



TAPER

Journal of Indian Dental Association Thiruvalla



VOLUME 02

JUNE 2018

Contents

Antibiotic Resistance	5
Dr Ambil Sara Varghese	
The Role of Orthodontics in dentistry	9
Dr Venisha Ann Alexander, Dr Lijo John	
Retention in complete denture	14
Dr.Suja Joseph, Dr.Tessa Kuriachan ,Dr .Jisha.J.S	
Aversive conditioning: To do or not	22
Nikku Mariam Sunny, Swetha Sreedhar, Dr . Elizabeth Joseph	
At. Apollonia the patron saint of dentistry	26
Dr Elizabeth Joseph	
Complex odontoma-A Case report	30
Bibin	

Message from the President



IDA Thiruvalla branch was formed in 2008 with a membership strength of 50 charter members including myself. It was a combination of members from Central Kerala branch, Pathanamthitta and Mavelikara branch, Dr. Thomas eapen was the Charter President and the team of office bearers were installed at Condoor Resort in Changanacherry.

Uptill now Ida Thiruvalla conducted programmes beneficial to its members and also many community programmes.

Dentistry is going through a difficult phase in Kerala. The surplus of dentists and the decline of practice and the new laws from government side all shows the need for IDA branch in our locality.

AS the president of the branch I whole heartedly request for the support of all members in future programmes. President won't be able to achieve anything alone, but we have a very efficient team of office bearers with us who are ready to go to any extent. Together we work and together achieve, this year and coming years.

Thank you
Dr. K.N. Thomas
President IDA Thiruvalla

FROM THE SECRETARY S DESK

Dear Colleagues,

WARM GREETINGS TO YOU

Let me first congratulate Dr. K.N.Thomas and his team of office bearers .As you all know this is the second edition of our journal TAPER under our new editor Dr.Elizabeth Joseph. Last year our journal contained a lot of informative articles, I thank Dr. Akilesh Prathap for the same.

Last year we were able to conduct 5 CDE's with excellent attendance. All topics covered were useful to all in their daily practice. We were able to conduct a mega CDH program on the occasion of "No Tobacco Day" in collaboration with Indian Railways. It was held at Thiruvalla Railway Station which included a message from Chief Guest Bishop Geevarghese Mar Coorilos, Magic Show, Video Presentation and Rally by Scout & Guides. A lot of people attended the program.

Last Year Family Tour was conducted at Summer Sand Resort Wagamon. We were lucky to meet Superstar Mohanlal at the resort we were staying. It was a very relaxing trip. Last Year's Community Project was for Dialysis Patients. It was officially inaugurated by Mrs. Veena George MLA at Tharangam Mission Action Centre Arattupuzha. We had sponsored 100 Dialysis for patients at Taluk Hospital Kozhencherry. Besides this we were able to lend a helping hand to one of our fellow doctor of Attingal branch who was bed-ridden. I thank all the members for their generosity rendered for this project.

I am grateful to our IPP Dr. Saji Kurian for all his efforts for IDA Thriuvalla in the last year. I am also grateful to our office bearers for their support and valuable suggestions. Let's all work together as one unit to strengthen our friendship and unity.

"True love lies in our eagerness to allow, appreciate and honour the uniqueness and freedom of each person."

God Bless you all.





Greetings to all members of The Association

The word Association means 'a group of people organized for a joint purpose.'

The Indian Dental Association of Tiruvalla has been striving to meet this objective through collective efforts in Professional and social endeavours and the second issue of The TAPER is another step in this direction.

The articles included here hopes to touch certain current topics like **Antibiotic Resistance** which is a major threat to society with the emergence of resistant bacteria as a result of indiscriminate use of antibiotics **Role of Orthodontics in Dentistry** which looks into a few of the treatment requirements and options of Orthodontics .The article on **Retention** of Complete Dentures highlights factors that aids in success of dentures and the article on **Behavior Management** addresses the importance of our choices in interacting with patients and the need of obtaining informed consent .

We conclude with a note on St Apollonia the Patron Saint of Dentistry and hope this issue proves beneficial.

Wishing everyone a Healthy Prosperous Life.

Regards

Dr Elizabeth Joseph



Dr Ambil Sara Varghese, Lecturer, Pushpagiri College of Dental Sciences

Key facts:

- ◆ Antibiotics resistance is one of the biggest threats to global health, food security, and development today.
- ◆ Antibiotic resistance can affect anyone, of any age, in any country.
- ◆ Antibiotic resistance occurs naturally, and misuse of antibiotics in humans and animals is accelerating the process
- ◆ A growing number of infections—such as pneumonia, tuberculosis, gonorrhea and salmonellosis -are becoming harder to treat them become less effective.
- ◆ Antibiotics resistance leads to longer hospital stays, higher medical costs and increased mortality.

Introduction

Antibiotic is a Greek word—Anti-‘against’ and biotic means ‘life’

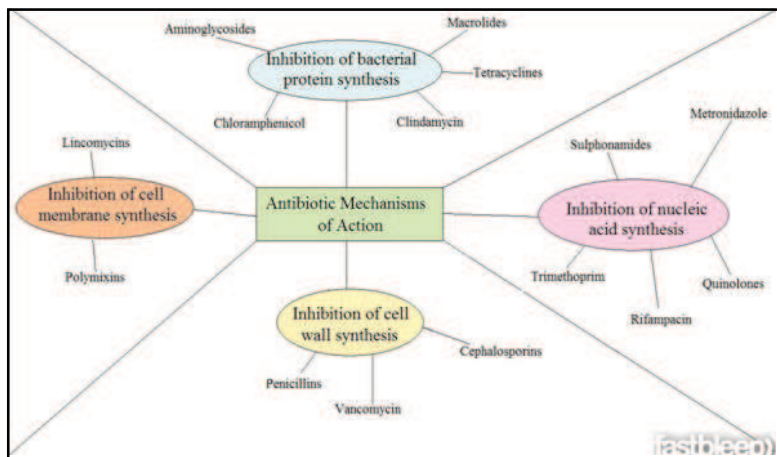
- *Antibiotics - Substances that are produced by microbial flora that can inhibit the growth of or kill other microorganisms within low concentration (microscopic organisms = bacteria, viruses, fungi, protozoa)*
- *Antimicrobial agents: Substances that will suppress the growth/ multiplication of bacteria and prevent their action*

- *Bacteriostatic = Inhibits growth of bacteria*
- *Bactericidal = Kills bacteria*
- *Mechanism of Action:*

1. *Inhibition of cell wall synthesis - Bactericidal*
2. *Alteration in membrane permeability - ‘Cidal’ or ‘Static’*
3. *Inhibition protein synthesis - ‘Cidal’ or ‘Static’*
4. *Inhibition of bacterial RNA & DNA - Inhibits synthesis of RNA & DNA*
5. *Interferes with metabolism in the cell - ‘Static’*

Antibiotic resistance is the ability of bacteria to resist the effects of an antibiotic. Antibiotic resistance occurs when bacteria change in a way that reduces the effectiveness of drugs, chemicals, or other agents designed to cure or prevent infections. The bacteria survive and continue to multiply, causing more harm.

Antibiotic resistance has been called one of the world’s most pressing public health problems. Antibiotic resistance can cause illnesses that were once easily treatable with antibiotics to become dangerous infections, prolonging suffering for children and adults. Antibiotic-resistant bacteria can spread to family members, schoolmates, and co-workers, and may threaten your community.



Antibiotic-resistant bacteria are often more difficult to kill and more expensive to treat. In some cases, the antibiotic-resistant infections can lead to serious disability or even death.

Although some people think a person becomes resistant to specific drugs, it is the bacteria, not the person, that become resistant to the drugs.

