

Impressions

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Journal of Indian Dental Association
Attingal Branch



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Best Journal State Award for 2013 , 2014 and 2017

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Impressions

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IDA Kerala State President's Message



'The pen is mightier than the sword'

My dear colleagues,

A new issue - a new phase in the progress of dental education. Journal IDA - Attingal has always aimed to showcase its best. The written word is a powerful tool that can connect thousands and it is no mean feat to be in charge of a journal and to ensure excellence and quality in every publication. Every page of this journal is a testament to the persevering hard work and unfailing dedication of this team.

The IDA has come a long way since it's inception. Each year has always striven to surpass the previous one in achievements and excellence. And this desire to always do better, to set the bar higher has been the secret of our success. But we must not rest on our laurels. This year we must extend our efforts to bring to our community of students and dentists alike, advancements in dental education, knowledge and skills. Progress must not only exist in print, it must also be incorporated into practice. I encourage you to aim for greater heights in this regard.

With our eyes firmly on the prize we must work towards it as a team - together. The growth of association is paramount and in that light our unity is our strength - the key to spearhead our success.

Before signing off I would like to mention my heartfelt admiration for our office bearers and committee members. To the president, Dr. Ramesh S., Secretary Dr. Anil Kumar D. and president elect, Dr. Abhilash G.S. for the endless hours of hard work they have invested in this endeavour. I would also like to congratulate our editor Dr. Pradeep C. Dathan, on this excellent issue as well as it's wonderful and thought provoking content. I wish you all the very best!

Thanking you

Jai IDA!

Dr Ciju A Paulose
President
IDA Kerala State

IDA Kerala State Secretary's Message



Dear Members

Warm Regards to you.

It gives me immense pleasure to write a message in your Branch journal, the one that made all of us from IDA Kerala State Proud at the recently concluded National Conference when we were witness to the presentation of the National Award for the Best Journal of 2017 by Dr. Pradeep C. Dathan at Bhuvaneswar. On behalf of the State Office our hearty congratulations and best wishes to IMPRESSIONS the official journal of IDA ATTINGAL BRANCH which is sure to achieve further heights. As this new association year unfolds with newer hopes and goals with new set of office bearers. I am looking forward to working with the recently elected President elect Dr Abhilash G S from my neighbouring branch who has won the hearts of IDA KSB with promising results. This year IDA KSB has stretched its wings to more and more different member friendly schemes like HOPE ASSURE, IDA CAN, IDA MARK among others. I request all members of Attingal branch to make use of these highly beneficial schemes and make the best out of it.

Thanking You,

Dr Suresh Kumar G.

Hon Secretary
IDA Kerala State

President's Message



Dear friends,

Warm greetings from IDA Attingal branch. It's a great pleasure to know that our journal, IMPRESSION's first issue for the year 2018 is released. As you all know our journal has always been unique in its presentation. We have bagged numerous awards for journal in the past. Last year also we got the state and national award for the best journal. I take this opportunity to congratulate our editor journal, Dr Pradeep C. Dathan, for this impeccable work.

As far as the branch is concerned, we have been very lucky enough to bag two emphatic victories in the form of State President elect post and conference venue for the 52nd Kerala Dental Conference. I wish Dr Abhilash G S, President elect, Kerala State Branch, all success.

Branch activities are been held in a very positive note. We have conducted numerous branch activities this year, including CDH, CDE. I congratulate the convenors and executive members for their efforts. IDA Attingal Branch has grown leaps and bounds since its inception, and it is a privilege to lead this branch. I sincerely thank each and every member for their support and faith rendered on us.

Thanking you all,

Dr Ramesh S
President
IDA Attingal Branch.

Secretary's Message



Dear Members,

Greetings from the secretary's desk.

It gives me great pleasure and immense pride to pen a few words through the 1st issue of our prestigious journal which reaped the National and state awards of 2017 for the second time in the history of IDA ATTINGAL branch.

Last year was a exquisite year for our branch. We had a thumbing victory of Dr Abhilash G S as the state president elect with an all time high lead votes of 303 in the history of IDAKSB elections.

We bagged the state award for women's wing received by Dr Deepa G. And we nabbed the 52nd KERALA STATE DENTAL CONFERENCE.

All these achievements were amassed by the cooperation and support of our enthusiastic vibrant members. And we wish you all to continue the participation and concurrence in all our future programs of the year ahead to make them grand success..

This year also IMPRESSIONS is safe in the hands our same Editor journal Dr Pradeep C Dathan. Members, we wish to have the same patronage from you all and contribute to journal in the form of articles and sponsorships and let us dream for another national award to our branch this year too.

Thanking you,

With warm regards,

Yours in IDA,

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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Editorial



Impressions made an impression

While my colleagues have reposed confidence in me and elected me to the post of editor of 'Impressions', I never thought that I will be able to perform upto their expected level. The support of my colleagues extended during this period was unimaginable and that has created wonders. All the four issues could be released on time. The authors were so kind to provide me with articles of good standard while they had an opportunity to send them to other journals published by other agencies. Advertisers were also kind to Impressions by generously sending advertisements without any interruption. I am indebted to my colleagues whose public relation skills made the financial background of the Journal very sound and that relieved me from great stress.

No journal could grow if the recipients do not respond positively. Members and non members who read through the pages of Journal personally

conveyed to me their opinion in a dispassionate manner which helped me correct many of the mistakes. The journey through the four issues was highly rewarding to me as an editor. From proof correction to mailing, my production team gave solid support, for which I am very thankful.

Positive aspirations and the support of well-wishers have finally culminated in obtaining remarkable recognition for the journal. Impressions obtained Kerala State and National level IDA Best Journal awards which I proudly dedicate to all of you. Definitely awards can give a tremendous amount of encouragement to keep getting better. I request you to continue your support in the coming years also. Let us make the 'Impressions' a journal of recognizable quality.

Dr. Pradeep C. Dathan
Editor, Impressions

Surgical correction of gummy smile: An Overview

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Abstract

Excessive gingival display is an esthetic concern for patients as smile is one of the key factors of a first impression. The cause may be related to one or more factors relating to gums, teeth, or even the lip or jaw. There are a number of corrective clinical measures that can be used to treat this esthetic problem. Based on the condition at hand, gingivectomy, apically positioned flap, orthodontic or prosthetic correction by veneers are attempted. In patients with vertical maxillary excess, the most predictable mode of treatment is orthognathic surgery. Gummy smile due to hyperactive upper lip can be corrected using various techniques like Botulinum toxin injection, lip elongation associated with rhinoplasty, and lip repositioning. Lip repositioning is an innovative and effective way to improve the gummy smile of a patient. The proper diagnosis and determination of the etiology of gummy smile is essential for the selection of the right treatment modality.

Keywords: Gummy Smile, Gingivectomy, Apically positioned flap, Lip Repositioning.

Introduction

Excess gingival display, also called as “gummy smile”, has recently received increased emphasis in the dental literature.¹ Excessive gingival display is an esthetic concern for patients as smile is one of the key factors of a first impression.¹ The essential elements of a pleasant smile include the perfect synchronization of teeth, lips and gingival scaffold. The lips define the esthetic zone and based on display during smiling, lip lines can be classified as below, medium, or high. The lip line is considered low when only part of the teeth are visible below the upper lip, medium when 1 to 3 mm of the marginal gingiva is exposed during a smile, and high (i.e, a gummy smile) when more than 3 mm of gingiva is shown³.

Tjan et al² observed that 20.5% of the population presented a low lipline, 69% medium, and 10.5% high. Peck et al found a correlation between gender and the type of smile, with a predominance of gummy smiles in females (2:1) and of low liplines in males (2.5:1)³. The statistics shows a definitive concern for the female population.

Etiology

Excessive gingival display has six possible etiologies,

- Altered passive (Delayed) Eruption
- Overeruption of maxillary incisors
- Short Upper lip
- Hypermobility Upper lip
- Compensatory Eruption of maxillary teeth with concomitant coronal migration of gingival margins.

The cause may be related to one or more factors relating to gums themselves, the teeth, or even the lip or jaw. Each of these areas will require a different approach to solve the problem.³

- In case of delayed eruption the gingiva fail to complete the apical migration over the maxillary teeth to its normal position; that is 1mm coronal to the cemento-enamel junction. Based on the condition at hand, gingivectomy or apically positioned flap, with or without osseous recontouring, may be the procedure of choice.³

- In condition of extreme attrition of teeth; the smile appears gummy in nature due to the short crown length. The preferred mode of treatment in

such patients is either orthodontic correction or prosthetic crowns or veneers.³

- In patients with vertical maxillary excess there is an enlarged vertical dimension of the mid-face which causes "incompetent" lips and excessive gingival display. The most predictable mode of treatment in such cases is orthognathic surgery to restore the normal inter-jaw relationships and to reduce the gingival display. This is an extensive procedure which involves hospitalization, but can achieve dramatic results.³

- Some patients with gummy smile may have short or hyperactive upper lip wherein the upper lip moves in an excessive apical direction and exposes

the dentition and gingival when they smile.³

Gummy smile due to hyperactive upper lip can be corrected using various techniques, with highly variable outcome. Botulinum toxin injection (Polo 2005, Mazzuco & Hexsel 2010), lip elongation associated with rhinoplasty (Ezquerria et al. 1999), detachment of lip muscles (Litton & Fournier 1979), myotomy and partial removal (Miskinyar1983, Ishida et al. 2010) and lip repositioning (Rubinstein & Kostianovsky 1973, Rosenblatt & Simon 2006, Simon et al. 2007) are the reported treatment approaches.³

Identification of the correct etiology is essential for the establishment of an adequate treatment plan.²



