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Journal of Interdisciplinary Dental Sciences

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Executive Editorial

It is indeed a matter of immense pleasure for me to bring this new issue of our Institutional Journal with an increasing number of manuscripts which we are getting to be published in a short span of time.

With this, I expect the readers will be satisfied and the manuscripts selected will be appreciated by them. I wish the journal goes high in its reach simultaneously expressing my desire for their support for the journal. Not to mention, mistakes do creep in despite stringent precautions. So, I request the support of all the readers. I also want to invite all for suggestions in improving the journal so that our dream of getting an intellectual boost is met shortly.

With best regards,
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Sella Turcica Bridging: A new Orthodontic Diagnostic Tool at Horizon

Dr. Aniket Jogdand, Dr. Sameer Parhad***

Abstract:

Introduction: This study is a retrospective cephalometric study undertaken to find out the association between various dental anomalies in patients with sella turcica bridging.

Methods: The material consisted of lateral cephalometric radiographs taken for 500 patients. For all the patients the same cephalostat was used which is SERONA ORTHOPHOS XG5 DIGITAL Panaromic unit. Out of 500 randomly selected profile radiographs of orthodontic patients 30 patients had the finding of sella bridging. Out of these 30 patients 17 had Type A bridging while 13 had Type B bridging. This study included 18 females and 12 males among 30 patients. The following parameters were considered: the geographic location of the patient, skeletal pattern, Angles molar relation, crowding, spacing, proclination, overjet, overbite, diastema, crossbite, scissorbite, rotation, midline shift and other features.

Results and Conclusion : The highest association of sella bridging is with the following dental conditions: Proclination, rotations and crowding.

Hence in this study we evaluate the percentage of patient with sella bridging and observe the extent and incidence of various malocclusions present in them.

Keywords : Sella turcica bridging, orthodontic diagnosis

Introduction:

The sella turcica is an important anatomical structure lying in the middle cranial fossa. Sella, a saddle shaped area of bone is located on the intra cranial surface of body of sphenoid and consists of a central pituitary fossa bounded anteriorly by the tuberculum sellae and posteriorly by the dorsum sellae. The two anterior and two posterior clinoid processes project over the pituitary fossa.

The sella anatomy is variable and classified into 3 types: round, oval or flat[1]. Variations in the size and shape of the clinoid processes are common. The anterior clinoid processes are larger and more variable. The fusion of the posterior and anterior clinoid processes is known as a 'sella turcica bridge.'[2,3]

These bridging may also arise due to ossification of the ligaments around the sella turcica[1].

Sellar bridges can develop unilaterally or bilaterally and can vary in frequency. The interclinoid ligament is potentially the background to the formation of an irregular osseous structure as a result of soft tissue calcification.

There are two types of sella bridging[3,11]:

Type A which features ribbon like fusion and

Type B is represented by bony extension of the anterior or posterior clinoid process such that they meet or superimpose across the pituitary fossa.

A number of studies[4] have described skeletal abnormalities and normal variants on cephalometric radiographs and some of these have dealt with the calcification of the interclinoid ligament as a clear tendency towards a greater frequency of sella turcica bridge has been described in patients with severe craniofacial deviations.

An altered morphology of the sella turcica seems to be caused by congenital malformation and bridging is also present in patients with various disorders and syndromes[5,6].

Need for the study:

In healthy subjects the occurrence of sella bridging ranges from 3.8-13%[6]. These patients have

no syndrome or any functional anomaly which can be related to the sella bridging.

Hence to evaluate the association of the dental anomalies in such asymptomatic sella bridging cases this study was undertaken.

Formation and development of sella turcica and teeth share in common the involvement of neural crest cells[6,7]. The anterior part of the sella turcica is believed to develop from neural crest cells and dental epithelial progenitor cells differentiate through sequential and reciprocal interaction with neural crest derived mesenchyme.

Inspite of this developmental relationship no study has been undertaken to examine the presence of any association between a sella turcica bridge and dental anomalies.

Hence this retrospective study was performed to find out the presence of a sella turcica bridge and evaluate its association with the dental anomalies.

Materials and methods:

The material consisted of lateral cephalometric radiographs taken at Saraswati Dhanwantari Dental College & Hospital, Parbhani. Out of 500 randomly selected profile radiographs of orthodontic patients 30 patients had the finding of sella bridging. Out of these 30 patients 23 had Type A bridging while 7 had Type B bridging.

From each case file, the profile radiograph that had the clearest reproduction of the sella turcica was selected. In instances where several profile radiographs had been taken over a period of years, no changes in the shape of the sella turcica were seen and the selection was based purely on technical considerations, such as contrast and sharpness of the radiographs.

The profile radiographs were taken with the patients in a cephalostat with ear rods and a light source for adjustment of the head posture. For all the patients the same cephalostat was used which was SERONA ORTHOPHOS XG-5 DIGITAL Panaromic unit.

One profile radiograph from each patient was examined by at least two observers. The radiographs where fusion of the anterior and posterior structures of the sella turcica was visible radiographically were selected.

This study had a sample size of 30 including 18 females and 12 males.