Overuse and misuse of antibiotics can promote the development of antibiotic-resistant bacteria. Every time a person takes antibiotics, sensitive bacteria (bacteria that antibiotics can still attack) are killed, but resistant bacteria are left to grow and multiply. This is how repeated use of

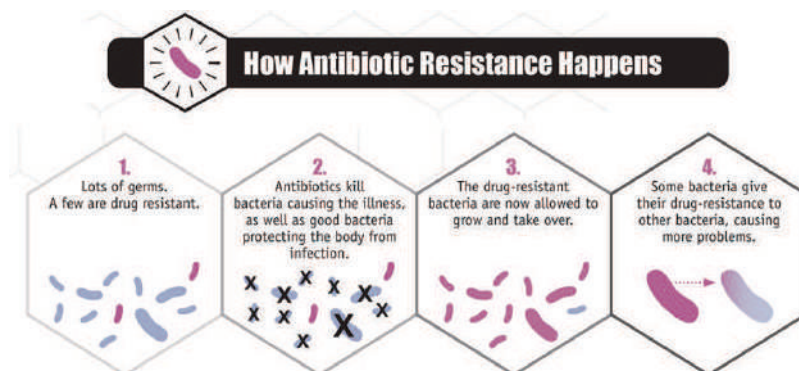
antibiotics can increase the number of drug-resistant bacteria.

Antibiotics are not effective against viral infections like the common cold, flu, most sore throats, bronchitis, and many sinus and ear infections. Widespread use of antibiotics for these illnesses is an example of how overuse of antibiotics can promote the spread of antibiotic resistance. Smart use of antibiotics is key to controlling the spread of resistance.

Bacteria can become resistant to antibiotics through several ways. Some bacteria can “neutralize” an antibiotic by changing it in a way that makes it harmless. Others have

learned how to pump an antibiotic back outside of the bacteria before it can do any harm. Some bacteria can change their outer structure so the antibiotic has no way to attach to the bacteria it is designed to kill.

After being exposed to antibiotics,





sometimes one of the bacteria can survive because it found a way to resist the antibiotic. If even one bacterium becomes resistant to antibiotics, it can then multiply and replace all the bacteria that were killed off. That means that exposure to antibiotics provides selective pressure making the surviving bacteria more likely to be resistant. Bacteria can also become resistant through mutation of their genetic material.

Important guidelines to be followed before prescribing antibiotics by a dentist

Some important guidelines which should be kept in mind by Dentists before prescribing Antibiotics for various dental conditions.

- ▶ Make an accurate diagnosis to use Narrow Spectrum and avoid using Broad Spectrum Antibiotics
- ▶ Based on Diagnosis use appropriate type of antibiotic and the Dose and Duration of the course
- ▶ Consider using narrow-spectrum antibacterial drugs in simple infections to minimize disturbance of the normal microflora, and preserve the use of broad-spectrum drugs for more complex infections
- ▶ Antibiotic therapy should be used as an adjunct to dental treatment and never used alone as the first line of care.

- ▶ Antibiotics are indicated when systemic signs of involvement are evident.
- ▶ Pain alone or localized swellings do not require antibiotic treatment but instead use Analgesics and plan the line of treatment to relieve the discomfort of the patient immediately for ex. draining of abscess to relieve pain and decrease the flora.
- ▶ Fevers, malaise, lymphadenopathy or trismus are clinical signs that possible spread of the infection has occurred
- ▶ Keep in mind the interactions of antibiotics with other drugs being used by the patient
- ▶ Avoid unnecessary use of antibacterial drugs in treating viral infections
- ▶ *Most important:* Have thorough knowledge of the side effects and drug interactions of an antibacterial drug before prescribing it.

Important things to be followed before deciding “Duration of ANTIBIOTIC COURSE”

- ▶ Antibiotics is always prescribed in two types-Short duration (3-5days) and long duration(7-10 days)which is based on

1. **Severity of the infection**
2. **Type of organism**
3. **Extent of the disease progression**

So the course of the duration has to be decided keeping in mind these 3 important factors

- ▶ Antibiotics should be used only for a certain number of days only

required to “kill the resistant strains” as the vast majority acquire their resistance via transposable elements that are preferentially transferred when antibiotics are used in sub-therapeutic doses or for long duration. Finish the course : ideally the antibiotic is prescribed for 3-5 days with a sufficient loading dose

- ▶ Short courses are preferred to long courses particularly when treating children. Children’s compliance with conventional courses is poor
- ▶ There is evidence that short courses of antibiotics, with appropriate treatment are adequate for resolution of dental infections
- ▶ Longer durations may result in: Reduction in the ability of the oral flora to resist the colonization of harmful micro-organisms which are not normal resident of the oral flora, thereby leading to superimposed infections by multi-resistant bacteria and yeasts.
- ▶ In the majority of patients 2 or 3 days of oral antibiotics, in doses recommended by the BNF, will suffice for acute dentoalveolar infections.
- ▶ Educate the patient regarding proper use of the drug and stress the importance of completing the full course of therapy (that is, taking all doses for the prescribed treatment time).

Dental condition where antibiotics are indicated

- Oral infection accompanied by elevated body temperature
- Evidence of systemic

spread, lymphadenopathy, trismus

- Facial cellulitis and/or dysphagia
- Periodontal abscess
- Acute periodontal conditions where drainage is impossible
- Acute necrotizing ulcerative gingivitis
- Sinusitis
- Pericoronitis

Relatively contra-indicated cases for antibiotic use in dentistry

- Acute periapical infection
- Dry socket
- Acute pulpitis
- Chronic marginal gingivitis
- Chronic periodontitis
- Viral infections

Conclusion

- Prescribing practices of dentists can be improved by increasing awareness among dental practitioners of the recommended guidelines. Furthermore, the importance of initiating awareness programs among the general public should not be overlooked.
- To conclude we would like to quote the famous statement by Sir Alexander Fleming: “The thoughtless person playing with penicillin treatment is morally responsible for the death of the man who succumbs to infection with the penicillin-resistant organism”. So we need to choose these medications cautiously

The Role of General Dental Practitioner in Orthodontics

Dr Venisha Ann Alexander MDS Lecturor Pushpagiri College of Dental Sciences

Dr Lijo John MDS Lecturor Pushpagiri College of Dental Sciences

Introduction

There is an increased demand for orthodontic treatment nowadays. Many patients visit their general dental practitioner for correction of their mal-aligned and protruded teeth in order to enhance their smile and beauty. Orthodontic treatment not only significantly improves their facial appearance but also provides stability to the orofacial region and improves masticatory function. This article aims to give an outline as to who requires orthodontic treatment; the role of a general dental practitioner (GDP) in diagnosis and treatment planning; guidelines in selecting cases for referral to a specialist orthodontist according to case severity; and forewarning about certain Do-it-yourself techniques that can produce more harm than good to the patient.

Who needs orthodontic treatment?

Three principle reasons have been highlighted for carrying out orthodontic treatment:¹

- ▶ To improve the dento-facial appearance
- ▶ To correct occlusal relationship
- ▶ To eliminate malocclusions that could damage the long-term health of the teeth and periodontium.

A person's dental appearance can have a significant effect on how they may feel about themselves and orthodontic treatment can provide a significant psychosocial benefit to patients, often resulting in improved self-esteem. An improved dento-facial appearance can also contribute to one's overall quality of life. When children were teased for their teeth, it had severe negative effect on their self-esteem. Studies found out that children with an increased overjet or spaces between their front teeth have more significant social and emotional issues than children with well-aligned teeth.

Traumatic deep overbite or anterior crossbite with mandibular displacement can be associated with periodontal breakdown indicating a need for treatment and impacted teeth can cause damage to the root surface of adjacent teeth causing root resorption. Supernumerary teeth may also cause damage to adjacent teeth or prevent the normal eruption of a permanent tooth.

Role and Responsibility of the GDP²

It is usually the patient's own general dental practitioner who initiates the request for orthodontic treatment. A GDP should be competent in carrying out an orthodontic assessment, including an indication for treatment need and timely interceptive orthodontic treatment with appropriate timely referrals to prevent damage to teeth, whether it is due to trauma, tooth wear caused by a traumatic bite or resorption of roots adjacent to impacted teeth. In addition, the need for

orthognathic surgery can be reduced by growth modification with the use of functional appliances in Class II division 1 malocclusions or protraction headgear with Class III malocclusions and this too requires appropriate management and referral from the GDP. Therefore, to help in proper identification of potential orthodontic patients many indices were introduced. One of the most widely used is the Index of Treatment Need (IOTN).

Index of Treatment Need (IOTN)

In the mid 1980s concerns were raised that patients were receiving poor or unnecessary orthodontic treatment. This led to a report into unnecessary dental treatment commissioned by the then Minister of Health, known later as the 'Schanschieff report'. In the aftermath of the Schanschieff report and subsequent evaluation of the profession, the Index of Orthodontic Treatment Need (IOTN) was developed at the University of Manchester by Brook and Shaw.