Fig. 1 Preoperative View



Fig. 2 Preoperative View



Fig. 3a



Fig. 3b



Fig. 3c. Orthodontic Correction + Surgical Correction)



Fig. 4a. Pre-Operative View

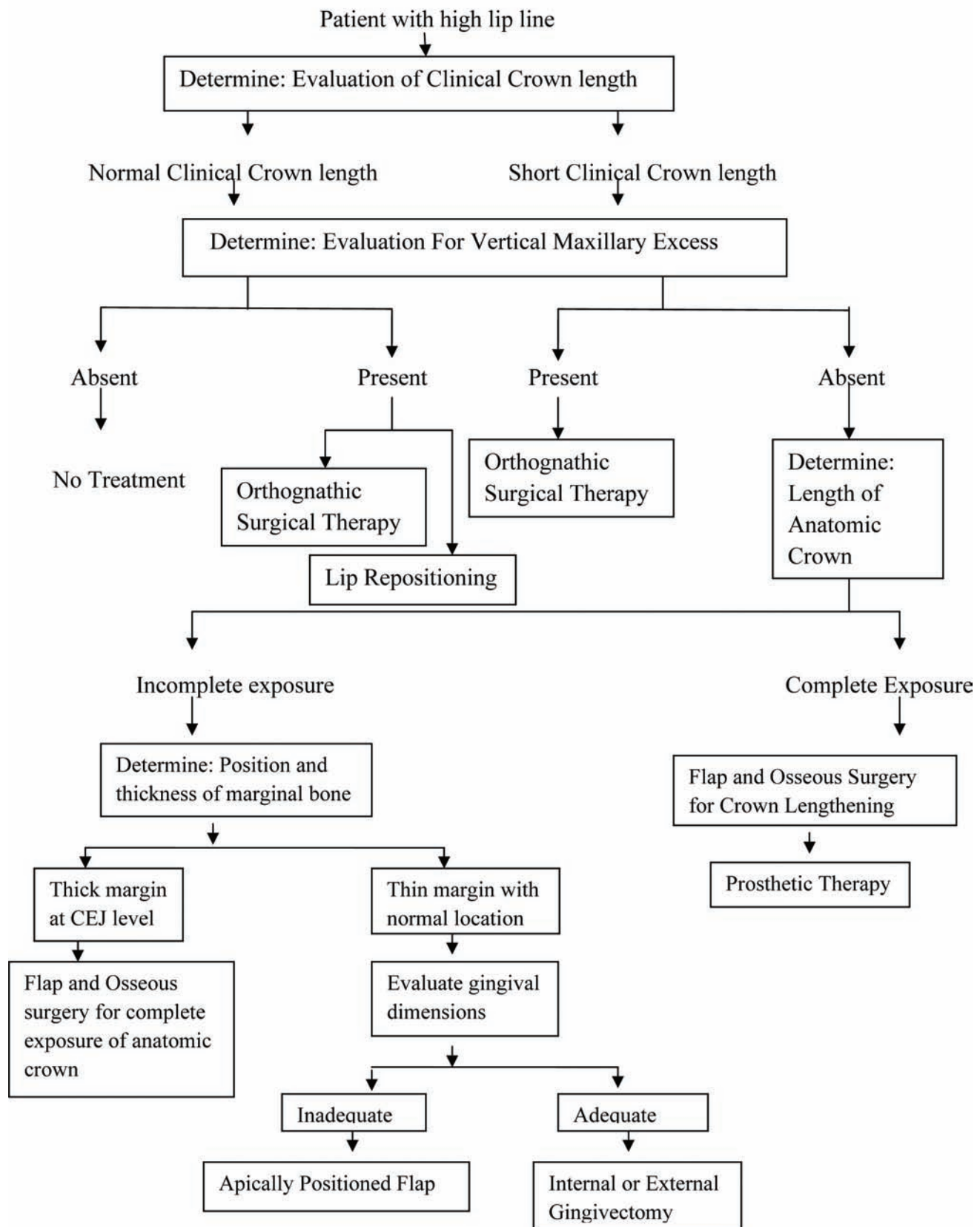


Fig. 4b Post-Operative View



Fig. 5 Lip Repositioning

Decision making in patients with high lip line



1. Gingivectomy

Among periodontal surgical procedures gingivectomy is the most frequently performed procedure for correcting gummy smile when the lips are normal. Surgical reduction of the overgrown tissues is frequently necessary to accomplish an esthetic and functional outcome.⁴ The treatment consists of scalpel gingivectomy or laser gingivectomy. The conventional gingivectomy procedure is the most efficacious method for removing large quantities of gingival tissue, particularly when there is pseudo pocket with no attachment loss.⁴

Indications

The gingivectomy technique may be performed for the following

- Elimination of suprabony pockets, regardless of their depth, if the pocket wall is fibrous and firm.
- Elimination of gingival enlargements.
- Elimination of suprabony periodontal abscesses.

Contraindications

Contraindications to gingivectomy include the following

- The need for bone surgery or examination of the bone shape and morphology

- Situations in which the bottom of the pocket is apical to the mucogingival junction

Surgical Gingivectomy:

1. Local anesthesia (2% lignocaine hydrochloride with 1:80,000 epinephrine) should be administered.
2. The pockets on each surface are explored with a periodontal probe, bleeding points are marked with the help of the Krane-Kaplan pocket marker and the points are joined to prepare a line of excision.
3. Periodontal knives (e.g., Krikland knives) are used for incisions on the facial and lingual surfaces and those distal to the terminal tooth in the arch. Urban periodontal knives are used for interdental incisions. Bard-Parker blades #12 and #15, as well as scissors are used as auxiliary instruments.
4. The incision is started apical to the points marking the course of the pockets and is directed coronally to a point between the base of the pocket and the crest of the bone. The incision should be beveled at approximately 45 degrees to the tooth surface.
5. The excised pocket wall is removed, the area cleaned.
6. Carefully curette the granulation tissue



Fig. 6 Botulinum injection



Fig. 7a Preoperative View



Fig. 7b Postoperative -Immediate



Fig. 7c Postoperative -6 weeks

(Dennis Marangos, Treating the Gummy Smile, 20116)

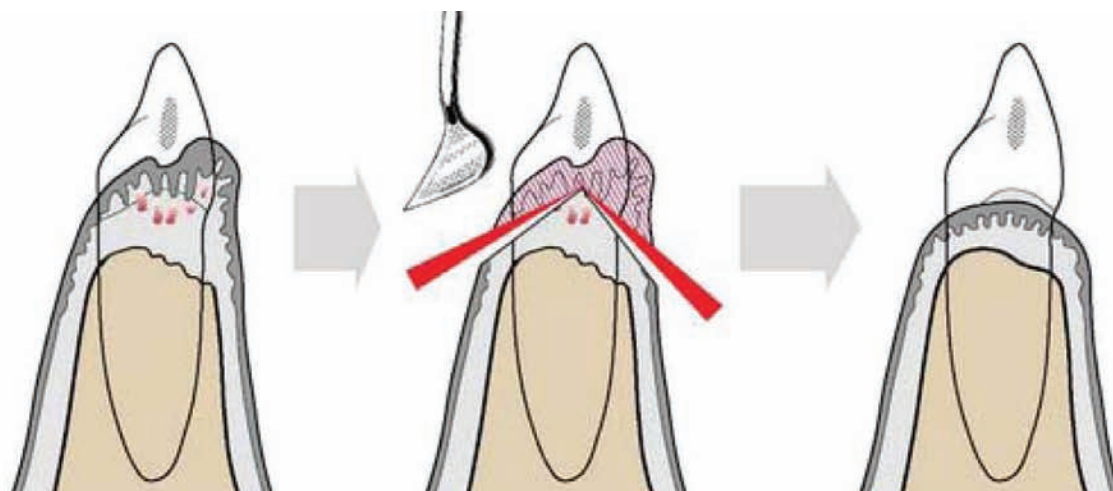


Fig. 8 Surgical Gingivectomy

and remove any remaining calculus and necrotic cementum to leave a smooth and clean surface.

7. Cover the area with surgical pack.
8. Postoperative after 1 month.

Laser Gingivectomy

Laser is one of the most promising new technical modalities in periodontal treatment.

1. Local anesthesia (Xylocaine 2% with Epinephrine 1:80,000) should be administered.
2. Bleeding points are marked with the help of the Krane-Kaplan pocket marker and the points are joined to prepare a line of excision.
3. The patients are instructed to wear protective goggles before activation of laser.

4. Gingivectomy is performed using diode laser delivered using fiber optic technology at 980 ± 10 nm wavelength, a frequency of 1 Hz, and time of 0.5 ms-cw, with 400 nm fiber diameter and 3.0 W of potency

5. The fiber optic tip is used in contact mode to perform gingivectomy. The laser is activated and gingival tissue should be removed in a sweeping stroke joining the bleeding points.