The following parameters were considered and evaluated in all the patients with bridging:

1. The geographic location of the patient.
2. Skeletal pattern
3. Angles molar relation
4. Crowding
5. Spacing
6. Proclination
7. Overjet
8. Overbite
9. Diastema
10. Crossbite
11. Scissorbite
12. Rotation
13. Midline shift
14. Any other significant finding apart from the aforementioned findings.

The parameters which were also subdivided for individual arch evaluation (for maxillary and mandibular teeth separately) were:

1. Crowding
2. Spacing
3. Proclination
4. Diastema
5. Rotation
6. Midline shift.

The statistical data was analyzed by means of chi square test and a p value of less than 0.05 was considered to be significant.

Results:

Data showing the association of the considered dental malformations in patients with bridging is shown:

Feature	Male	Females	Overall %
Cl I skeletal pattern	6	4	33.33%
Cl II skeletal Pattern	7	9	53.33%
Cl III skeletal pattern	2	2	13.33%
Angles Cl I	10	7	56.66%
Angles Cl II (with distal end on)	5	6	36.66%
Angles Cl III (with mesial end on)	1	1	6.66%
Crowding	12	9	70.00%
Spacing	5	7	40.00%
Proclination	15	12	90%
Overjet	3 12 2	2 8 3	↓ 16.66% ↑ 66.67% N 16.66%
Overbite	5 8 3	6 6 2	↓ 36.66% ↑ 46.66% N 16.66%
Diastema	6	7	43.33%
Crossbite	6	3	30%
Scissor bite	5	4	30%
Rotations	15	10	83.33%
Midline shift	7	10	56.66%

As for the feature of geographic location of the patient: out of the 30 patients:

28 were from Bangalore,

1 was from Orissa and 1 was from Kerala.

As all the 30 positive cases of sella bridging were from the same randomly selected sample (and hence there is no control group) we can directly compare the results based on the percentage of each parameter thus obtained.

When further subdivision of the parameters was done to quantitatively know the difference between the maxillary and the mandibular dentitions and to know if any significant relation is present as also related to the sex of the individual, the following results were obtained:

1. Crowding :

Total cases = 21 (m=12,f=9)

	Males	Females	Chisqaure	'p' value
Maxillary teeth	10 (83.3%)	8 (88.9%)	0.12	0.725
Mandibular teeth	8 (66.6%)	5 (55.6%)	2.35	0.1249
Chisqaure	0.12	2.35		
'p' value	0.725	0.1249		

2. Proclinaton:

Total cases= 27 (m=15,f=12)

	Males	Females	Chisqaure	'p' value
Maxillary teeth	15 (100.0%)	12 (100.0%)		
Mandibular teeth	13 (86.7%)	9(75.0%)	0.58	0.446
Chisqaure	2.07	3.29		
'p' value	0.150	0.069		

3. Diastema:

Total cases= 13 (m=6,f=7)

	Males	Females	Chisqaure	'p' value
Maxillary teeth	4 (66.7%)	5 (71.4%)	0.03	0.8585
Mandibular teeth	3 (50.0%)	3 (42.9%)	0.06	0.8045
Chisqaure	0.31	4.00		
'p' value	0.575	0.045		

4. Rotations:

Total cases= 25 (m=15,f=10)

	Males	Females	Chisqaure	'p' value
Maxillary teeth	13 (86.7%)	8 (80.0%)	0.19	0.6625
Mandibular teeth	12 (80.0%)	7 (70.0%)	0.32	0.5741
Chisqaure	0.23	0.25		
'p' value	0.630	0.6147		

5. Midline shift:

Total cases = 17 (m=7,f=10)

	Males	Females	Chisqaure	'p' value
Maxillary teeth	2 (28.6%)	3 (30.0%)	0.00	0.9508
Mandibular teeth	5 (71.4%)	7 (70.0%)	0.00	0.9508
Chisqaure	2.39	3.04		
'p' value	0.1222	0.0812		

6. Spacing:

Total cases= 12 (m=5,f=7)

	Males	Females	Chisqaure	'p' value
Maxillary teeth	2 (40.0%)	3 (42.9%)	0.01	0.9245
Mandibular teeth	4 (80.0%)	5 (71.4%)	0.10	0.7461
Chisqaure	1.50	1.00		
'p' value	0.2206	0.2979		

Interpretation:

Hence from the above obtained results it can be concluded that the highest correlation of sella bridging is with the following dental conditions:

1. Proclination which is followed by
2. Rotations and lastly
3. Crowding.

Most of the cases selected in the study had a skeletal Cl II pattern with Angles Cl I molar relation.

In terms of the antero-posterior, vertical relation and transverse relation, maximum number of patients with sella bridging had an increased overjet and an increased overbite. The percentage of cases with crossbites and scissorbites were equal but showed a higher percentage in the male population. While skeletal Cl II pattern and Angles Cl II molar relationship (with distal end on) was more commonly seen in the female patients, the difference found was not statistically significant ($p>0.05$, hence not shown).