The introduction of the IOTN allows orthodontists to standardise their approach in evaluating

orthodontic treatment need. In addition, consultants in dental public health perceive the IOTN as a useful tool for planning orthodontic provision.

Out of two categories of IOTN, the Dental Health Component is determined by considering the potential harm that a particular occlusal trait could have on the longevity of the dentition. It categorises the detrimental effects of various deviant occlusal traits in order of severity.

Grade 1 is for almost perfect occlusion.

Table 1 Dental health component (DHC) – occlusal trait severity	
Grade	Level of orthodontic treatment need
5	Very great
4	Great
3	Moderate
2	Little
1	No need

Grade 2 is for minor irregularities such as:

- ◆ Slightly protruding upper front teeth.
- ◆ Slightly irregular teeth.
- ◆ Minor reversals of the normal relationship of upper and lower teeth which do not interfere with normal function.

Grade 3 is for greater irregularities which normally do not need treatment for health reasons.

- ◆ Upper front teeth that protrude less than 4 mm more than normal.
- ◆ Reversals of the normal relationship of upper teeth which only interfere with normal function to a minor degree; by less than 2 mm.
- ◆ Irregularity of teeth which are less than 4 mm out of line.

- ◆ Open bites of less than 4 mm.
- ◆ Deep bites with no functional problems.

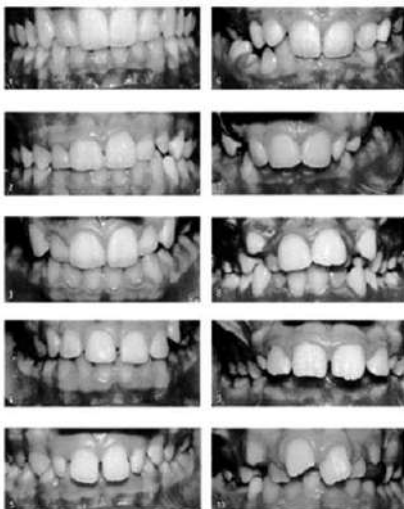
Grade 4 is for more severe degrees of irregularity and these do require treatment for health reasons.

- ◆ Upper front teeth that protrude more than 6 mm.
- ◆ Reversals of the normal relationship of upper teeth which interfere with normal function greater than 2 mm.
- ◆ Lower front teeth that protrude in front of the upper more than 3.5 mm.
- ◆ Irregularity of teeth which are more than 4 mm out of line.
- ◆ Less than the normal number of teeth (missing teeth) where gaps need to be closed
- ◆ Open bites of more than 4 mm
- ◆ Deep bites with functional problems
- ◆ More than the normal number of teeth (supernumerary teeth)

Grade 5 is for severe dental health problems

- ◆ When teeth cannot come into the mouth normally because of obstruction by crowding, additional teeth or any other cause.
- ◆ A large number of missing teeth.
- ◆ Upper front teeth that protrude more than 9 mm
- ◆ Lower front teeth that protrude in front of the upper more than 3.5 mm and where there are functional difficulties too
- ◆ Cranio-facial anomalies such as cleft lip and palate.

The second component of the IOTN index is the Aesthetic Component (AC) developed in Cardiff by Evans and Shaw in 1987. The AC consists of ten photographs showing different levels of dental attractiveness on a scale of 1–10.



Score	Need for treatment
1/2	No need
3/4	Slight need
5/6/7	Moderate need
8/9/10	Definite need

Table 2

The score reflects the aesthetic impairment and guides the practitioner to treatment need. It can be a useful tool to explain to patients the severity of their malocclusion when compared to others (Table 2).

Who Wants Orthodontic Treatment?²

The number of adults undertaking fixed orthodontic treatment has grown significantly in recent years. Improved appliance aesthetics, treatment mechanics and social acceptability are some of the contributing factors involved in this increase. The limitations of orthodontic treatment must be explained at the beginning of treatment since adult expectations of orthodontics can be very high.

The demand for short-term orthodontics is on the rise as dentists move towards more minimally invasive cosmetic dentistry. Such treatments that reposition anterior teeth to facilitate their minimally invasive aesthetic restoration will involve inter-canine expansion and incisor proclination, both of which are inherently unstable orthodontic movements which need to be managed carefully.

Do-It-Yourself Orthodontic Treatment

In today's world, it's easy to buy do-it yourself orthodontic treatment kits online, including clear aligners to straighten teeth.

For a long time now, the AAO has aggressively and proactively been warning consumers to be wary of various "Do-it-yourself orthodontics" procedures when it comes to orthodontic care. These procedures have been popularized on social media, with many showing young adults attempting to move their teeth with rubber bands, paperclips, and inappropriate use of orthodontic appliances without the personal evaluation and care of an orthodontic specialist.

However, DIY orthodontic treatment is dangerous and can permanently damage your teeth.



Hence, orthodontic care should always be performed under the direct supervision of an orthodontist. Regular orthodontic check-ups throughout treatment best serve the patient and allow the treating orthodontist to monitor not only tooth movement, but also the patient's overall oral health, including hygiene issues that may impact treatment decisions.

Many people are using these techniques to forego the expense of visiting a trained professional and hoping instead for a quick fix, which often ends up costing them more in the long run.

In response to the rise of do-it-yourself orthodontic videos and products cropping up online, orthodontists are springing into action in the form of awareness campaigns and discussions with their patients in hopes of stopping the new trend in its tracks.

Dentist suspended over treatment that left patient worse off :

The recent verdict of The Singapore Dental Council (SDC) which involved the suspension of a dentist who left the patient looking worse after an orthodontic treatment, emphasizes the importance of the need for orthodontic speciality.

Even though the patient was at high risk of gum recession, an unsuitable treatment plan was opted to straighten his crooked teeth which ultimately resulted in the patient's upper teeth protruding more than before and an affected tooth being extracted with the loss of bone support for the canine worsening his arch asymmetry.

The disciplinary committee pointed out the dentist's lack of expertise in this case, and highlighted he was supposed to have referred the patient to an orthodontic specialist.

In light of these events, the Association of Orthodontist (Singapore) issued the following announcement:

“When dentists carry out work that are beyond their scope of training, the trust of patient is breached and they do not receive the optimal treatment they are entitled to. Protecting the public is of utmost importance to us. Orthodontics is a specialized treatment that should ideally be carried out by orthodontists. We urge members of the public to be vigilant and enquire about the training and experience of their dentist prior to commencing orthodontic treatment.

Dr Kevin O'Brien, an orthodontist in his blog “Should general dentist provide orthodontic treatment”, highlighted that a general dental practitioner can provide any treatment in which they are competent which included orthodontics. Importantly it's the practitioner who decides whether they are competent and the treatment is within their scope of practice. But in order for someone to recognise that a treatment is “simple” they need to be fully competent in all aspects of orthodontics. However, it should also be possible for specialists to identify simple cases and provide a treatment plan for the practitioner.³

CONCLUSION

Orthodontics is not merely for improving the smile and facial esthetics but also to correct deleterious occlusions and to create a stable and harmonious stomatognathic system. General

dental practitioners have a huge role in success of orthodontic treatment as they are usually the first to examine the patient and identify malocclusions. A competent and confident GDP can also treat simple malocclusions like crowding, spacing, proclination and mal-alignment of the anterior teeth in adults. But it's their appropriate and timely referral of patients to specialists that helps in formulating and carrying out a treatment plan that is cost effective and proves to be most advantageous to the patient in the long run. Practitioners and specialists need to work within their competencies. Most importantly, they should inform patients of their competencies, their training and experience and be honest about the various systems of delivery and avoid making unsubstantiated claims about their treatment. The benefits as well as its limitations should be clearly explained to the patient before encouraging them to carry out any procedure³. Last but not the least, both general practitioner and specialist should work together in educating general public about the ill effects of using Do-It-Yourself over the counter appliances that are available in the market and together strive for spreading healthy and beautiful smiles.