6. No periodontal pack is placed, and there is no bleeding and discomfort immediately after the procedure.

The prime rationale for the use of laser in patients was to give a painless and bloodless substitute for the scalpel-facilitated surgical procedures. Lasers also reduced the use of local anesthesia, periodontal

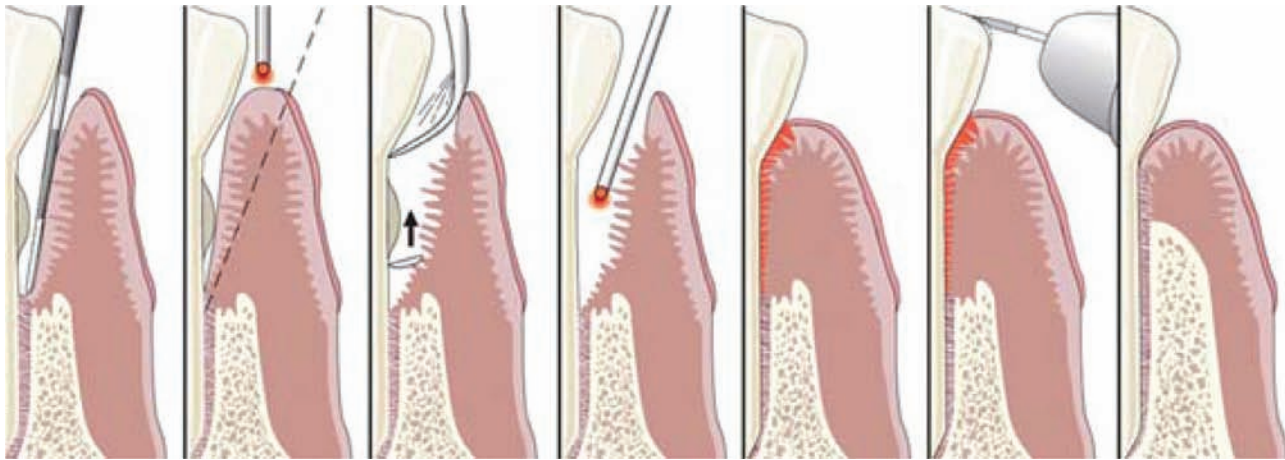
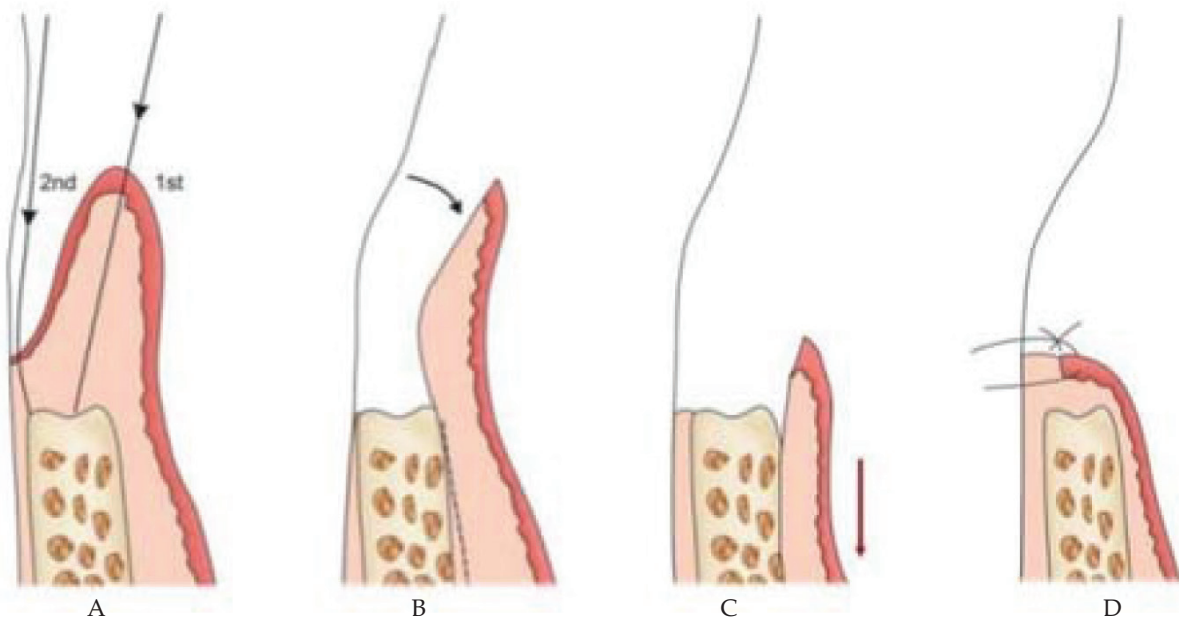


Fig.9 Laser Gingivectomy



(Incision) (Flap reflected) (Flap moved in apical direction) (Flap Sutured)
Fig. 10 Apically Positioned Flap

dressing, and postoperative medications. It also reduces the effective chair side time, thus, leading to more cooperative behavior of the patient.

The purported advantages of lasers vs conventional surgery include increased coagulation that yields a dry surgical field and better visualization; the ability to negotiate curvatures and folds within tissue contours; tissue surface sterilization and, therefore, reduction in bacteremia; decreased swelling, edema, and scarring; decreased pain; faster healing response; and increased patient acceptance.

2. Apically Positioned Flap

The apically displaced flap technique is selected for cases that present a minimal amount keratinized, attached gingiva.

Indications

- Pocket eradication
- Widening the zone of attached gingival

The technique is as follows:

1. An internal bevel incision is made. To preserve as much of the keratinized and attached gingiva as possible, it should be no more than about 1mm from the crest of the gingiva and directed to the crest of the bone. The incision is made after the existing scalloping, and there is no need to mark the bottom of the pocket in the external gingival surface because the incision is unrelated to pocket depth.

2. Crevicular incisions are made, followed by initial elevation of the flap; then interdental incisions

are performed, and the wedge of tissue that contains the pocket wall is removed.

3. Vertical incisions are made extending beyond the mucogingival junction.

4. After removal of all granulation tissue, scaling and root planning, and osseous surgery if needed, the flap is displaced apically. It is important that the vertical incisions and therefore the flap elevation, reach past the mucogingival junction to provide adequate mobility to the flap for its apical displacement.

5. If a full-thickness flap was performed, sling sutures are used. A partial thickness flap is sutured to the periosteum using a direct loop suture or a combination of loop and anchor suture.

6. After 1 week, dressings and sutures are removed. The area is usually repacked for another week, after which the patient is instructed to use chlorhexidine mouth rinse.

3. Lip Repositioning

In patients, when the hypermobile upper lip cause the gummy smile, the innovative procedure called lip repositioning can be done. The objective of lip repositioning is to minimize the gingival display by limiting the retraction of the elevator smile muscles (zygomaticus minor, levator anguli oris, orbicularis oris and levator labii superioris).³

This technique was originally described as cosmetic surgery by Rubinstein and Kostianovsky for

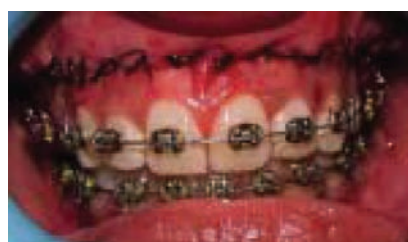


Fig. 11a. Preoperative

Fig. 11b. Margins approximated by sutures

Fig. 11c. Postoperative

(Dayakar MM et al., Lip repositioning: An alternative cosmetic treatment for gummy smile⁸)

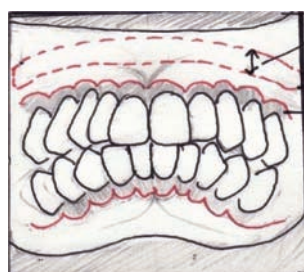


Fig. 12a Demarcated area

Fig. 12b Exposed connective tissue

Fig. 12c Midline suture

Fig. 12d Continuous interlocking sutures)

correction of a gummy smile. This surgical procedure was designed to be shorter, less aggressive, and has fewer postoperative complications compared to extensive orthognathic surgery. Lip repositioning is the reverse of vestibular extension procedure.³

Surgical technique:

Complete extra oral and intraoral mouth disinfection should be done with 2% betadine, followed by infiltration with local anesthesia, (2% lignocaine hydrochloride with 1:80,000 epinephrine).

1. The surgical area to be operated is demarcated with the help of an indelible pencil. The surgical area started at the mucogingival junction, extended 10-12 mm superiorly in the vestibule.

2. Incisions are made in the above-mentioned surgical area and both superior and inferior partial thickness flap is raised from maxillary right first molar to maxillary left first molar.

3. The incisions are then connected with each other in an elliptical outline.

4. The epithelium is then removed within the outline of the incision leaving the underlying connective tissue exposed.

5. The parallel incision lines should be approximated with interrupted stabilization sutures at the midline and other location along the borders of the incision to ensure proper alignment of the lip midline with the midline of the teeth and then a continuous interlocking suture is used to approximate both flaps.⁶

The results of lip repositioning surgery appear stable for up to 6 months post-operatively.⁶ The level of satisfaction with the modified lip repositioning surgery is high and the post operative complications is limited to mild pain and swelling which could be controlled by analgesics.⁷ Some authors advocated performing myoectomies to detach the smile muscle attachment.⁸ The reattachment of the smile muscles can be prevented by using an alloplastic or autogenous separator. This spacer is placed by nasal approach between the elevator muscles of the lip and the anterior nasal spine, and it prevents the superior displacement of the repositioned lip. Lip repositioning can also been performed in conjugation with rhinoplasty procedure. The nasal approach allows both surgical procedures to be combined; the surgical site is extended only minimally.⁹

Despite its benefits and other positive attributes, lip repositioning surgery is not indicated in the presence of a severe vertical maxillary and in patients with a narrow band of attached because of the ensuing difficulty in flap design, suturing, stabilization and it limits the patient's ability to

perform adequate oral hygiene due to reduced vestibular depth.¹⁰

Conclusion:

Excessive gingival display (EGD) is a condition in which an overexposure of the maxillary gingiva (>3 mm) is present during smiling. There are number of corrective clinical measures that can be used to treat this esthetic problems. Interdisciplinary approach includes periodontal and prosthetic treatment measures to improve dentofacial esthetics. Different techniques have been used in cases of hyperactive upper lip, such as botulinum toxin injections, lip elongations with rhinoplasties, lip muscle detachments, myotomies, and lip repositions. Lip repositioning is an innovative and effective way to improve the gummy smile of a patient. This technique is an easy, less time consuming and cost-effective way to give satisfactory results to the patient with limited post operative complaints. The proper diagnosis and determination of the etiology of gummy smile is essential for the selection of the right treatment modality.