In the case of subdivision of parameters to compare the distribution in males and females and in the maxillary and the mandibular dentition, females showed increased incidence of diastema than the male population and it was found to be statistically significant ($p=0.045$). However no significant difference was observed between the distribution of crowding, proclination, midline shift, rotations or spacing either between male and female or between the upper and lower arch distribution.

Discussion:

In this study the occurrence of dental malocclusions were investigated in patients with a sella turcica bridge. A study of this type does not appear to have been performed before.

Calcification of diaphragma sellae, which radiologically has been described as 'roofing' or 'bridging' of the sella, in the absence of clinical signs or symptoms, is considered a normal variant of the sella turcica[8], although many pathological processes can be associated with this calcification.

As far as etiology is concerned, it has been suggested that an interclinoid ligament is laid down in cartilage at an early stage of development and then ossifies in very early childhood. This ossification can be due to the complex embryology of the sphenoid bone[9,10,11]. According to this theory, a sella turcica bridge should be considered a developmental anomaly.

Moreover, as the area anterior to the sella turcica in the early embryonic period develops predominantly from neural crest cells, any structural deviations in the anterior wall are believed to be related to specific deviations in the facial skeleton[6].

As discussed above in healthy subjects the occurrence of sella bridging ranges from 3.8-13%.

Incidence of bridging has been reported in anatomical and radiographic studies. Direct measurement of the skull and inspection at autopsy found an incidence of bridging of 5.5% and 6%, respectively, whereas a 4.6% incidence has been reported based on radiographic examination[3].

Sella turcica bridging has been classified into two types depending on the type of fusion of the anterior and posterior clinoid processes.[3,11]

Type A :

Features ribbon like fusion.

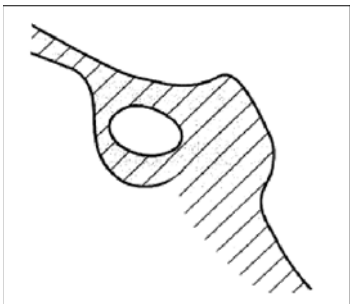
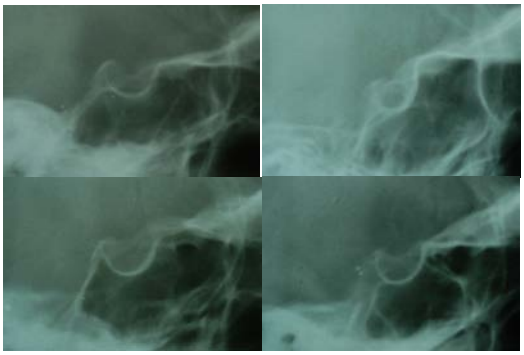


Figure explaining Type A sella turcica bridge



Examples of Type A bridging seen in this study

Type B:

This type of fusion is represented by bony extension of the anterior or posterior clinoid process such that they meet or superimpose across the pituitary fossa.

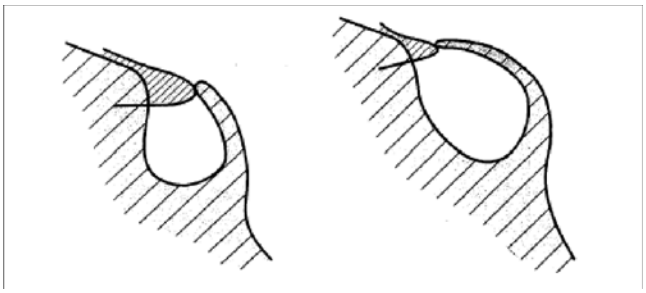
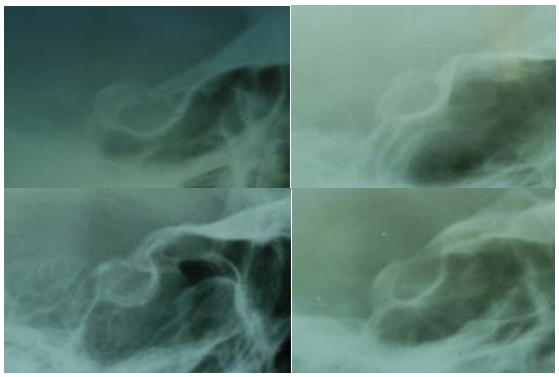


Figure explaining Type B sella turcica bridging



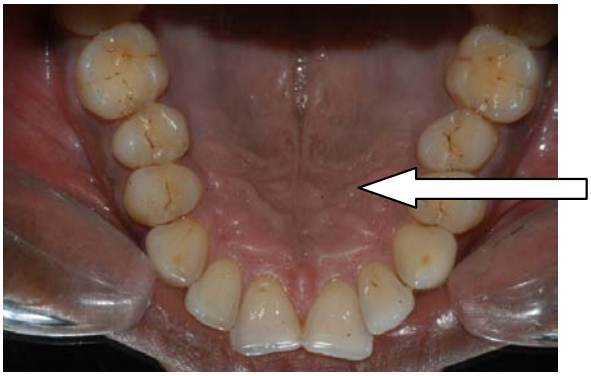
Examples of Type B bridging seen in this study:

The amount and the degree of rotations observed in these cases were highly variable. They ranged from mild rotations to 180^0 rotations.