REFERENCES

1. Roberts-Harry D, Sandy J. *Orthodontics. Part 1: Who needs orthodontics?* *Br Dent J* 2003; **195**: 433–437.
2. Jawad Z, Bates C, Hodge .who needs orthodontic treatment? Who gets it? And who wants it? *Br Dent J* 2015; **218**: 99–103.
3. Kevin O'Brien. Should general dentist provide orthodontic treatment (revisited). <http://kevinobrienorthoblog.com/should-general-dentists-provide-orthodontic-treatment-revisited/>

RETENTION IN COMPLETE DENTURE

Dr.SUJA JOSEPH (Professor,Pushpagiri college of dental sciences,Thiruvalla)

Dr.Tessa Kuriachan (2nd year MDS, Pushpagiri college of dental sciences,Thiruvalla)

Dr .Jisha.J.S (2nd year MDS, Pushpagiri college of dental sciences,Thiruvalla)

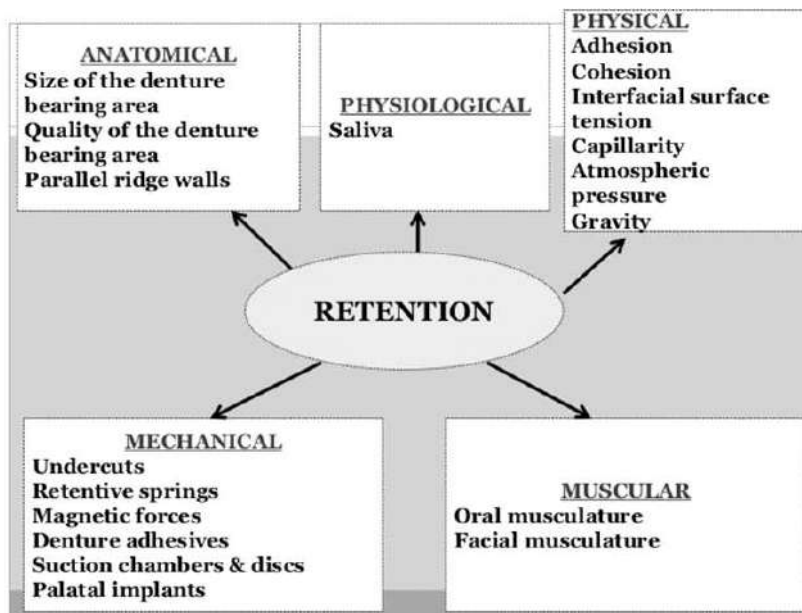
Optimal outcome of complete denture treatment depends on the successful integration of the prosthesis with the patient's oral functions plus psychological acceptance of the dentures by the patient. These parameters require that the patients perceive their dentures as stationary or well retained during function, also prostheses and their effects on the face meet the esthetic and psychodynamic requirements of the patient. The recognition, understanding, and incorporation of certain mechanical, biologic, and physical factors are necessary to ensure optimal complete denture treatment. These factors are the determinants that promote the properties of retention, stability, and support in the finished prosthesis through their influence on the relationship between the tissue surface of the denture base and the mucosal surface of the edentulous ridges. There are varied opinions in the prosthodontic literature regarding the roles played by these factors, their relative importance, and their relationship to clinical procedures. Numerous contradictory and controversial articles proposing various impression techniques have been written in an effort to achieve optimal denture retention, stability, and support.

Denture retention has been defined as 'resistance of a denture to vertical movement away from the tissues' and as 'that quality inherent in the prosthesis acting to resist the forces of dislodgement along the path of insertion'. It is clear then that

ordinarily retention is regarded as a property of the denture rather than of the patient. There is general acceptance among clinicians that to achieve retention in complete dentures there first needs to be an accurate fit of the denture base to the mucosa so that the space between the two is as small as possible. Secondly, there needs to be a border seal, which is achieved by extending the denture flanges to fill the sulci. In fact, denture retention is a dynamic issue dependent on the control of the flow of interposed fluid and thus its viscosity and film thickness, while the timescale of displacement loading affects the assessment. Surface tension forces at the periphery contribute to retention, but the most important concerns are good base adaptation and border seal. These must be achieved if full advantage is to be taken of the saliva flow-related effects.

FACTORS INVOLVED IN THE RETENTION OF DENTURES

There are various factors affecting the complete denture retention **Anatomical** (size of denture bearing area, tissue displaceability, parallel ridge walls), **Physiological** (amount and consistency of saliva), **Physical** (adhesion, cohesion, interfacial surface tension, capillarity, atmospheric pressure and gravity), **Mechanical** (undercuts, denture adhesives, suction chambers/discs, springs and magnets) and **Muscular factors** (oral and Facial musculature).



tissues. Dryness of the mouth can be related to systemic diseases, pharmacotherapy, and radiation therapy of head area structures. The denture base materials seem to stick to the dry mucous membrane of the basal seat and other oral surfaces. Such adhesion is not very effective for retaining dentures, and predisposes to mucosal abrasions

1. ANATOMICAL FACTORS

Retention increases with the increase in the size of denture-bearing area. The maxillary denture bearing area (24cm²) is larger than that of mandibular denture bearing area (14cm²). The displaceability of tissues affects the retention of dentures. Rebound tendency of tissues contribute to the loss of retention if tissues are displaced during impression making.

2. PHYSIOLOGICAL FACTORS

The amount and consistency of saliva affects retention. Thin watery saliva affords best retention whereas excessive saliva that is thick and ropy accumulates between the tissue surface of the denture and oral mucosa leading to loss of retention.

Absence of saliva (**xerostomia**) affects retention and can also cause irritation and soreness of the denture-bearing

and ulcerations due to the lack of salivary lubrication. An ethanol-free rinse containing aloe or lanolin, or a water-soluble lubricating jelly, can be helpful in this situation. Denture adhesives also provide noticeable improvement in retention and stabilization of maxillary complete dentures by providing better masticatory function and psychological comfort to patients.

3. PHYSICAL FACTORS

a) ADHESION

Adhesion is the physical attraction of unlike molecules for each other. Adhesion of saliva to the mucous membrane and the denture base is achieved through ionic forces between charged salivary glycoproteins and surface epithelium or acrylic resin. By promoting the contact of saliva to both oral tissue and denture base, adhesion works to enhance further the retentive force of interfacial surface tension. The amount of

retention provided by adhesion is proportionate to the area covered by the denture. Mandibular dentures cover less surface area than maxillary prostheses and, therefore, are subject to a lower magnitude of adhesive retentive forces.

b) COHESION

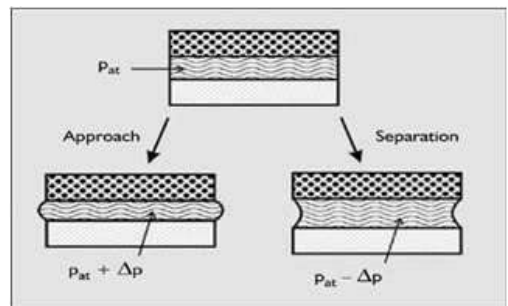
Cohesion is the physical attraction of like molecules for each other. It is a retentive force because it occurs within the layer of fluid (usually saliva) that is present between the denture base and the mucosa, and works to maintain the integrity of the interposed fluid. Normal saliva is not very cohesive so that most of the retentive force of the denture-mucosa interface comes from adhesive and interfacial factors unless the interposed saliva is modified (as it can be with the use of denture adhesive).

c) INTERFACIAL FORCE

Interfacial force is the resistance to separation of two parallel surfaces that is imparted by a film of liquid between them. A discussion of interfacial forces is best broken into separate comments on interfacial surface tension and viscous tension.

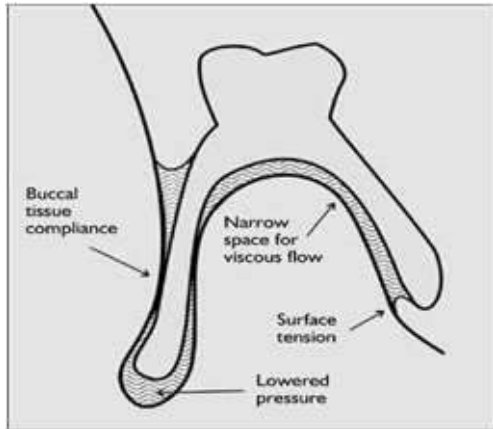
Interfacial surface tension results from a thin layer of fluid that is present between two parallel planes of rigid material. It is dependent on the ability of the fluid to “wet” the rigid surrounding material. If the surrounding material has low surface tension, as oral mucosa does, fluid will maximize its contact with the material, thereby wetting it readily and spreading out in a thin film. If the material has high surface tension, fluid will minimize its contact with the material, with the result that it will form

beads on the material’s surface. Most denture base materials have higher surface tension than oral mucosa, but once coated by salivary pellicle they display low surface tension that promotes maximizing the surface area between liquid and base. The thin fluid film between denture base and the mucosa of the basal seat therefore furnishes a retentive force by virtue of the tendency of the fluid to maximize its contact with both surfaces.