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The Invisible Clinician - An Overview of Clear aligner therapy

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Abstract

The techniques used for alignment of teeth into proper arch has seen a major rise in the recent years. The increased demand from the patients for inconspicuous placement of braces and increased aesthetic demand has led to a wide range of change in the outlook of orthodontic appliances. In the series of aesthetic tools, clear aligners have been an addendum which gave the clinician an option to satisfy patient needs. It is an orthodontic technique that uses a series of computer generated custom plastic aligners. These are used sequentially in the patient to attain the desired results. Latest softwares allow the clinician to visualise the changes that will occur after placement of the aligner and changes, if needed, can be incorporated as to bring about the proper alignment. Diagnosis plays a vital role in assessing the proper use of technology. All advances are to be looked upon as an option to bring about the treatment results, the best of which is to be decided by the clinician. Mere reliance on the technology alone might not provide the best results, so proper diagnosis must be given the priority in all cases. Ultimately its the patients who should be benefited from the use of technology into the field and a stable occlusion along with aesthetic harmony should be the goal of treatment.

Keywords: Tooth positioners, aesthetics

Introduction

As technology started to grow at a rapid pace, its invasion into various fields started to dominate. Dentistry and orthodontics, in particular, was not to be left behind in the process. The increasing demand for aesthetic treatment resulted in the introduction of computer generated custom plastic aligners to guide the teeth gradually into proper alignment¹. The concept on treatment with clear aligners came from Kesling² in 1945, when he suggested that a series of tooth positioners be used to produce the movements required for orthodontic treatment. Initially, clear aligner therapy was predominantly for very minor tooth movements, usually at the end of treatment as part of treating minor relapse. Along with technological advances the treatment also progressed gradually from mild crowding or

spacing to cases that needed expansion and other corrections³.

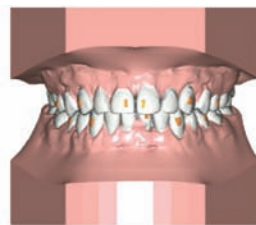
Treatment Options

It is the practitioner who has to elaborate and specify on a treatment plan which results in how the treatment proceeds with the clear aligner, regardless of the aligner system chosen. Orthodontic tooth movements can be brought about by clear aligners and the following problems can be treated to a good extent.

1. Space closure: Finishing of a treatment with closure of extraction spaces with parallel root presents a challenge to the Orthodontist. In fixed appliances, root tip bends can be placed to finish the case in the same manner. However, in aligners, the goal is to move the teeth with pure translation in order to prevent tipping from occurring as tipped

teeth can take prolonged time to upright. Therefore, in such situations, aligners are used in combination with fixed appliances, auxiliaries placed on the tooth to change the point of force application, TAD's to eliminate unnecessary forces on anchorage and attachments⁴.

2. Open bite: As in Fixed appliance therapy, open bite needs to be addressed either by intrusion of the posterior teeth to allow the rotation of mandible or by extrusion of anterior teeth or a combination of both⁵. Specific attachments are provided for bringing about the desired tooth movement⁶.



Software Predictions



3. Deepbite: These are generally treated with anterior teeth intrusion. To facilitate this movement, attachments are used on the premolars for anchorage while active intrusive force is placed on the anteriors as well as bite ramps built into the lingual of the aligner of the upper anterior teeth that act similar to a bite plane⁷.

4. Extrusion and Settling: Attachments are used to bring about extrusion when the threshold of 0.4mm is exceeded and movements less than this, are expected to occur unaided. Vertical elastic

buttons can also be used to facilitate this movement independent of the magnitude of the movement³.

5. Class II correction: Treatment option ranges from molar distalization of upper dentition to protraction of lower dentition or a combination of both.

6. Class III correction: The treatment approach to Class III malocclusions with aligners is similar to those with fixed appliances. When surgery is a consideration, the case is decompensated prior to surgery. TAD's have been used to distalize the lower dentition in an effort to minimise some compensation, but it has its limits and may not get the full benefit of the treatment.

Recent Advances

Technological evolutions have led to the invent of many companies coming up with innovations to provide the best possible results. Recently, Align technologies have come up with next evolution, by introducing Invisalign G-7 with new features to fine tune the tooth movements. Software predictions have been refined to provide a visual impact into the clinician mind about the outcome of the treatment and act as a medium for patient motivation.

Conclusion

The increase in awareness of aesthetics and treatment demand has fuelled the demand for more aesthetic treatment techniques. Fixed appliance

therapy has widened its horizon from metal brackets by the introduction of ceramic brackets. But the ceramic brackets are still more noticeable than the clear aligners.

Orthodontics has a strong history of individual options differing from clinician to clinician. So, a proper diagnosis and planning of the case and the utilization of the resources must be carried out in the benefit of the patient. Ultimately, in whichever directions the technology is heading, the final beneficiary of its impact in the field of dentistry should be the patients.

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Dr. Deepack S Das receiving the Dentist Excellence award 2018 for his contributions to Attingal Branch from Dr. Ciju A. Poulouse, State President, IDA KSB

Cone beam computed tomography: clairvoyance to stomatologist

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Abstract

The paramount restraint of conventional intraoral and panoramic imaging is representation of a 3D structure depicted as a two-dimensional (2D) image. Dentistry has generously used 2D imaging since the first intraoral radiograph taken in 1896. In fact, advances in dental imaging have been made since then and this includes panoramic imaging and tomography. However, 2D images have inherent limitations like magnification, distortion and superimposition that can make it possible to misinterpret structures, which lead to the invention of Cone Beam Computed Tomography (CBCT) by the end of twentieth century. By beginning of twenty first century it has become apparent that CBCT may indeed be the next major advancement in maxillofacial imaging, providing true 3D imaging at a lower risk than conventional CT. This article is intended to familiarize CBCT and its applications in dentistry.

Keywords: CBCT, Maxillofacial imaging, Dental radiology

Introduction

Cone beam CT (CBCT) was first developed for use in angiography. In 1998, Mozzo et al reported the first CBCT unit developed specifically for dental use.¹ The innovation of CBCT has aggrandized the field of maxillofacial imaging. CBCT imaging provides three-dimensional volumetric data of dental and associated structures with high dimensional accuracy. A CBCT scanner uses a cone or pyramidally collimated x-ray source that produces a beam of x radiation, which makes a single full or partial circular revolution around the patient, producing a sequence of discrete planar projection images using a digital detector. These two-dimensional images are reconstructed into a three-dimensional volume that can be viewed in axial, coronal and sagittal planes including cross-sectional images by a process termed as multiplanar reformation (MPR) and volume renderings of the oral anatomy. Image data can be collected for a

complete dental/maxillofacial volume or limited region of interest (ROI). Duration of scan vary from approximately 5 to 90 seconds. The X-ray energy of CBCT is similar to that of panoramic radiography with a typical operating range of 1-15 mA at 90-120 kVp, while that of medical CT is significantly higher at 120-150 mA, at 220 kVp.²⁻⁶ A survey on 'effective dose' by Loubele M et al. and Ludlow J. B showed that CBCT units delivered a broad range of doses (dependent on machine, field size, resolution, etc) of between 13 μ Sv (minimum dose, small volume) and 82 μ Sv (maximum dose, large volume) which compared favorably with radiation dose inflicted by multi-slice CT (MSCT) of between 474 μ Sv and 1,160 μ Sv for mandibular and full head scans respectively.^{8,9}

Working principle of CBCT

CBCT has a x-ray source and detector with a rotating gantry. The x-ray source emits a cone-shaped x-ray beam that pass through the centre of

ROI in the patient's head to the detector system on opposite side. The gantry bearing the x-ray source and detector rotates around the patient's head in 360 degree arcs. While rotating, the x-ray source emits radiation in a continuous or pulsed mode allowing projection radiographs or "basis images". This series of projection images is referred to as the projection data which is used to generate a 3D volumetric data set, which in turn provides primary reconstruction images in three orthogonal planes-axial, coronal and sagittal.^{2,3}

Applications of CBCT in dentistry

CBCT in Oral Radiology and Maxillofacial Surgery

CBCT aids in analyzing the bony lesions affecting the jaw bones, assessment of impacted teeth, supernumerary teeth and their proximity to vital structures, changes in the cortical and trabecular bone related to bisphosphonate associated osteonecrosis of the jaw, assessment of bone grafts, assessing paranasal sinuses, assessing maxillofacial fractures and planning orthognathic surgery.^{3,10}

Since it is not a magnetic resonance technique, it is the best option for intra-operative navigation during procedures, including gunshot wounds. CBCT is largely used in planning orthognathic surgery when facial orthomorphologic surgery is indicated that requires detailed visualization of the interocclusal relationship in order to augment the 3-D virtual skull model with a detailed dental surface. With advanced software, CBCT facilitates the visualization of soft tissue to allow for control of post-treatment aesthetics, for example in cleft palate cases to evaluate lip and palate bony depressions. Research is underway to assess its ability to detect salivary gland defects.¹⁰

CBCT is a valuable tool in the assessment of temporomandibular joint disorders. One of the major advantages of CBCT is its ability to define the true position of the condyle in the glenoid fossa, which often reveals possible dislocation of the disk in the joint, and the extent of translation of the condyle in the fossa.¹⁰ With CBCT, it is possible to visualize soft tissue around the TMJ, which may reduce the need for magnetic resonance imaging in these cases.