Example:

In a patient who originally hailed from Orissa and showed proclination of upper and lower anteriors and crowding in the upper and lower anteriors had the peculiar finding showing 180^0 of rotation of the upper second right premolar where the buccal side was placed palatally and the palatal side was placed buccally. Another peculiar feature found in this particular case was three rooted mandibular first premolar which was found on extraction.

Very few cases have been reported in the literature so far showing these particular variations.



Conclusion:

The occurrences of following dental conditions were found in patients with sella bridging: (highest to lowest)

1. Proclination which was followed by
2. Rotations and lastly
3. Crowding.

Also females with sella bridging showed increased incidence of diastema then the male population and it was statistically significant ($p=0.045$).

This was the first of its kind of studies. From this study, it can be concluded that the current study showed the association of various dental malocclusions in patients with various patterns of the sella turcica bridging. The study also concludes with a need to conduct further such studies with larger sample size before a definitive co-relation can be arrived at.

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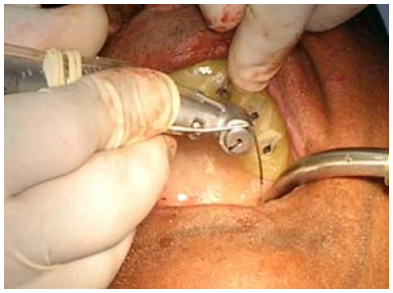
Implants: Miracle in Dentistry

Dr. Swaroop Kumar Magar, Dr. Amruta P. Jankar***

Case Report: A 67yrs old patient reported to the clinic seeking for fixed permanent teeth. He was completely edentulous. Oral examination was carried out, in which lower ridge was seen severely resorbed. Patient gave history of partial paralysis and was on medication i.e. anticoagulants.Patient was already using a complete denture but he was not happy with the fit of denture and was having difficulty in mastication. After examination and patient's consent we decided to go for implant supported fixed denture. Radiographic examination including OPG and IOPAs was done. A new set of complete denture is fabricated by making primary impression, final impression,jaw relation and try in. This pair of dentures was used as diagnostic template. The location of implant was confirmed. Surgical template was fabricated on upper and lower casts. Surveyor was used for the exact parallelism of implant. In first phase, all maxillary implants were placed. After 7 days, sutures were removed. After 2 weeks, mandibular implants were placed. After 7 days, sutures were again removed. Healing was uneventful. Every month, radiographs were made to check for marginal bone loss. After 10 days with the help of impression paste, rubber base impressions were made. Metal framework was tried-in and PFM bridge (Porcelain fused to metal fixed bridge) was delivered.

Edentulous arches.



Upper surgical template

Implant placed in one quadrant

Implant placed in second quadrant

Suturing done

Surgical template at place in lower arch

Implant orientation marked on left side of mandibular arch

Implant orientation marked on right side of mandibular arch

Implants places in lower arch

Suturing done

Abutments at their place

Occlusion of upper and lower teeth after cementation

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Foreign body of Endodontic Origin in Maxillary Sinus: A Case Report

Dr. Arun Panda, Dr. Rajesh Sabnis**, Dr. Swapnil Agrawal***, Dr. Hemanshu Gupta *****

Abstract:

Foreign bodies found in the maxillary sinus include tooth roots, dental burs, dental impression material, root-filling materials, dental implants, and needles. The purpose of this paper was to present an unusual case of a large foreign body of endodontic origin (resin based root-filling material) removed from the maxillary sinus.

A 21-year-old healthy male patient reported to our Department because of orbital and buccal pain on the left side of his face and headache in the preceding 9 months. Those symptoms were associated with the end of endodontic treatment of tooth 26. Intra-oral peri-apical radiograph revealed the presence of root canal filling with extrusion of endodontic sealer material beyond the apex of tooth 26. Cross-sectional maxillary occlusal view demonstrated a foreign body in the left sinus related to palatal root of 26.

Sinus exploration was performed via a surgical procedure conducted under regional anesthesia. The root apex of tooth 26 was resected, and foreign substance was removed. The practitioner did not correctly recognize a complication that occurred during endodontic treatment, which resulted in extrusion of endodontic material beyond the root apex of tooth 26. This case emphasizes the potential impact that an involved maxillary sinus may have on endodontic therapy. Detailed diagnostic identification based on the medical interview, physical examination, and radiographs allowed surgical intervention and prevented local and general complications.

Key words : Foreign body, endodontics, maxillary sinus

Introduction

Foreign bodies in the maxillary sinus are not uncommon. Foreign bodies found in the maxillary sinus include tooth roots, burs, dental impression material, root-filling materials, dental implants, and needles. Causes include the escape of teeth and dental impression material through an oro-antral fistula, penetrating trauma, and iatrogenic causes.Fortunately, displaced dental instruments and dental materials in the maxillary sinus are rare.[1,2]

Case Report: A 21 year old male patient was referred to us with recurring left side sinusitis and left facial discomfort and pain that had responded poorly to long term medical treatment. Patient had history of root canal treatment with 26, one year back after which the problem started. Intra-oral peri-apical radiograph and cross-sectional maxillary occlusal radiograph demonstrated a foreign body in left maxillary sinus. It appeared to be in periapical region of 26 and in close approximation to palatal root. Considering the history and clinical and radiographic findings, decision to retrieve the foreign body via buccal approach wasmade.