Interfacial surface tension may not play as important a role in retaining the mandibular denture as it does for the maxillary one. Interfacial surface tension is dependent on the existence of a liquid/air interface at the terminus of the liquid/solid contact: if the two plates with interposed fluid are immersed in the same fluid, there will be no resistance to pulling them apart. In many patients, there is sufficient saliva to keep the external borders of the mandibular denture awash in saliva, thereby eliminating the effect of interfacial surface tension. This is not so in the maxilla.

Interfacial viscous tension refers to the force holding two parallel plates together that is due to the viscosity of the interposed liquid. Viscous tension is described by Stefan’s law. For two parallel, circular plates



of radius r that are separated by a Newtonian (incompressible) liquid of viscosity k and thickness h , this principle states that the force (F) necessary to pull the plates apart at a velocity V in a direction perpendicular to the radius will be

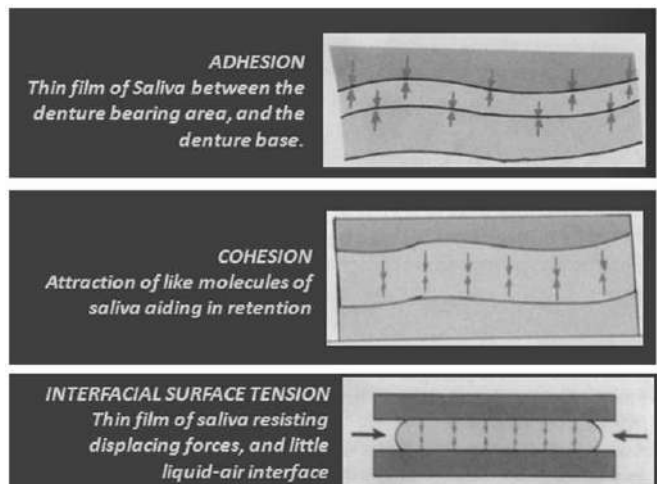
$$F = \frac{(3/2) \pi k r^4 V}{h^3}$$

The relationship expressed by Stefan's law makes it clear that the viscous force increases proportionally to increases in the viscosity of the interposed fluid. The viscous force drops off readily as the distance between the plates (i.e., the thickness of the interposed medium) increases. The force increases proportionally to the square of the area of the opposing surfaces. When applied to denture retention, the equation demonstrates the essential importance of an optimal adaptation between denture and basal seat (a minimal h), the advantage of maximizing the surface area covered by the denture (a maximum r), and the theoretical

improvement in retention made possible by increasing the viscosity of the medium between the denture and its seat. It also explains why a slow, steady displacing action (small V) may encounter less resistance and, therefore, be more effective at removing a denture than is a sharp attempt at displacement (large V).

d) ATMOSPHERIC PRESSURE

Atmospheric pressure can act to resist dislodging forces applied to dentures, if the dentures have an effective seal around their borders. This resistance force has been called "suction" because it is a resistance to the removal of dentures from their basal seat. Retention due to atmospheric pressure is directly proportionate to the area covered by the denture base. For atmospheric pressure to be effective, the denture must have a perfect seal around its entire border. Proper border molding with physiological,



selective pressure techniques is essential for taking advantage of this retentive mechanism.

e) GRAVITY

When a person is in an upright posture, gravity acts as a retentive force for the mandibular denture and a displacive force for the maxillary denture. In most cases, the weight of the prosthesis constitutes a gravitational force that is insignificant in comparison with the other forces acting on the denture. But if a maxillary denture is fabricated wholly or partially of a material that increases its weight appreciably (e.g., a metal base or precious metal posterior occlusal surfaces), the weight of the prosthesis may work to unseat it if the other retentive forces are themselves suboptimal. Increasing the weight of a mandibular denture (through the addition of a metallic base, insert, or occlusal surfaces) may seem theoretically capable of taking advantage of gravity.

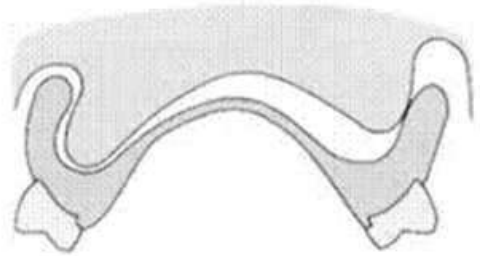
4. MECHANICAL FACTORS

a) UNDERCUTS, ROTATIONAL INSERTION PATHS, AND PARALLEL WALLS

The resiliency of the mucosa and submucosa overlying basal bone allows for the existence of modest undercuts that can enhance retention. Although exaggerated bony undercuts or less overt ones covered by thin epithelium may compromise denture retention by necessitating extensive internal adjustment of the denture, less severe undercuts of the lateral tuberosities, maxillary premolar areas, distolingual areas, and lingual mandibular midbody areas can be extremely helpful to the retention of the prosthesis. Unilateral undercuts aid in retention while bilateral undercuts will interfere with denture insertion and require

surgical corrections.

Bilateral undercut

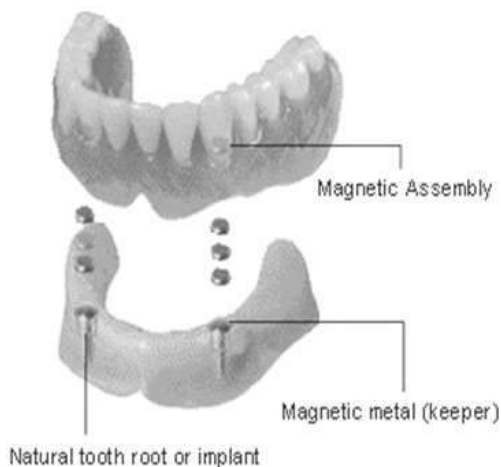


Prominent alveolar ridges with parallel buccal and lingual walls may also provide significant retention by increasing the surface area between denture and mucosa and thereby maximizing interfacial and atmospheric forces. Prominent ridges also resist denture movement by limiting the range of displacive force directions possible.

b) MAGNETS ,SUCTION DISCS/ CHAMBERS,SPRINGS

Earlier small steel magnets were used to aid in retention, embedded beneath the molar and premolar teeth arranged with similar poles opposing each other. In theory the repulsive force will keep both dentures in place but in practice repulsive effect is undetectable when the dentures are separated by more than one or two millimetres.

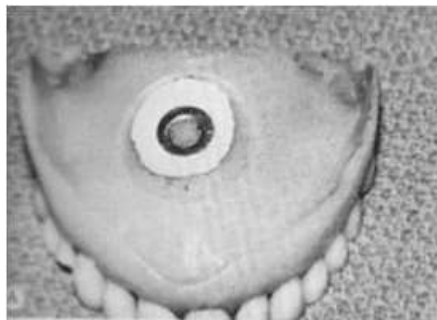
Rubber suction disc are buttoned on to a stud sunk into the fitting surface of a denture. the partial vacuum created within the perimeter of this disc holds the upper denture suspended from the hard palate. These suction discs are not used nowadays because of the constant irritation it causes which can result in the perforation of hard



Magnets are completely sealed within the denture underneath the back posterior teeth and are non-allergenic.



palate and in some cases resulting in malignant tumor(epithelioma)



Retentive springs are made of coiled stainless steel or gold-plated base metal and have their ends attached to swivels in the premolar areas on both sides of the upper and lower denture. The dentures are thus permanently attached to each other and are held in occlusion for insertion into mouth. Recently nylon springs are also used which thin and reduces food lodgement. These springs have the disadvantages of being unhygienic and causes excessive alveolar resorption.

