled after around ten days time.

In the second visit it will be seen that the inflammation has been substantially reduced.[3,4] A thorough reevaluation of the oral cavity must then be undertaken including checking for residual bleeding sites and probing depths.[12] It is at this point of time it must be decided whether a surgical procedure is necessary or not.[9,13] When the inflammation subsides, the subgingival calculus becomes exposed. There may also be presence of residual inflammation and probing pocket depths. Once again the clinician`s judgement comes to play. In such a condition there are two broad methods of treatment approach, one is nonsurgical and the other, surgical periodontal therapy.

Nonsurgical periodontal therapy (NSPT) includes a closed curettage in which subgingival scaling and root planing are done with or without local anesthesia. In this method, both hand instruments as well as ultrasonics can be used. Hand instruments, somic and ultasonic instruments were found to show similar clinical improvement in periodontitis patients in many studies.[11,12] The aim of the procedure is to eliminate all the irritants including subgingival calculus, diseased cementum from the root surface and also to remove the diseased granulation tissue by curettage.[2] The main advantage of the procedure is that it is relatively less traumatic and less time consuming than a surgical procedure as incisions, elevation of a flap and sutures can be avoided.

(Figure-6) Patient acceptance towards NSPT is better than that to surgical therapy as it is more comfortable. The main disadvantage of NSPT is the limited access it provides. In cases with a defective bony architecture that requires osseous surgery or bone grafting, NSPT alone is inadequate. Similarly in severely involved sites, surgical periodontal therapy is required to obtain the required treatment results.

Surgical periodontal therapy involves various techniques including Kirkland flap, Modified Widmann flap, gingivectomy, apically displaced flaps, coronally displaced flaps etc[1]. A surgical procedure provides better access to the roots and bone and provides an opportunity to place bone grafts or perform an osseous surgery.[1] Numerous studies have proved that surgical periodontal therapy provides a better clinical result than NSPT in deeper pockets.[1,8] While some studies showed similar results to both treatment options. Patients are often scared of surgical therapy more than any other procedure. Proper motivation citing the benefits of the procedure and the consequence of not undergoing the procedure at the earliest must be informed to them in simple words. If is often seen that the non compliance of patients leads to a deterioration of the dentition and eventual exfoliation of multiple teeth. In such a condition, the financial burden of replacing the lost teeth will be several times than what was necessary to treat the initial periodontal disease. And also the possiblity of failure of a long span prostheis is very high in a patient with untreated periodontal disease.

The present mode of periodontal therapy is a precise conservative minimally traumatic procedure that can provide predictable long term results with proper maintainence of oral hygiene by the patient and supportive periodontal therapy (SPT). SPT includes periodic recall and examination of the patient followed by scaling and polishing if found necessary. The patient must be examined for signs of recurrence of disease and must be constantly motivated for maintainence of excellent oral hygiene.

## Conclusion

In the management of a periodontitis patient, a holistic patient centered approach must be used based on patient's needs and expectations by recognizing the oral conditions and their origins. A proper diagnosis must be made and a viable treatment plan formulated to deliver the best possible treatment to obtain predictable results.

Figure-6: View before (L) and after (R) Non Surgical Periodontal Therapy (NSPT)

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ATTINGAL BRANCH

# Branch activity report

**3rd branch Executive meeting (28/03/14)**

The 3rd executive meeting of IDA Attingal branch was held on **28th Mar 2014 at Vyaparabhavan, Chirayinkhil road, Attingal, 7.00pm.** The various proposed projects and programmes for the year 2014, were discussed. CDE, CDH, Editor, Hope & Image convenors gave their respective reports.

## April 2014

**Participation in Zone 1 state cricket tournament (06/04/14)**

IDA Atttingal branch won the trophy of Zone 1 of ICL Kerala 2014.

## May 2014

**Participation in Zone 2 state cricket tournament (04/05/14)**

IDA Atttingal branch Royals lost to IDA Tvm branch of Zone 2 of ICL Kerala 2014.

**1st General Body Meeting & Family Getogether (04/05/14)**

The 1st General Body Meeting of IDA Attingal branch was held on 4th May 2014 (Sunday) at Kayaloram resorts, near Panayil Kadavu bridge, near hotel Vakkom Palazzo, Vakkom by 4.00 pm. Report of the first 4 months were presented to the members. The Attingal branch cricket team who attained the Kerala state championship trophy was honored. Dr. Sunilraj, an eminent speaker talked on 'Chemistry of Relationships' during this meeting. 27 memebers attended this meeting.


**CDE Program No. 2 (25/5/14)**

The second **branch CDE program of IDA Attingal branch for 2014 was conducted on 25th May 2014** at Park Centre, Technopark, Kazhakuttom, Thiruvananthapuram. The topic of the programme was 'LASERS.....A fresh wave'. The faculty was Dr. Rajesh Pillai. 13 delegate members attended the CDE program. A hands on demonstration was conducted by representative of Wiser ltd.

## June 2014

**3rd State Executive meeting (22/06/14)**

The third state executive meeting was held at IMA at Thalassery, on 22nd June 2014. Dr. Biju A. Nair, Dr. Abhilash G.S, Dr. Sudeep .S & Dr. Arun Roy attended the meet. Announcement of the Sports & Games day was given to the state officials.

## July 2014

**4th branch Executive meeting (04/07/14)**

The 4th executive meeting of IDA Attingal branch was held on **4th Jul 2014 at Attingal club, Attingal, 7.00pm**. The various proposed projects and programmes for the year 2014, were discussed. CDE, CDH, Editor, Hope & Image convenors gave their respective reports.