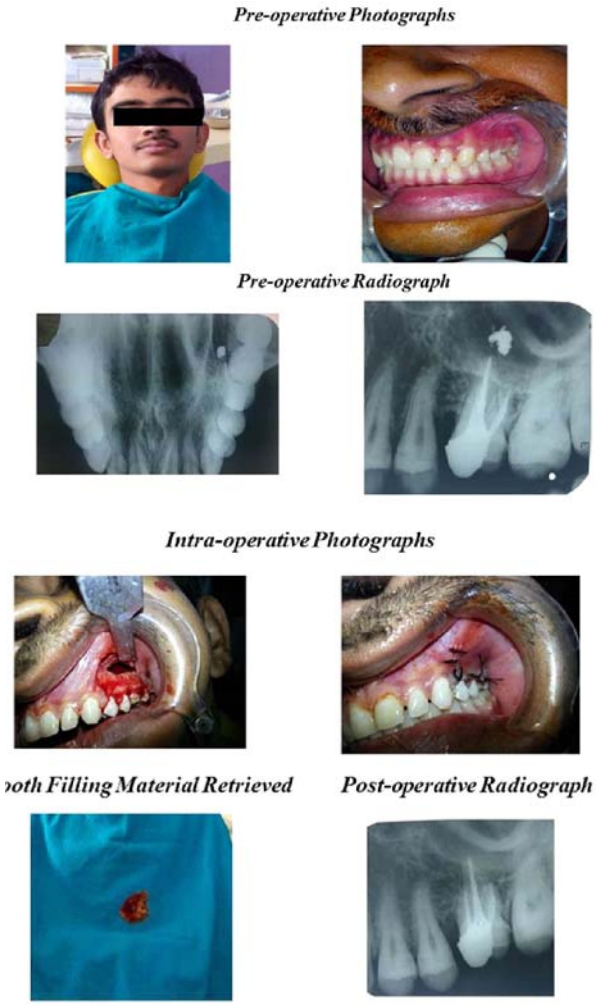
The patient was kept on antibiotic-analgesic coverage for a span of five days and was performed on with modified Caldwell-Luc procedure in relation to the left maxillary sinus under local anesthesia. The foreign body, resin based root canal filling material, was found and removed. The foreign body was found embedded in the sinus lining membrane which could be the cause of chronic inflammation of membrane and sinusitis. Post operatively decongestants and steam inhalation were advised. Patient recovered completely.

Discussion: Foreign bodies in maxillary sinus are rare and are commonly seen post dental treatment.The most frequent source of foreign bodies in maxillary

sinus is material of odontogenic origin, and non-odontogenic origin secondary to an external injury in an accident or assault is much more unusual. Sequelae include chronic sinusitis, cutaneous fistula and chronic pain[1, 4]. Metallic foreign bodies have been associated with malignancy[3]. Classical surgical technique is Caldwell-Luc procedure which involves opening of anterior wall of maxillary sinus.

Open approaches are better suited for theremoval of larger objects or those located anteriorly in the sinus. The most favorable prognosis is achieved by surgically removing the extruded material from the sinus[5].

Advances have made possible the use of endoscopic approach for removal of these foreign bodies. Endoscopic approach involves less invasiveness, less morbidity, less chances of tooth root trauma and ability to visualize the sinus completely.[1]



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Tooth Supported Overdenture-A Clinical Case Report

Dr. Swaroop Kumar Magar, Dr. Amruta P. Jankar***

Abstract:

Context: To preserve the remaining teeth, to restore the missing teeth and to distribute stress concentration between retained teeth abutments and denture supporting tissues for greater retention and stability of denture base thus improving masticatory efficacy.

Concise Case History**:** The remaining teeth (33, 43, and 44) were endodontically treated since the crown root ratio was not favorable. Once the teeth were asymptomatic, teethwere reduced in size formore favorable crown root ratio. Dome shape preparation with chamfer finish line was done for all the teeth. Impressionswere made and wax patterns were made with inlay casting wax.The metal copings were fabricated, theywere polished and cemented using luting agent. Preliminary impressions were made with metal copings in place and special trays fabricated. Maxillary and mandibular secondary impressions were made using zinc oxide eugenolpaste. Jaw relation was recorded, try in was done and after curing, denture was finished-polished and denture insertion was done.

Retention of one or more teeth for supporting overdenture offers the patient a lot of advantages like better stability, support, retention, proprioception, better mastication and speech.

Conclusion: Overdenture supported by natural teeth is one of the best treatments available for partially dentulous condition with very few teeth remaining. Despite recent development in dental implantology, the conservative approach of root preservation is still valid and very economical. In conclusion to obtain successful overdenture rehabilitation the dentists must be careful during case selection, abutment selection, abutment preparation, denture fabrication and periodic follow-up.

KEY WORDS: tooth supported overdenture, denture stability, retention, Preventive Prosthodontics, metal coping.