ADJUNCTIVE RETENTION THROUGH THE USE OF DENTURE ADHESIVES

Complete denture treatment needs to be customized for each patient's particular needs. Successful treatment combines exemplary technique, effective patient rapport and education, and familiarity with all possible management options in order to provide the highest degree of patient satisfaction. Satisfying the expectations of all patients for optimal denture retention and stability is often beyond the technical skills of even the most accomplished practitioners. Commercially available denture adhesives are products that have the capacity to enhance treatment outcome. Denture adhesives add to the retention and

thereby improve chewing ability, reduce any instability, provide comfort and eliminate the accumulation

of food debris beneath the dentures. Consequently, they increase the patient's sense of security and satisfaction. However, denture adhesives should not be used as a method to improve retention in an improperly fabricated ill-fitting denture, and under any circumstances excessive amounts of denture adhesive should be indicated.

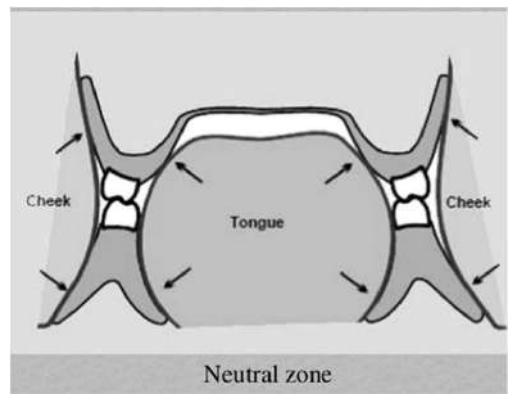
The composition of most modern denture adhesives includes constituents that promote bioadhesion via carboxyl groups once the adhesive is hydrated. Two commonly employed active ingredients in denture adhesives are poly [vinyl methyl ether maleate] and carboxymethylcellulose. Denture adhesives are available as powder and cream, the choice between cream and powder is largely subjective. Once placed on the intaglio surface of the denture, the adhesive material must be substantially hydrated in order to achieve optimal performance. It is equally important to educate patients regarding an effective method for adhesive removal from denture surfaces and oral tissues on a regular basis.



5. ORAL AND FACIAL MUSCULATURE

The oral and facial musculature supply supplementary retentive forces, provided (1)

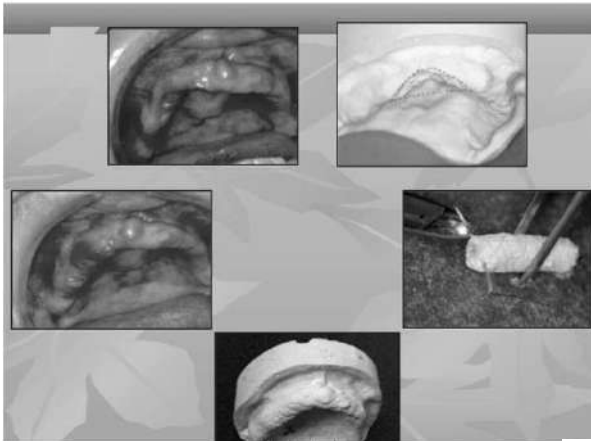
the teeth are positioned in the “neutral zone” between the cheeks and tongue and (2) the polished surfaces of the dentures are properly shaped. The shape of the buccal and lingual flanges of the denture must make it possible for the musculature to fit automatically against the denture and thereby to reinforce the border seal.. If the buccal flanges of the maxillary denture slope up and out from the occlusal surfaces of the teeth and the buccal flanges of the mandibular denture slope down and out from the occlusal plane, the contraction of the buccinators will tend to seat both dentures on their basal seats. The base of the tongue also may serve as an emergency retentive force for some patients. It rises up at the back and presses against the distal border of the maxillary denture during incision of food by the anterior teeth.



ENLARGEMENT OF DENTURE-BEARING AREAS

A. RIDGE AUGMENTATION

It is a surgical procedure where in width and height of the residual ridge is increased by placing the bone material or alloplast material or a combination of both.



Materials used :

Bone and cartilage

Alloplast materials:

Proplast, hydroxy apatite, tricalcium phosphate

Augmentation by bone grafts adds strength to an extremely deficient mandible or maxilla and improves the contour of the available bone. Autogenous grafts from an iliac or rib source are the most biologically acceptable but they require an additional extensive surgery at the donor site. The use of hydroxyapatite alloplastic material eliminates the donor site surgery but poses problems of resorption.

In general grafting and just complete dentures are not recommended as they are a major consideration with respect to cost, success rate, and procedures involved, especially for the elderly. Currently grafts have been combined with osseointegrated implants and have shown promising results.

B. VESTIBULOPLASTY

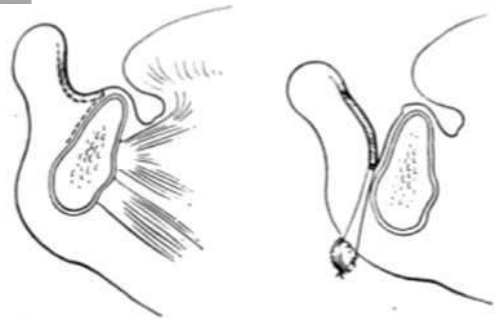
It is a surgical procedure designed to restore

alveolar ridge height by lowering muscles attaching to the labial, buccal and lingual aspects of the jaws.

Purpose:

- To obtain more denture extension
- Reposition the muscle attachment to obtain more support for the prosthesis

Anterior sulcus slide



CONCLUSION

Complete maxillary and mandibular dentures have long been considered the standard of care for treating edentulous patients. While most edentulous patients express relative satisfaction with their maxillary complete dentures, many do not enjoy equally successful mandibular denture comfort and function. The use of endosseous dental implants to assist in the support, stability, and retention of removable prostheses is now considered an effective treatment modality for the edentulous patient. Individuals wearing implant-assisted overdentures typically report improved oral comfort and function when compared to conventional, mucosa-supported prostheses.

Complete denture retention is, in part, influenced by denture occlusion. Most denture wearers consciously or subconsciously perform random, empty-mouth occlusal contacts throughout the day. These contacts may result from functional activity (e.g., swallowing) or parafunction (e.g., bruxism or clenching). A bilaterally balanced denture occlusion is intended to minimize the adverse consequences of functional and parafunctional empty-mouth loading by widely distributing these forces to the denture bearing structures. Therefore, a properly balanced denture occlusion may serve to dampen potentially detrimental occlusal forces acting to disrupt denture stability. A balanced occlusion is dependent on effective clinical and laboratory procedures. Accurate and precise registration of maxillomandibular relationships, meticulous articulation of master casts, careful positioning of denture teeth, and correct processing of denture bases must be accomplished. Both laboratory and clinical remount procedures are essential if optimal occlusal balance is to be achieved prior to delivery of the prostheses. Finally, periodic recall of all edentulous patients allows reevaluation of the denture occlusion; a clinical remount can be performed when correction is indicated.

Irrespective of the underlying reasons for the patient's dissatisfaction with the prosthesis, dentist must realize that a patient's judgement of the treatment outcome is what defines prosthodontic success. Though complete denture retention is a complex phenomenon, it is every patient's invariable need that the prosthesis stays firm & stable during function & hence every possible attempt should be made by

the dentist to achieve it. Ultimately, the central factors for the success of a denture depend primarily on the quality of the fit of the denture to soft tissue. This in turn hinges on the impression technique and subsequent denture base design and fabrication.

AVERSIVE CONDITIONING : TO DO OR NOT

Nikku Mariam Sunny – Intern – Pushpagiri College of Dental Sciences

Swetha Sreedhar – Intern – Pushpagiri College of Dental Sciences

Dr. Elizabeth Joseph – Professor and Head of Dept of Pedodontics – Pushpagiri College of Dental Sciences

INTRODUCTION

Dental care is medically necessary for the purpose of preventing and eliminating orofacial disease, infection, and pain, restoring the form and function of the dentition, and correcting facial disfiguration or dysfunction and behavior guidance techniques, both nonpharmalogical and pharmalogical, are used to alleviate anxiety, nurture a positive dental attitude, and perform quality oral health care safely and efficiently for infants, children, adolescents, and persons with special health care needs.

Behaviour Management is widely agreed to be a key factor for the efficient and effective treatment of children in dentistry .Correct

behavior management for a child in the clinic results in an adult who has a long term positive attitude towards dental hygiene and maintainance .