Cadaveric studies have been conducted using CBCT to assess articular bony defects, flattening, osteophytes, and sclerotic changes. Preliminary studies have also related CBCT with radiography,

multidetector row CT (MDCT), and linear tomography for detection of osseous abnormalities of the TMJ.^{11,12}

CBCT in Implantology

With increase in popularity of dental implants, accurate measurements are required to avoid damage to vital structures. This was achievable with conventional CT. However, CBCT gives more accurate measurements at lower radiation dosages; hence CBCT has become imaging of choice in implant dentistry. And more over the innovation of CBCT software to construct surgical guides has made the implant placement much more simple and precise. CBCT also assess the bone quality and quantity, which helps in case selection and reduce rate of implant failure.^{13,14}

CBCT in Endodontics

CBCT is a very useful tool in diagnosing periapical lesions due to pulpal inflammation, visualization of root canals, diagnosis of internal and external resorption, visualization of supernumerary roots and detection of root fractures.¹⁵ Vertical and horizontal root fracture detection is described in several clinical cases.¹⁶ CBCT can also be used to determine root morphology, the number of roots, canals and accessory canals, as well as to establishing the working length and angulations of roots and canals. When ordering CBCT to evaluate a suspicious periapical lesion, or already failed root canal therapy, it is important to select the correct parameters, such as small volume and a voxel size of 0.125 mm, to achieve a diagnostic quality image.¹⁵⁻¹⁷

CBCT in Periodontics:

Limitations of conventional radiography could cause dentists to underestimate the amount of bone loss or available bone due to projection errors. CBCT provides accurate measurement of intrabony defects and allows clinicians to assess dehiscence, fenestration defects, and periodontal cysts. CBCT can visualize buccal and lingual defects. CBCT can also be used to assess furcation involvement of periodontal defects and allow clinicians to evaluate postsurgical results of regenerative periodontal therapy.¹⁸

CBCT in Orthodontics:

The introduction of new software in orthodontic assessment has enabled the use of CBCT images in cephalometric analysis and their by assessing facial growth, age, airway function and disturbances

in tooth eruption.¹⁹ CBCT is a reliable means in assessing the proximity of the tooth to vital structures that may interfere with orthodontic treatment. In cases that require mini implant anchorage, CBCT acts as a useful guiding technique for safe insertion of these anchors as well as to assess the bone density before, during and after treatment. CBCT is considered a more accurate option for the clinician because the images are self-corrected for magnification, producing orthogonal images with a 1:1 ratio.²⁰⁻²³

CBCT in Forensic Odontology

CBCT is the current non-invasive method used for dental age estimation based on the pulp-tooth ratio.²⁴

Airway assessment

Diffuse narrowing or focal narrowing of the airway can be very well visualized and identified with 3D imaging. Imaging can identify patients who are at risk for obstruction and other anatomic characteristics that may contribute to Obstructive sleep apnea. The airway extending from the tip of the nose to the superior end of the trachea can be visualized on cone beam CT (CBCT) scans. Because these scans also include the jaws, teeth, cranial base, spine, and facial soft tissues, there is an opportunity to evaluate the functional and developmental relationships between these structures.^{25, 26}

Discussion

CBCT is definitely a boon in maxillofacial imageology by reason of it providing quality diagnostic images of highly contrasted structures and is extremely useful for evaluating bone, the current restraint being soft tissue imaging. Efforts are being directed toward the development of techniques and software algorithms to improve signal-to-noise ratio and increase contrast. The advantages of CBCT technology over conventional CT includes multiple Fields of vision (FOV), isotropic voxels with sub-milimeter resolution providing more accurate images, rapid scan time, reduced radiation doses, unique display modes for maxillofacial imaging and reduced image artifacts. The precise diagnostic data with the lower radiation dose will definitely bring CBCT into the mainstream.³

Conclusions

CBCT is and will play an integral role in diagnosis and treatment planning for all the dental

disciplines. The applications elaborated herein are merely the beginning. We are now capable of obtaining significantly more data to characterize a patient's condition. The future perspective is to utilize these additional data in the most effective manner. We conclude that if used judiciously, the benefits of CBCT would outweigh the inherent risks. We should advocate more professional education and training on this emerging imaging modality.

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Impressions bagged the Best Local Branch Journal Award in the State Level



Editor Dr. Pradeep C. Dathan receiving the Best Local Branch Journal award in the State Level from Hon. National Secretary Dr. Ashok Dhoble at 50th Kerala State Dental Conference, held at Kochi. Dr. Santhosh Sreedhar National Vice president and Dr. Biju A Nair, Award Committee Chairman are seen.

Cyst enucleation of a large infected epithelial cyst in maxillary anterior region under General Anesthesia

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Introduction

Odontogenic cysts are the most common type of cystic lesion that affects the maxillofacial region. "Cyst can be defined as a pathological cavity that may be filled with fluid, semi-fluid or gaseous contents, and it may or may not be lined by epithelium."

It is a space-occupying lesion with an outer wall of fibrous connective tissue that surrounds a central cavity called the cyst lumen. On the inner aspect of the wall, whenever there is a lining of the epithelium, it is mostly stratified squamous epithelium. Traditionally, they can be divided into a developmental group and inflammatory group.¹

Cysts can occur within the bone or soft tissue with and without symptoms. When found in bone, they are called as central cysts and when found in soft tissue; they are called as peripheral cysts. Odontogenic cysts are those which arise from the epithelium associated with the development of teeth. The source of epithelium is from the reduced enamel epithelium, enamel organ and the cell rests of Malassez or the remnants of the dental lamina.²

This case report presents the successful surgical management of large infected epithelial cyst under general anesthesia.

Case report

A 27-year-old male patient reported to the Department of Oral and Maxillofacial Surgery with the chief complaint of pain and gradually increasing intraoral swelling since 1 month.

He consulted a general physician and was advised to undergo CT and then was referred to our department.

The swelling gradually expanded and achieved a large size since one month with continuous mild pain in the upper left anterior region. Intraoral clinical examination revealed an oval swelling located largely over left palatal region crossing the midline from 21 to 24 regions. The swelling extension was present labially obliterating the labial vestibule irt 21 to 24 region. The swelling was extending palatally from the midline to premolar region which could be noticed clinically (Fig. 1) There was notable spacing between the anterior tooth from 21 to 24 regions.

On palpation, the lesion was around 3.5 cm × 5.5 cm, soft to firm in consistency, and tender. The mucosa overlying the swelling is normal in color and texture (Fig. 2).

Electric and thermal pulp vitality testing showed a negative response irt 22, 23, 24. Teeth were painless to percussion. The intraoral periapical radiograph and orthopantomogram presents oval shape large periapical radiolucency about 4.5 cm × 5.5 cm associated with 22-24 teeth and causing upward displacement of the maxillary sinus lining (Fig. 3).

On aspiration with sterile syringe needle, dirty white turbid fluid was obtained. On the basis of history and clinical finding, a provisional diagnosis was considered as infected periapical cyst and the cyst enucleation with extraction of 22-24 teeth was

planned under general anesthesia considering the size of lesion and apprehension of the patient for enucleation under LA.

Patient was admitted in medical college and started with regular course of IV antibiotics and analgesics. Pre anesthetic check up was done by the anesthetist and patient was given fitness for general anesthesia..

Patient was intubated for general anesthesia and after normal painting and draping of the oral and surrounding structures local infiltration with LA with adrenaline (1:100000) was given around 22-24 region.

Crevicular incision was given and the buccal and palatal full thickness mucoperiosteal flap was elevated to expose the area of lesion (Fig 4). Existing cortical bone window was expanded and underlying pathology was exposed and sufficient space was made for thorough curettage. Care was taken in separating the lesion from the nasopalatine nerve and artery. Extraction of 22 was performed and the lesion was removed intoto and sent for histopathological examination. Irrigation with betadine and normal saline done. Primary closure was done with 3-0 catgut. (Fig. 5)

Post-operative instructions were given and the patient was prescribed iv antibiotics and anti-inflammatory drugs. Patient was discharged on

the next day. After 1-week patient was recalled. Histopathological examination gives diagnosis of infected epithelial cyst. (fig -6-photomicrograph). Follow-up was done after 2 months which shows a normal palatal contour with no other complaints.

Discussion

Varieties of cysts and tumor may occur in the maxillofacial region, and their detection may be difficult. The most important of these are maxillary cysts. Growth of a cyst is typically slow, centrifugal, and infiltrative.³

The pathogenesis of radicular cysts involves the phase of initiation, cyst formation, and the phase of enlargement. Initiation is mostly from the odontogenic epithelium. Cell rests of Malassez in the periapical PDL got stimulation the pulpal infection and they cause proliferation of the epithelium and form cellular arcades at periapical region. A key factor, which may initiate the inflammation and immune response and may directly cause epithelial proliferation, is now thought to be bacterial endotoxins released from the necrotic pulp.⁴

In this case on proceeding with the investigation, the radiograph revealed a well-circumscribed radiolucency in the periapical region of the lateral incisor to first premolar. Considering the size and extent of the lesion complete enucleation was done



Fig. 1



Fig. 2

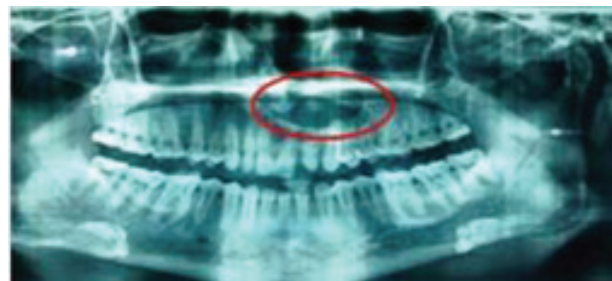


Fig. 3



Fig. 4



Fig. 5

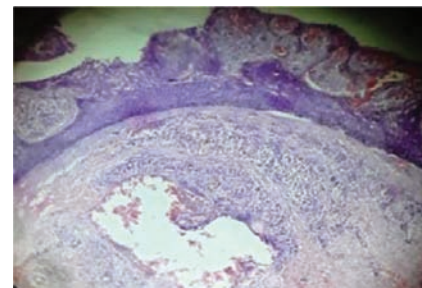


Fig. 6

under general anesthesia with the extraction of the offending lateral incisor, canine and premolar.