Introduction:

Preventive prosthodontics emphasizes the importance of any procedure that can delay or eliminate future prosthodontics problems. The overdenture is a logical method for the dentist to use in preventive prosthodontics.[1]

The over denture is defined as a removable partial denture or complete denture that covers and rests on one or more remaining natural teeth, the roots of natural teeth and / or dental implants; a prosthesis that covers and is partially supported by natural teeth, natural tooth roots and / or dental implant.[2]

Over denture therapy is essentially a preventive prosthodontic concept since it attempts to conserve the few remaining natural teeth. There are two physiologic tenets related to this therapy: the first concerns the continued preservation of alveolar bone around the retained teeth[3], while thesecond relates to the continuing presence of periodontal sensory mechanismsthat guide and monitor gnathodynamic functions.[4]

Over dentures help to partly overcome many of the problems posed by conventional complete dentures like progressive bone loss, poor stability and retention, loss of periodontal proprioception, low masticatory efficiency, etc.[5,6,7]

Rationale of Overdentures:

Rationale of an overdenture is to preserve a portion of one of the major sensory inputs i.e. input from the periodontal proprioceptors, which contain information about the magnitude and direction of the occlusal forces as well asabout the size and consistency of the food bolus. This along with the input of other receptors in the oral cavity, muscles and TMJ contributes to the overall response. The periodontal receptors input are also protective against occlusal overloading.[8]

Indications[9]

1. Overdentures are indicated when the result of the treatment would be equal to or superior to another line of treatment.
2. Few remaining healthy teeth with adequate periodontal support.
3. Other indications would be poor prognosis for complete dentures such as high palatal vault, poorly defined sublingualfold space, poor residual ridge in edentulous areas, loss of maxilla or partial loss ofmandibular ridge and congenital deformities especially the cleft palate.
4. Teeth with questionable prognosis can be used as abutments for an over denture and later, if lost, denture base can berelined.

Contraindications[9]:

1. Periodontally weak teeth, which cannot provide support for the denture.
2. Class III mobility that is due to loss of alveolar bone that cannot be corrected.
3. Soft tissue and osseous defects those are not correctable by surgery.
4. Failure to establish a sufficient zone of attached gingiva by muco-gingival or grafting procedure.
5. Osseous defect or any abnormality in normal ridge architecture.
6. If there is any contraindication of endodontic treatment.

Advantages[8]:

1. Retaining the teeth helps in preservation of the alveolar bone surrounding it and provide tensile stimulation to residual alveolar ridge.
2. The modified teeth provides definitive vertical stop for the denture base.
3. Horizontal and torquing forces are minimized.
4. Stability and retention is increased, this reducing the force of occlusion to the supporting tissues.
5. Psychological advantage is subtle but real.
6. There are fewer post-insertion problems with the tooth supported denture than with conventional dentures.

Disadvantages[8]:

1. The construction of an overdenture is costlier than conventional denturedue to the endodontic therapy required and thesubsequent restoration ofthese teeth with alloys or gold copings required.
2. Bony undercuts: Due to the retained teeth,there are limited paths of insertion. This willlead to the blocking out ofundercuts resultingin denture flange spaced away from the tissue, creating a food trap.
3. Caries susceptibility: If proper maintenance ofthe abutment teeth is not done, the roots willundergo either carious orperiodontalbreakdown resulting in the loss of the tooth.
4. Sometimes because of the undercuts, thedenture will be over contoured resulting in excessive fullness of the lips. At other times, the denture flanges will be under contoured for it tofall into place. Therefore sufficient inter ridge space and proper patient selection is essential.

Clinical Case: The following case report is on over denture for partially dentulous mandibular arch and complete denture for maxillary edentulous arch.

A. Selection of abutment teeth: After taking patients consent, the periodontal health of each tooth was checked, and three teeth 33,43 and 42 were treated by endodontic therapy to create a more favorable crown to- root ratio. The decreased crown size reduced the torqueing forces and aided in maintaining the periodontal health of the abutments.

B. Preparation of abutment teeth: Before going for crown modification, an impression with elastomeric impression material was made of three teeth and surrounding tissues in sectioned perforated tray. The impression made was horizontally cut into half so as to divide each tooth impression into two parts. One of the cut parts was used as an index (Fig-5) to guide the amount of reduction needed. There is no compulsion to make an index, one can use graduated periodontal probe to measure the amount of reduction. It has beenrecommended that tooth should be reduced, so that 2-3mm of tooth portion should be left above the marginal gingiva[9]. Sufficient tooth structure was removed with help of bur to get favorable crown root ratio. Initially, the extent of tooth reduction was checked by previously made

index (Fig-6). 3mm of tooth portion from the gingival margin was left so as to minimize lateral tipping forces and to provide support for denture base. Taper was given in an occluso-gingival direction to reduce the undesirable undercut. Preparation was rounded all over to minimize the tipping forces and chances of fracture of tooth. After that, root canals were prepared for receiving cast metal post and core. (Fig-7)

C. Preparation of dowel and core : An impression of prepared teeth (Fig-8) was made with the help of light body and putty (DentsplyAquasil soft putty regular set). Cast is poured with die stone (Fig-9)(Kalrock). Pattern wax(charminar) was used to make patterns of post and core by direct technique. Patterns were casted using cast metal alloy. Dowel and core thus obtained were finished and polished (Fig-10) and cemented with glass ionomer cement. (GC, Luting & lining cement) Dowels and cores were utilized for providing retention and stability that also protects the tooth structure from fracture and caries.