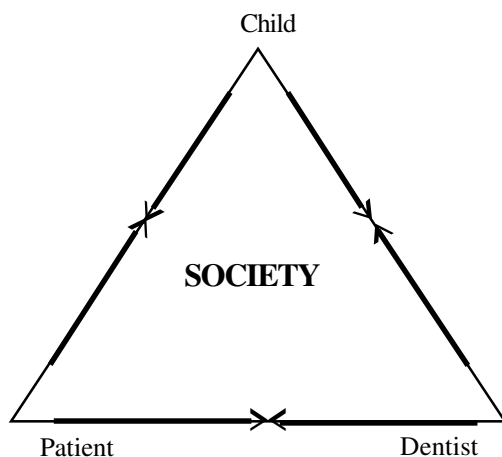
Major difference between the treatment of children and adult is the relationship between patient ,parent and dentist. As for adults , it is one to one whereas for child patient it is one to two relationship as described by Paedatric treatment triangle (Wright ,1975)

A good relationship between the child patient and dental team is established by effective communication,allowing an empathic relationship and showing keen interest in the child .

According to the principles of autonomy , the patient should have the right to decide about matters that concerns him/her. Children are not free standing agents .They belong to a social unit in which parents usually make the final decisions .

American Association of Paedatric Dentistry (AAPD) have lately incorporated society in Paediatric treatment triangle which make the clinician under scrutiny of society in which patient and clinician are seen as consumer units.

Behaviour can be defined as an observable act which can be described in similar ways by more than one person . There are many classification and techniques of behaviour management More appropriately behaviour guidance is what is being used and followed recently which is the process by which practitioners help patients identify appropriate and inappropriate behaviour ,learn problem solving strategies and develop impulse control



Pedodontic Treatment Triangle

,empathy and self –esteem . This process is a continuum of interaction involving the dentist and dental team , the patient and parent .Its goal are to establish communication ,alleviate fear and anxiety ,deliver quality dental care, build a trusting relationship between dentist /staff and child /parent and promote the child's positive attitude toward oral health care .(1)

Behaviour guidance should never be punishment for misbehaviour ,powerassertion or use of any strategy that hurts , shames or belittles a patient .

Behaviour guidance technique are classified as Basic and Advanced .

Basic behaviour guidance techniques are

Communication and communicative guidance

Positive pre –visit imagery

Direct observation

Tell –show – do

Ask –tell –ask

Voice Control

Non verbal communication

Positive reinforcement and descriptive praise

Distraction

Memory restructuring

Parental presence /absence

Nitrous oxide /oxygen inhalation

Advanced behaviour guidance are :

Protective stabilization

Sedation

General anesthesia

Approaches for behavioural guidance changed considerably during the second half of 20th

century , with an increasing emphasis on communication and empathic skills .(2)

Every clinician should note that AAPD has removed aversive conditioning which had been previously followed as an acceptable technique .Modern literature has debated a lot about aversive conditioning not only because of the ethical issues involved but also because it is such an effective tool of achieving instant change in the child's behaviour that is likely to be misused beyond its actual need .(3)

Aversive conditioning is a form of behaviour therapy in which an aversive stimulus which is an object or event that causes strong feelings of dislike or disgust is paired with an undesirable behaviour in order to reduce or eliminate that undesirable behaviour . Main purpose of aversive conditioning is to gain the attention of a highly oppositional child so that communication can be established and cooperation can be obtained for a safe course of treatment .

Aversive conditioning is indicated in Healthy child of 3-6 years old who displays defiance and hysterical behavior,

Child who can understand simple verbal commands

Child displaying an uncontrollable behaviour

It is contraindicated in children under 3 years of age , physically , mentally and emotional handicapped children .

Common techniques include

HOME (Hand Over Mouth Exercise)

Physical restraints

Parental absence

It is important that dentists have a wide range of behaviour guidance techniques to meet the needs of the individual child and to be tolerant

and flexible in their implementation

It has been pointed out that the use of aversive conditioning techniques will not subject the dentist to liability when it is used properly with prior parental consent to treat is obtained .

Oueiss et al. (2010) surveyed members of AAPD ,finding that 350 of 704 respondents (50%) believed that HOME was an acceptable technique . Similar findings were obtained by Newton et al.(2004), who surveyed pediatric dental specialists in the United Kingdom.While 60% were of the opinion that HOME should never be used , 40% favoured its use under certain conditions. (3)

Immediate management of this type lessens the likelihood of the behaviour recurring (Azrin et al. 1963). Chambers (1970) ,Craig (1972), and Levitas (1974) pointed out that once the desired behaviour is elicited by the HOME , reward conditioning procedures are instituted immediately . Child is given social verbal reinforcement for behaving properly .Tangible rewards can be given at the end of the visit .(3)

HOME technique became controversial , because of the apparent harshness of the technique . Some contended that the management method is unscientific and that it could possibly cause psychological trauma to the child patient (Davies and King 1961;MacGregor 1952). No scientific data has ever been presented to support this viewpoint.(3)

Indeed , the opinions of psychiatrists and psychologists were opposite and they advocated for HOM usage (Goering 1972 ; Chambers 1970)

In 1987 Schuman reported that several dentists who had used HOME had been charged with child abuse or criminal assault

following routine dental procedures .Thus dentists became very concerned about its use in their practices .

However majority of pediatric dentists , still use some form of physical restraints . Emphatically pushing a hand downward which had been raised intentionally to interfere with treatment or resisting a child and forcibly seating the patient in the dental chair are forms of restraint.Barton et al (1993) contend that ,used properly, the technique can be kind and effective . (3)

Protective stabilization ,or restraint in the dental setting is the act of physically limiting the body movements of the child to facilitate dental procedures and decrease possible injuries to the child and /or dentist (Roberts et al .2010) A wide range of techniques and devices have been used in the past to accomplish restraint , ranging from holding a child's head with one hand to a whole body wrap , Pappose board , or bed sheet .(Frankel 1991) (3)

Informed consent should be taken even though its considered to be time consuming and unnecessary. Decisions regarding the use of behaviour guidance techniques other than communicative management cannot be made solely by the dentist.They must involve a parent , and if appropriate ,the child .(1)

Informed consent would allow parents to take responsibility for their childrens actions by indicating circumstances under which the dentist will not be able to provide necessary care with safety unless certain techniques are applied .All behaviour guidance techniques require informed consent consistent with the AAPD Guideline on Informed Consent and applicable state laws , (1)

CONCLUSION

Application of Behaviour guidance techniques

requires skills in communication , empathy, tolerance , flexibility and active listening . As such ,behaviour guidance is a clinical art form and a skill built on a foundation of science (4). Thus dental practitioners are expected to be aware of behaviour guidance techniques during handling of child dental patients and to utilize these techniques consistent with their level of professional education and clinical experiences and to be updated timely with relevant changes in Guidelines issued by authoritative bodies . In 2006 Aversive Conditioning was no longer endorsed by the AAPD .However a guideline is a standard to help one determine the course of action .It is not legally binding ,nor does it restrict practice and HOME continues to be used even today.In some countries it is accepted , in others the acceptability is not even discussed. There are countries where pediatric dentists are legally prevented from using pharmacological approaches and have limited alternatives for managing their child patients . For these reasons , it was decided not to completely eliminate aversive conditioning techniques and it should be used judiciously with prior consent and proper technique .

‘It is easier to build strong children than to repair broken man ‘ – Frederick Douglass

REFERENCES

1. AAPD Guidelines on Behaviour Guidance for a Paediatric Dentist .
- 2 .Rogers C R-A theory of therapy, personality and interpersonal relationships . 1959
3. Gerald Z Wright and Ari Kupietzky – Behaviour management in dentistry for children (2nd Edition)
4. American Academy on Paediatric dentistry council on Clinic Affairs Guidelines on Behaviour Guidance for Paediatric Dental patient .2015

St Apollonia he Patron Saint of Dentistry

Dr Elizabeth Joseph, Pushpagiri College of Dental Sciences

Patron saints are chosen as special protectors or guardians over areas of life. These areas can include occupations, illnesses, churches, countries, causes — anything that is important to us. The earliest records show that people and churches were named after apostles and martyrs as early as the fourth century.

The purpose of a Patron saint is two-fold.

- One purpose is that they are someone to use as a model - to pattern our behavior after them in a certain area of our life, or, as the article says, we can follow their example.
- The other is that we can turn to them for intercessory prayer.