Factors for considering the case under General anesthesia.

1. Large size of the lesion involving incisors, canines and premolars.
2. Clinical extension of the lesion palatally.
3. Duration of the procedure.
4. Patient apprehension and anxiety for the procedure.
5. Considerations of better access both palatally and labially.
6. Consideration for prevention of aspiration as throat pack can be placed easily.

Conclusion

An odontogenic cyst is a common condition found in the oral cavity. However, it usually

goes unnoticed and rarely exceeds the palpable dimension. This case illustrates the successful management of an infected epithelial cyst with enucleation under GA. It is suggested that the treatment of the odontogenic cysts should be defined according to the clinical and radiographic evaluations according to each case.

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Minimal invasive techniques in Porcelain Laminate Veneers

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Abstract

Laminate veneer is one of the most conservative of all the prosthodontic restorations. Making veneers with porcelain supplement will minimize plaque accumulation, give life-like esthetics and provides options for shade correction. Though various classical designs are described in text books, keeping minimal intervention and maximum tooth conservation as our goal this article presents a case series of 4 different types of preparation designs for laminate veneers. Different clinical conditions are presented here to illustrate the aesthetic outcome with minimal intervention.

Keywords: laminate veneer, preparation design, ceramic veneer.

Introduction

Porcelain laminate veneer is defined as a thin bonded ceramic restoration that restores the facial surface and part of the proximal surfaces of teeth requiring esthetic restoration (GPT 9)¹. The laminate veneer is a conservative alternative to full coverage crown for improving the appearance of discolored, pitted or fractured anterior teeth. The tooth preparation design varies according to the indication and it is the variation in the incisal edge coverage that determines the design. Out of the four designs namely, the window design, feather edge, incisal bevel, and incisal overlap design the most common designs are the feather edge and incisal overlap designs. This case series presents modifications in preparation design for highly esthetic ultraconservative preparation designs.

Case Report 1

A 52 year old male patient reported with erosion in the buccal surface of the central incisors. Patient refused composite filling because of previous history of discoloration and fracture of a posterior composite filling. The normal preparation for

porcelain laminate veneer would have demanded reducing a substantial amount of labial tooth structure. Here only the margins of the eroded areas were smoothened and an impression in polyvinyl siloxane was made. (Fig: 1) Modified veneer design with lithium disilicate (IPS Emax veneer) was fabricated (Fig: 2). The Emax veneer was etched, silanated and bonded with resin cement (Variolink 2) (Fig: 3).

Case Report 2

A 27 year old male patient reported with diastema distal to the right upper lateral incisor whereas the mesial contact was intact. On examination, the upper right lateral incisor was seen to be a peg lateral. (Fig: 4) A conservative preparation was done only on the distobuccal side of the lateral incisor sparing the mesial surface. The preparation extended proximally over to the lingual side as usually done with the teeth having diastema.(Fig:5). Impression was made in Polyvinyl siloxane (Virtual, Ivoclar) an Emax veneer was made.(Fig:6). The veneer was etched with hydrofluoric acid, silanated and bonded with Variolink 2 resin cement.(Fig:7)

Case 3: Porcelain laminate veneer with gingival porcelain.

A 23 year old female patient reported with midline diastema and a discoloured left central incisor. She had undergone orthodontic treatment 3 years before and was not willing for further orthodontic treatment. Her left central incisor was non-vital. An intra-oral periapical radiograph revealed non-vital upper left central incisor, probably due to the excessive orthodontic pressure. (Fig: 8) A root canal treatment was carried out for the left central incisor. Both central incisors were prepared for laminate veneers in the feather edge design incisally. (Fig:9) A gingival porcelain was added to the laminate veneer matching the gingival

shade of the patient to counter a mismatch with the gingival zenith of the lateral incisors. (Fig:10) The lithium disilicate (IPS Emax) veneer was etched, silanated and bonded with resin cement (Variolink 2). (Fig:11)

Case 4: Lumineer or No preparation veneer.

Though laminate veneers are one of the most conservative of all prosthetic restorations, no-preparation veneers (Lumineers, Cerinate, Dent mat) is unique as it requires no tooth preparation at all.

A patient with a fear of dental drill reported with midline diastema. The only option for her was a no-preparation veneer. (Fig:12) The tooth was polished with pumice and water and the labial surface was

Case 1



Fig 1: Labial defect in relation to 11 and 21 and preparation design

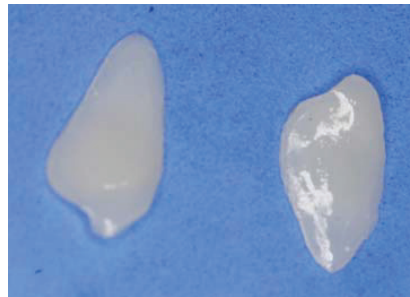


Fig 2: Emax laminate veneer



Fig 3: Veneer after cementation

Case 2



Fig 4: Peg Lateral



Fig 5: Modified incisal overlap preparation



Fig 6: Emax Laminate



Fig 7: Veneer after cementation

Case 3



Fig 8: Midline diastema with discolored left central incisor



Fig 9: Feather edge preparation design in relation to 11 and 21.



Fig 10: Finished laminate veneer with gingival porcelain



Fig 11: Bonded laminates

roughened with smooth diamond bur to remove the non-prismatic layer of enamel and to remove the surface layer of enamel that would usually be a fluoride enriched layer which would prevent effective bonding of the veneer. An impression was then taken in addition silicone and sent to the lab. The lithium disilicate (IPS Emax) veneer was etched, silanated and bonded with resin cement (Variolink 2) (Fig: 13)

Case 5: Window design

A 51 year old female patient reported with discolored left upper first premolar due to an extensive amalgam restoration and wanted to hide the discoloration. (Fig:14) On examination, it was discovered that the whole tooth had a massive amalgam filling and only a very thin shell of tooth structure on the buccal surface was remaining, contraindicating preparation for a crown.

On lateral excursion, the incisal edge of the premolar was contacting the mandibular teeth. This could result in fracture of the porcelain veneer owing to the minimal tooth structure that will be present after the preparation. Hence it was decided to execute a window preparation. Buccal surface of the first premolar was prepared with a light chamfer finish line short of the incisal edge. (Fig: 15)

An impression was made in addition silicone and sent to the lab. The lithium disilicate (IPS Emax) veneer was etched, silanated and bonded with resin cement (Variolink 2) to result in a beautiful restoration that aesthetically camouflaged the amalgam tattoo. (Fig:16)

Discussion:

A porcelain laminate veneer is an extremely thin shell of porcelain applied directly to tooth structure. Indications of laminate veneers may be discoloured teeth, adolescent teeth (teeth with large pulp), root exposure, stained teeth, malformed crowns (eg. peg laterals), diastema, to increase the length of the tooth (crown lengthening), discoloured tooth, root exposure, defective restorations, and fractured edges². In past most of these cases were indicated for full crowns but presently advancements in adhesive dentistry and restorative materials have revolutionized cosmetic dentistry as minimal invasive techniques.³

Though laminate veneers are minimally prepared restorations, the cases described here shows unique ways of preparing laminate veneers with maximum conservation of tooth structure meeting the patient's aesthetic requirements whilst maintaining periodontal health. Different materials used to



Fig 12: Midline diastema.



Fig 13: Bonded lumineer



Fig 14: Amalgam tattooing of the left first premolar



Fig 15: Window preparation design



Fig 16: Bonded laminate

fabricate veneers are feldspathic ceramics, alumina, and glass infiltrated zirconia. In this case series Emax have been selected which is lithium disilicate glass ceramic which is highly durable.⁴

Dumfahrt et al on his retrospective evaluation on porcelain veneers concluded that they have 91% survival at 10.5 years provided the veneer is within enamel with supra gingival finish lines.⁵ Barghi et al observed that proper etching depend on the leucite content of porcelain and type of etchant used.⁶ However teeth with defective enamel formation, parafunctional habits, severe periodontal involvement, severe crowding are not ideal for any type of veneers.⁷

Conclusion:

The goal of any restoration should be preservation of existing tooth structure than its meticulous replacement. This article highlights the various minimally invasive techniques that can be employed in the preparation of laminate veneers. Minimally invasive techniques are conservative and aid in

providing the patient optimal esthetics. Deviating from the classic over prepared tooth preparations minimal invasive techniques conserve maximum of tooth structure while providing a highly esthetic and functional restoration.

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Impressions bagged the Best Local Branch Journal Award in the National Level



Editor Dr. Pradeep C. Dathan receiving the Dr. C. Subhash Chandra Shetty Award for the Best Local Branch Journal from DCI President Dr. Dibyendu Mazumder and IDA National Secretary Dr. Ashok Doble at 71st National Conference, Bhuwaneswar.