D. Master cast preparation: After cementation of metal coping, an impression of mandibular arch was made with putty (DentsplyAquasil soft putty regular set). Special tray was prepared on the working cast, border moulding was done with green stick compound (DPI Pinnacle Tracing Stick) and final impression was made with zinc oxide eugenol paste (DPI Zinc oxide eugenol paste) (Fig-11). Secondary impression was poured and base plate was fabricated on this master cast (Fig-12) with self-cure acrylic resin. (DPI-RR cold cure) Maxillary completely edentulous arch impression was made with alginate, special tray, final impression, master cast(Fig 13 & 14) and base plate and secondary impression were fabricated in the same way as for mandibular arch.

E. Jaw relation and try in: Occlusal rims (Hindustan Modeling waxno.-2) were fabricated on both the maxillary and mandibular base plates, vertical and horizontal jaw relations were recorded as for convention complete dentures (Fig-15). Teeth arrangement and try in was done.(Fig-16)

F. Denture insertion: After satisfactory try in, flasking, dewaxing and curing of wax pattern was done with heat cure acrylic resin (DPI Heat cure). Denture was finished and polished, laboratory remounting was done for occlusal correction. Sharp line, which marked the junction between the core and tissue surface, was relieved on the denture to eliminate impingement on the cervical tissue around the teeth and denture insertion was done (Fig-17). The patient was taught to brush the abutment teeth and massage the gingival tissues thoroughly. The use of a fluoride dentifrice on the teeth was encouraged to protect the teeth from caries.

Discussion:

The architecture of the maxillae and mandible is designed to house the roots of teeth. It is inevitable that resorptionoccurs when teeth are removed from that architecture. The rate of resorption depends upon three things: 1.The character of the bone, 2.The amount of trauma to which the structures are subjected and 3.The overall health of the individual.

The only satisfactory method of combating resorption and the only sure means of preventing it is by thoroughly educating patients to seek treatment of their teeth and oral structures while these structures are still intact.Until dental research and science discovers a means of preventing the lossof teeth, the dominant mission of prosthodontics is to conserve that which the patient has.

Unlike other parts of the body, teeth and supporting structures are not regenerative. There is no support for occlusion as adequate as the roots of natural teeth. It is certain that in all cases, the teeth which support the denture are subjectto greater stresses than that for which the root structure and supporting tissuesare intended and the odds against their remaining health is great; but in spite ofthe additional load, many are successfully serving as supports for denture prostheses.[10]

It was concluded in a 5-year study that retention of mandibular canines for overdentures led to preservation of alveolar bone.The overdenture pa-tients had chewing efficiency which was one-third higher than that of complete denture wearers.[11]

Toolson and Taylor, in their study of 10 years, concluded that tooth-supported complete dentures are a step in the direction of preventive prosthodontics. The development of caries has been negligible with patient motivation, proper oral-hygiene instruction, and the use of a fluoride dentrifrice. The abutment teeth are of minimal height and friction, and little wear of the tooth or denture occurs during functional movements. Sufficient denture base material is placed over these low natural teeth, and breakage is not a problem.[12] In a study carried out by Wayne, caries was found to be a problem only in patients not receiving regular fluoride treatment. This point outs the importance of recall appointments to encourage patients in this procedure considering dental caries as one of the more frequent cause of tooth loss than does periodontal disease.[13]

Conclusion:

A method has been described for the construction of tooth-supported dentures, where the natural teeth were utilized to support the conventional denture. Thistechnique is economical, provides retention, support, stabilization, proper mastication esthetics, speech and has a high patient acceptance.

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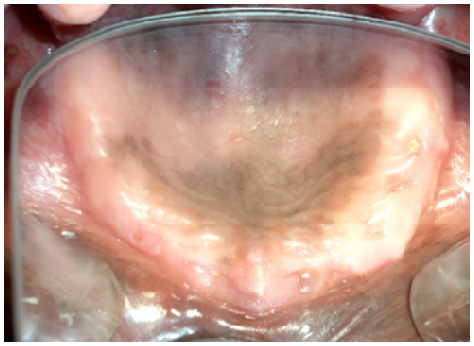