The invocation of patron saints is based on the concept that deceased Christians who were notable during their lives for virtue can aid living persons today by interceding with God for special graces and material favors.

Jesus Christ and the apostolic church imitated the Jewish practice of citing the patriarchs as exemplars of particular virtues;

Solomon for his wisdom (Matthew 6:29; Luke 12:27)

Abraham for his faith (Hebrews 11:57).

Because many of these martyrs were identified with the power of faith in a particular city or region, their bodily remains were buried in places of honor when the persecutions ended. Moralistic accounts of the virtues of the deceased saint were recorded, and on the anniversary of his or her death, rituals were celebrated reminding the public of the saint's virtue..

St Apollonia

Apollonia was born in Egypt in the 3rd

century, and died in the year 249. She was an elderly deaconess, living in Alexandria, in a refuge for Christians. She was martyred for not renouncing her faith during the reign of Emperor Philip. The account of the life of St. Apollonia was written by St. Dionysius

Saint Apollonia



Saint Apollonia, by Francisco de Zurbarán Museum of Louvre, from the Convent of the Order of Our Lady of Mercy and the Redemption of the Captives Discalced of Saint Joseph (Seville).

Virgin & Martyr

Born	2nd century
Died	249
	Alexandria, Egypt
Venerated in	Coptic Orthodox Church
	Eastern Orthodox Churches
	Oriental Orthodox Churches
	Roman Catholic Church
Feast	February 9 (Meshir 2)

to Fabian, Bishop of Antioch. One night, angry pagans began a riot and violently attacked believers of the faith. Apollonia had all her teeth knocked out after being hit in the face by a Christian persecutor. After she was threatened with fire unless she renounced her faith, Apollonia said a prayer and jumped into the flames voluntarily". She is considered the patron of dental diseases and is often invoked by those with toothaches. Ancient art depicts her with a golden tooth at the end of her necklace. Also in art, she is seen with a pincers holding a tooth. Parts of her jaw and many of her teeth are presently housed in churches across Europe. Her feast day is February 9th.

she is popularly invoked against the toothache because of the torments she had to endure. She is represented in art with pincers in which a tooth is held. In a late 14th-century illumination from a French manuscript, the tooth in her pincers glows from within, like a lightbulb.

The major part of her relics are preserved in the former church of St. Apollonia at Rome. These relics consist in some cases of a solitary tooth or a splinter of bone. In the Middle Ages, objects claimed to be her teeth were sold as toothache cures. During the reign of Henry VI of England, several tons of these purported teeth were collected in an effort to stop the scam.

There was a church dedicated to her in Rome, near the Basilica di Santa Maria in Trastevere, but it no longer exists. Only its little square, the *Piazza Sant'Apollonia* remains. One of the principal train stations of Lisbon is also named for this saint. There is a statue of Saint Apollonia in the church at Locronan, France. The island of Mauritius was originally named *Santa Apolónia* in her honor in 1507 by Portuguese navigators. A parish church in Eilendorf, a suburb of Aachen, Germany, is named in honor of Saint Apollonia.

The Madonna Della Strada Chapel at Loyola University Chicago contains a stained glass window on the north wall depicting St. Apollonia. The windows along this wall correspond with the colleges of the university at the time the chapel was built. The Loyola University School of Dentistry closed in 1993, but the window in the chapel remains.^[7]

Prayer to St. Apollonia

*Patron Saint of Dentistry - Feast Day
February 9*

O glorious Apollonia, patron saint of dentistry and refuge to all those suffering from diseases of the teeth, I consecrate myself to you, asking you to count me among your clients. Assist me by your intercession with Christ in my daily work and intercede with Him to obtain for me a devout life. Pray that my heart like your's may be inflamed with the love of Jesus and Mary, through Christ our Lord. Amen.

*O my God, bring me safely
through temptation and strengthen me as
You did our patron Apollonia, through
Christ our Lord. Amen.*

COMPLEX ODONTOMA - A CASE REPORT

Bibin Intern Pushpagiri College of Dental Sciences

INTRODUCTION

The term 'odontoma', by definition alone, refers to any tumor of odontogenic origin. Through usage, however, it has come to mean a growth in which both the epithelial and the mesenchymal cells exhibit complete differentiation, with the result that functional ameloblasts and odontoblasts form enamel and dentin. This enamel and dentin are usually laid down in an abnormal pattern because the organization of the odontogenic cells fails to reach a normal state of morphodifferentiation. Most authorities accept the view today that the odontoma represents a hamartomatous malformation rather than a neoplasm.

According to the 2005 classification of the World Health Organization(WHO) two types of odontoma (a) compound odontomas that usually are unilocular lesions containing multiple radiopaque ,miniature tooth-like structures known as denticles ;and (b) complex odontomas that consist of an irregular mass of hard and soft dental tissues. Compound odontomas are approximately twice as common as complex Odontomas large odontomas are associated with local disturbances such as the eruption delay of permanent teeth and the development of cystic lesions as dentigerous cysts.

The etiology of the odontoma is unknown. It has been suggested that local trauma or infection may lead to the production of such a lesion. This is entirely possible, but it would appear more likely that in such an event hypoplasia would be the end result, depending upon the stage of odontogenesis. There is no seeming predilection for occurrence of the odontoma in particular sites of the oral cavity; it does not appear to be associated especially with supernumerary teeth, as might be suggested were it to occur with great frequency between the maxillary central incisors or distal to the maxillary third molar.

It has been suggested by Hitchin that odontomas are either inherited or are due to a mutant gene or interference, possibly postnatal, with the genetic control of tooth development. On the other hand, Levy has reported the experimental production of this lesion in the rat by traumatic injury.

Case report

A 10 year old male patient came to the Department of Pediatric Dentistry with chief complaints of unerupted upper front teeth. On past dental history he had uneventful extraction of corre-



sponding deciduous teeth 1.5 years before. On general examination patient had no abnormality detected. On clinical examination unerupted tooth in relation to 21. There was no swelling and non tender on palpation in relation to 21. We advised for intra oral periapical radiograph. IOPA Shows that radio opaque conglomerated mass in the incisal region of unerupted 21 suggestive of complex odontoma. So we place a crestal incision extending from 11 to 22, And full thickness flap raised we exposed the odontoma and removed, under local anesthesia. Then wound closure

Discussion

Complex odontoma most commonly seen in posterior jaws but in this case it is seen in the upper anterior region. So it is a rare case report. Compound odontoma is the one that most commonly seen in the anterior maxilla but it look like a tooth, in this case it does not look like a



tooth. Because of this compound odontoma, tooth in relation to 21 was not erupted so we decided to remove complex odontoma. Complex odontoma which is lined by epithelium in this case which also remove along with the odontoma.

Complex odontoma with dentigerous cyst is reported in numerous cases. So the importance of removal of complex odontoma along with epithelium relevant.

Although they are usually asymptomatic and often detected on routine radiographs clinical indicators of odontoma may include retention of deciduous teeth, non-eruption of permanent teeth, expansion of the cortical bone and tooth displacement. While few presented with other symptoms include paresthesia of the lower lip, headache in the frontal area of the skull and swelling in the affected area, pain associated primarily with odontomas seems rather rare

The radiological appearance of complex odontoma depends on their stage of development and degree of mineralization. The first stage is characterized by radiolucency due to lack of calcification. Partial calcification is observed in the intermediate stage, while in the third stage the lesion usually appears radiopaque with amorphous masses of dental hard tissue surrounded by a thin radiolucent zone corresponding to the connective capsule histologically

Conclusion

This is the case of complex odontoma which was unerupted also which prevent the eruption 21. Which was completely asymptomatic only complaint was unerupted 21. The author points towards the routine radiographic examination for early detection and prevents further complication.



CDE PROGRAMME



**INAUGURATION OF FREE
DIALYSIS PROJECT -
"SPARSHAM 2017"**



NO TOBACCO DAY



DENTIST DAY CELEBRATION



FAMILY GET TOGETHER, VAGAMON



CDE PROGRAMME



CDE PROGRAMME



INSTALLATION OF OFFICE BEARERS - 2018



**COMMUNITY PROJECT @
TRIBAL COLONY ATTATHODU**



**CHRISTMAS CAROL
ROUNDS - 2017**