Correction of tongue tie using diode laser

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Abstract

Ankyloglossia, commonly known as tongue-tie, is a congenital oral anomaly characterized by an abnormally short lingual frenulum, which may result in a varying degree of decreased tongue tip mobility. Tongue tie can cause various deleterious effects like difficulty in breast feeding, eating, digestion, speech development, dental health, periodontal health, etc. Lingual frenectomy is advised for the management of ankyloglossia. Diode lasers have several advantages over the conventional surgeries and electro cautery mode of management. The present article discusses the successful management of ankyloglossia in a 5 year old boy.

Introduction

The term "Ankyloglossia" takes its origin from the Greek word "agkilos" which means curved and "glossa" which refers to tongue. It can also be called as 'tongue-tie'.¹ The first use of the term ankyloglossia in the medical literature dates back to the 1960s, when Wallace defined tongue tie as "a condition in which the tip of the tongue cannot be protruded beyond the lower incisor teeth because of a short frenulum linguae, often containing scar tissue."² Ankyloglossia is only rarely symptomatic, while many a time it may lead to a host of problems. Tongue tie causes restriction in tongue movements causing problems in feeding, maintaining oral hygiene, thereby dental health, dental occlusion, chewing, swallowing, speech and even self-esteem. It may be associated with mechanical or social problems as well.³

According to Kotlow's assessment¹, ankyloglossia can be classified as follows: Class I, mild ankyloglossia 12-16 mm, Class II, moderate ankyloglossia 8-11 mm, Class III, severe ankyloglossia 3-7 mm, Class IV, complete ankyloglossia <3 mm.

When elevation of the tongue tip becomes limited, it leads to difficulty in properly pronouncing certain

consonants. The patient who can produce all these sounds precisely is probably not a candidate for frenectomy. Patients who do not pronounce this tongue-tip sounds accurately should be referred to a speech pathologist for proper evaluation.⁵

Lingual frenectomy is the treatment of choice for the management of ankyloglossia. Diode lasers have several advantages over the conventional methods of treatment modalities like surgery using scalpel and electro cautery mode of management. The present article discusses the successful management of ankyloglossia by diode laser frenectomy.

Case report

A 5 year old boy was referred to Department of Pedodontics and Preventive Dentistry, Sri Sankara Dental College, accompanied by his parents, with a note from his pediatrician regarding difficulty in elevating the tongue and in pronouncing certain consonants. On intraoral examination, he was diagnosed to have partial ankyloglossia which belonged to Class III of Kotlow's assessment of tongue tie. There was restriction of tongue movements and the articulation of sounds such as "t, d, l, th, s and r" was not legible. Frenectomy for the correction of tongue tie was planned and the patient

was referred to a speech specialist who suggested the same for the improvement in phonation. As the age of the child demanded painless, bloodless, minimally invasive mode of correction, lingual frenectomy using diode laser without infiltration anaesthesia was planned and consent was obtained from his parents for the same.

Patient preparation was done for laser safety precautions, by wearing protective eye wear, minimizing reflecting surfaces in the operating site and reducing traffic in the operatory. Zolar diode laser (980nm) was the laser used for the procedure. Topical anaesthetic gel (25% benzocaine) was applied with a cotton applicator tip on the lingual frenum. After 2 minutes of topical anesthetic application, the fiber-optic wire tip of the diode laser was stripped and the tip was initiated by firing it into a piece of cork at 1W in a continuous mode. An initiated tip of 300 μ m was used with an average power of 1W in a pulsed mode. The diode laser was applied in a contact mode with focused beam for excision of the tissue. After stabilizing the tongue, the tip of the laser was moved from the apex of the frenum to the base in a brushing stroke cutting the frenum. The laser beam was applied both vertically and laterally to the frenum to disrupt the mucosal continuity, enabling the deeper horizontal cut of the frenum. The ablated tissue was continuously mopped with a wet gauze piece. In between the procedure, patient was asked to elevate the tongue to evaluate its movement. The procedure was completed in 15 minutes. The child was co-operative throughout the procedure and did not complaint of pain. Postoperative instruction was given to the patient and was asked to consume soft cold diet and in case of any discomfort, was advised to apply topical gel.

After one week the patient came for review and the healing was satisfactory. When he was examined after a month following laser treatment, he showed

decreased restrictions to tongue movements and showed improvement when guided to pronounce words which he found difficult before the treatment.

Discussion

Lingual frenulum is a small fold of mucous membrane that connects the middle of the sublingual face of the tongue to the floor of the mouth. It can interfere with the tongue movements and its functions if it is too short or smaller than normal. Orofacial functions can be altered according to the degree of lingual frenulum alteration. Frenectomy is the usual procedure to release the lingual frenulum.⁷

Frenectomy can be performed by surgery using scalpel, electro cautery and lasers. Although the conventional surgical frenectomy produce good result, they have their own disadvantages compared to laser-assisted frenectomy. Surgical procedure would require the use of general anesthesia which would expose the child to additional risk. Suturing on the ventral surface of tongue at times can cause blockage of Wharton's duct. Surgical manipulations on the ventral part of tongue may also damage the lingual nerve and cause numbness of the tongue tip. Laser-assisted lingual frenectomy is easy to perform with excellent precision, less discomfort, no bleeding and short healing time compared to the conventional technique.⁸

A laser creates a light beam that is monochromatic (it has a very narrow wavelength) and highly collimated through a filamentous tube. Three types of lasers are available for use in dentistry: the CO₂ laser, the erbium laser, and the diode laser. The CO₂ laser can be somewhat difficult to use in practice. It does not contact the tissue during the cutting phase; thus there is no tactile feedback during the surgical incision. The erbium laser has a wavelength of 2790 to 2940 nm, which makes it ideal for absorption by both hydroxyapatite and water. It can also be used to cut soft tissue, but it does not control bleeding.



Fig 1. Preoperative view

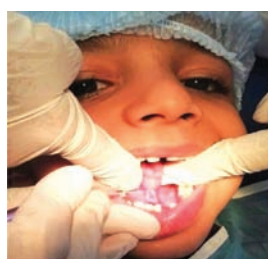


Fig 2. Frenectomy using laser



Fig 3. Immediate post operative view



Fig 4. Post operative view after 1 month

The diode laser has a wavelength of 812 to 980 nm, which is in the same range of the absorption coefficient of melanin. The laser energy is absorbed by pigmentation in the soft tissues, and this makes the diode laser an excellent hemostatic agent. Because it is used in contact mode, it also provides tactile feedback during the surgical procedure. The diode laser can often be used without anesthesia to perform very precise anterior soft tissue esthetic surgery or surgery in other areas of the mouth without bleeding or discomfort. Major advantage of the diode laser is that the wavelength does not approximate the absorption coefficient of bone or enamel. In other words, it can cut only soft tissue and has no effect on hard tissue.

Rossmann and Cobb summarized the advantages of lasers in soft tissue surgery:

(1) The laser cut is more precise than that of a scalpel. (2) The cut is more visible initially because the laser seals off blood vessels and lymphatics, leaving a clear dry field. (3) The laser sterilizes as it cuts, reducing the risk of blood-borne transmission of disease. (4) Minimal postoperative pain and swelling have been reported. (5) Less postoperative infection has been reported because the wound is sealed with a biological dressing. (6) Less wound contraction occurs during mucosal healing, thus scars do not develop. (7) Less damage occurs to adjacent tissues. These qualities result in a shorter operative time and faster postoperative recuperation.

The great advantage of diode laser frenectomy in paediatric dentistry is the avoidance of needle-infiltrated anaesthesia. Considering that children are more pain sensitive, this case report discussed a case of a child that had no external stimulus (laser) to react, which means that diode laser may be used under specific parameters safely in all age groups without infiltration anaesthesia.¹⁰

Conclusion

Ankyloglossia is an uncommon oral anomaly that can cause difficulty with breast-feeding, speech articulation, and many other mechanical tasks. At different degrees, frenectomy is efficient to improve tongue posture, tongue mobility, oral functions, lip posture and oral communication. The use of diode laser for the correction of tongue-tie is preferred as it proves to be painless, bloodless, sutureless, with the help of needleless anaesthesia.

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Women's wing Secretary Dr Deepa G receiving the Runner up award for Women's wing activity for the year 2017

A Simplified Feeding Appliance for an Infant with Cleft Palate

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Abstract

In cleft lip and palate communication is established between oral and nasal cavity. The oronasal communication reduces the creation of a negative pressure, which helps in suckling. Feeding prosthesis closes this communication and aids in feeding. The case presented here is of a 5 days old neonate born with cleft palate, feeding appliance was fabricated with ethylene vinyl acetate using pressure molding technique. The use of ethylene vinyl acetate sheet makes the fabrication process much simpler and effective compared to other materials like acrylic resin.

Introduction

Incidence of cleft lip and palate ranges from 1 in 800 to 1 in 1200 live births¹. Cleft palate a congenital defect occurs due to failure of the palatal shelves to fuse^{2,3}. This creates communication between the nasal passages and oral cavity. Surgical correction is often needed for the correction of this deformity. Cleft lip will occur alone or in association with cleft palate². These congenital anomalies often leads to feeding difficulties, auditory tube pathology, tympanum effusions, tympanum infections, deafness, speech disorders, dental and esthetic issues². The management involves team work from varied specialties. Surgical correction following presurgical orthopaedics is delayed till optimum jaw alignment is achieved. A feeding plate could be the foremost favorable possibility of babies having feeding issues due to cleft-palate. The feeding plate functions as prosthesis by closing the communication between the oral and nasal cavity.

Case Report

This clinical report describes a 5 days old female infant born at full-term, with a hard and soft palate defect, weighing 2.7 kg, with no family history of clefting or any other congenital defect. The pediatrician referred the patient at to the Department of Prosthodontics, Sri Sankara Dental

College, Akathumuri, Varkala, and requested a feeding obturator to make it possible for the baby to be nursed. After discussion with the child's parents, it was found that the mother had difficulty in breastfeeding the newborn. Medical clearance was obtained before starting the treatment.

On intraoral examination, unilateral cleft on the left facet involving the lip, alveolus, hard palate, soft palate, uvula was seen (Figs. 1 and 2).

As there was an exact communication between the oral and nasal cavities, a feeding plate was planned for baby which might act as a barrier and a pseudo roof of the mouth to prevent nasal regurgitation and to help in feeding.

Parents were explained concerning the procedure thoroughly before commencement of treatment for which they were convinced as their main concern was the babies feeding. During the impression procedure, the baby is made to cry, in order that it opens the mouth wide⁶. For the impression, the infant was positioned face downward to avoid airway obstruction and aspiration of the impression material and choking. Impression of upper gum pad and cleft area created using addition silicone putty elastomer (Photosil) with hand adaptation to the roof of the mouth using slight pressure

The inner surface of the finished impression was verified as correct and adequate⁴. Then primary cast

was created with dental stone (Type III gypsum) (Fig. 3). A special tray was fabricated using Cold cure acrylic and then the final impression was made with putty elastomer (Fig. 3).

The final cast was obtained after trimming. The feeding plate was fabricated on this cast using Ethylene vinyl acetate sheet of imm thickness. A vacuum former machine was used to adapt the sheet on the cast under vacuum (Fig. 4).

Following adaptation of the Ethylene vinyl acetate sheet to the cast, tight adaptation along the palate, and ridges was checked. It was then trimmed. An 8-inch floss was then attached on both sides of the feeding obturator to provide a safety mechanism in case of gagging or accidental swallowing (Figs. 5 and 6).

The appliance was positioned in infant's mouth (Fig. 7) and after confirming the fit of the appliance, the response of the infant was observed in the hospital for a few hours. The infant was irritable in the first few hours after the application, but this was followed by excellent adaptation. The mother was able to bottle feed the infant comfortably with the new appliance in place. The infant was followed-

up weekly, and necessary adjustments were made. It was observed that the mother had gained satisfactory nursing experience. It was determined that use of the obturator supported high-volume nutrition intake, with less infant fatigue. Irritability decreased gradually, and weight gain was within normal limits..

Discussion

Floss Morton used a gold plate to treat palatal defect⁶. Later, in 1875, Claude Martin started employing surgical obturator prosthesis for jaw defects⁶. In 1927, Fry represented importance of impression making before surgery. Use of gutta-percha to hold a skin graft in position for surgical correction of maxillectomy was represented by Steadman in 1927⁴. Medical aid plays a crucial role in such patients, World Health Organization typically have varied health care wants, as well as difficulties in feeding, speech disorders, ear infections and dental issues. Since definitive surgical procedure wasn't planned a minimum of for 2-3 years, the treatment plan was to fabricate an appliance which might facilitate the baby to take care of the



Fig 1



Fig 2

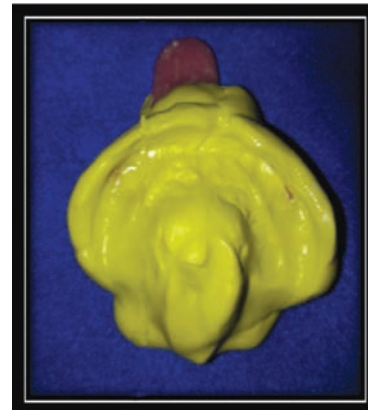


Fig 3

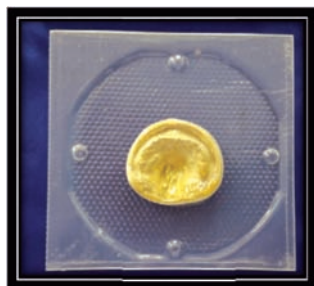


Fig 4

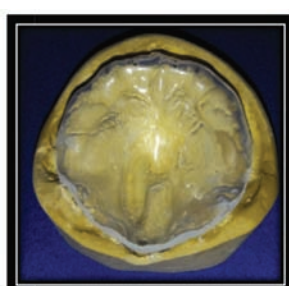


Fig 5



Fig 6



Fig 7

traditional suckling mechanism⁴. Feeding appliance becomes a must in cleft lip and palate (CLP) babies considering the health of the infant. A feeding plate helps in feeding and effectively separating the mouth from the nasal cavity⁴. McNeil et al pioneered the early treatment of congenital abnormality by pre-surgical oral corrective measures and created helpful contribution within the technique of congenital abnormality corrective for infants. This sort of prosthesis reduces regurgitation, incidence of choking, and also shortens the length of your time needed for feeding¹. The prosthesis conjointly prevents the tongue from getting into the defect and developing the right tongue position with the assistance of a feeding appliance¹. It helps the tongue within the correct position to perform its practical role in the development of the jaws that conjointly facilitate the speech development⁷. The prosthesis conjointly reduces the passage of food into the bodily cavity reducing the incidence of bodily cavity infection⁵. Surgery could utterly shut the oronasal communication and resolve issues associated with the cleft⁵. However, temporal arrangement of surgery differs considerably between medical centers and will be as early as ten to twelve weeks older or twelve to eighteen months or maybe well past twelve months older¹.

The advantages of construction of palatal prosthesis is incredibly necessary till the surgical correction of the defect is applied as a result of it provides a false roof of the mouth against that kid will suck, reduces the incidence of feeding difficulties in new-borns, helps maintain adequate nutrition, provides jaw cross arch stability and prevents arch collapse after definitive chelioplasty (surgical closure of the lip) and conjointly provides jaw medical science moulding of the cleft segments into approximation before primary alveolar cleft bone attachment¹. Feeding plates are commonly fabricated using acrylic resin which needs more fabrication time. Intimate contact with the tissue may not be possible. Ethylene vinyl acetate is used for this since it is easier to fabricate, proper adaptation and possibility of residual monomer leaching can be avoided.

Conclusion

Respiration and food intake are the foremost necessary functions for a living being to survive. Non inheritable deformities like cleft lip and palate and other congenital abnormality impair these functions resulting in varied complications. The feeding and respiratory disorders impact not solely on the physical however conjointly psychological well-being of the infant or child.

Feeding plate prosthesis might also scale back the stress of the baby and parents therefore the baby expertise with the feeding method and promote new born infant weight gain that is vital in making ready the baby for surgery. The feeding plate must be refabricated frequently due to the constant growth of roof of the mouth until the surgery is planned. So fabrication using simple techniques can be adapted.

Material used for the fabrication of this feeding obturator was EVA, which is inexpensive. The fabrication procedure is simpler, does not involve the use of tissue conditioners for enhancing retention, there is no need of a retentive wire has a smoother surface and is softer than standard acrylic obturator. This modified obturator fabrication does not encompass any additional cost, clinical time, or family burden when compared with traditional methods. Hence, it can be used as a suitable alternative to traditional acrylic obturators.

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IDA Attingal Branch Reports & Activities

Installation programme of our branch was on 17/12/2017 IMA Headquarters, Chackai. Chief guest for the function was Dr Sabu Kurien, President IDA KSB. Guests of Honour were Dr Anitha Balan, Principal, Govt. Dental College, Trivandrum. Dr Ciju A Poullose, President Elect, IDA KSB, and Dr Suresh Kumar G Hon: Secretary IDA KSB. Dr Ramesh S was installed as the new President of our branch.

CDE: We conducted one CDE programme on. "Over View on Dental Implantology" was conducted on 11th February at Hotel Karthika Park Kazhakootam. Dr Sherin A Khalam our branch member and Dr Febel Huda were the faculties. 70 members attended the programme.

CDH: National Dentist Day was celebrated on 25th at Mulamana VHSS Vamanapuram and on 26th at Newbharath English Medium Higher Secondary School.

World Cancer Day was observed at Vinayaka English Medium School. President Elect of IDA KSB delivered an awareness class to the students and teachers. Free



Dr. Abhilash GS President Elect IDA KSB addressing 98.3 FM on World Oral Health Day



International Forest Day celebration by IDA Attingal branch

dental camps were conducted at Sreenarayana College Chempazhanthy and KVUPS PANGODE.

Observed Dentist Day of this year on 6th March. The same day we inaugurated free Denture programme of this year by delivering a new denture to the beneficiary.

Women's wing and CDH wing of our branch have jointly honoured Sis:Lissy and her team at Snehatheeram Charitable Society Mithirmala on 8th March, in connection with world women's day, for their untiring efforts to taking care of 120 mentally ill ladies.

Women's wing also conducted a dental camp at Tribal Mission Nursery School 4kms away from Vithura.

20 children and their parents attended the programme.

General Body Meeting of this year was conducted on 4th March at Kazhakootam Al Saj Convention Centre. 50 members attended the programme.

Observed World Oral health day on 20th of March at Varkala SN College.

World Forest Day was observed by planting saplings and distributed among senior citizens on 21st March.

On 22nd of March we observed world water day in the private bus stand of Kilimanoor. The Panchayat President inaugurated the programme.

Journal: Our branch journal IMPRESSIONS bagged both State and National Award for best local branch journal. Our Editor Dr Pradeep C Dathan definitely deserve a big round of applause for his dedicated work which help us to take our branch to newer heights.

Election: Another proud moment was our founder member Dr Abhilash GS was elected as the President Elect of IDA KSB. At the election held on 28th January We also won the election for the next Conference Venue, that is 52nd Kerala state Dental conference, which will be held on the year 2021.

Dr Deepak S Das and Dr Deepa G bagged the best promising dentist award for this year during dentist day celebrations held at Muvattupuzha.



International Water Day celebration at Private Bus Stand Kilimanoor