Fig. 1: Completely edentulous maxillary arch

Fig. 2: Partially dentulous mandibular arch

Fig. 3: Mandibular diagnostic impression

Fig. 4: Maxillary diagnostic impression

Fig. 5: Impression of mandibular teeth in putty

Fig. 6: Putty index

Fig. 7: Crown modification and post space created

Fig. 8: Impression of modified teeth with post

Fig. 9: Cast showing modified teeth

Fig. 10: Metal copings

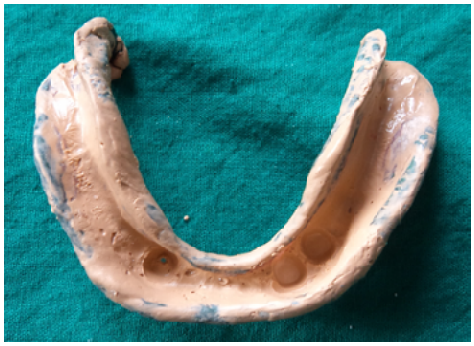

Fig. 11: Mandibular final impression

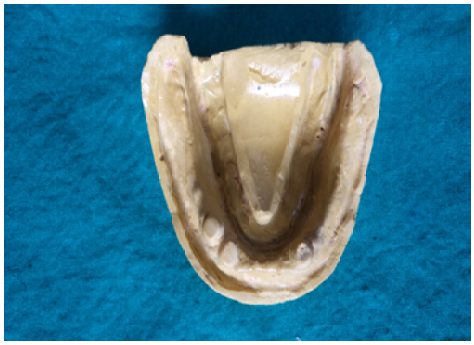

Fig.12: Mandibular master cast

Fig. 13: Maxillary final impression

Fig. 14: Maxillary final cast

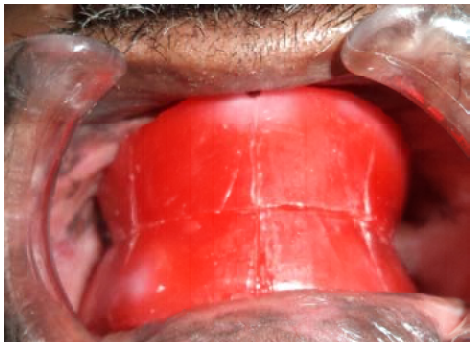

Fig. 15: Jaw relation

Fig.16: Try in

Fig. 17: Denture insertion

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Design a smile with laminates: A Case Report

Dr. Kolhe K.K., Dr. Kulkarni M.M.**, Handal G.H.***, Dagadia R.K.*****

Abstract:
From a purely cosmetic standpoint, value of the appearance of one's teeth has taken on a greater importance in today's society. Multiple options are available to treat the problems arising in the zone of high esthetic sensitivity. Every treatment modality offers some advantages and disadvantages. The use of porcelain laminate veneers to solve esthetic and/or functional problems has been shown to be a valid management option especially in the anterior esthetic zone. This case report discusses a patient having diastema in the anterior region.

Keywords: Smile, laminates, smile design, diastema.

Introduction:

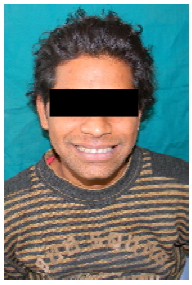
Confidence is important aspect of one's personality and confident smile makes the picture complete. From a purely cosmetic standpoint, the value of the appearance of one's teeth has taken on a greater importance in today's society. People are giving an increasing importance to a healthy and attractive smile. With the advancements in the area of cosmetic dentistry, the dental professionals have been offered new opportunities in conservative and esthetic restorative procedures. Multiple options are available to treat problems arising in the zone of high esthetic sensitivity[1].

Every treatment modality offers some advantages and disadvantages. The use of porcelain laminate veneers to solve esthetic and/or functional problems has been shown to be a valid management option especially in the anterior esthetic zone. The techniques and the materials employed to fabricate porcelain laminate veneers offer satisfactory, predictable and lasting results[2,3,4]. There are various ways to treat cosmetic dental problems depending upon the problem per se. Diastema, tooth size discrepancy, discolorations, staining, fractures in teeth, endodontic treatment, and smile designing are some of the reasons for which patient seek esthetic dental treatment. Some restorative techniques are conservative such as use of adhesives and lasers while others are subtractive methods[5,6,7,8].

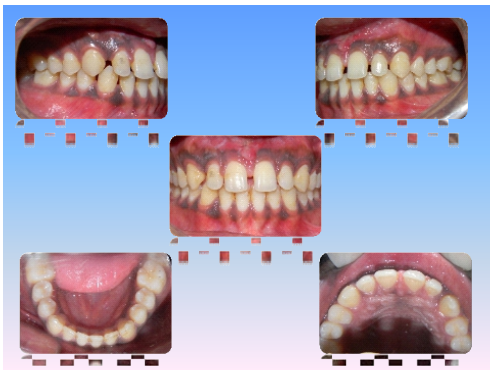
Porcelain laminate veneers (PLV) were introduced into dentistry in around 1938 (Pincus, 1938). With the introduction of acid etch technique by Buonocore (1955) and silica resin direct filling material by Bowen (1958), interest was generated in PLV. Coupled with silanization of veneers and the introduction in the early 1980s of bonded porcelain veneers (Horn, 1983), the results with PLV have become more predictable. Survival rates have ranged from 92% at 5 years to 64 % at 10 years (Peumans et al, 2004). Carefully placed PLV have reported very high survival rates of over 90% after 9 years stressing the need for the proper case selection and technique (Strassler & Nathanson, 1989; Dunne & Millar, 1993). This case report focuses on a multiple diastema closure by using porcelain laminate veneers[9,10,11].

Case report:

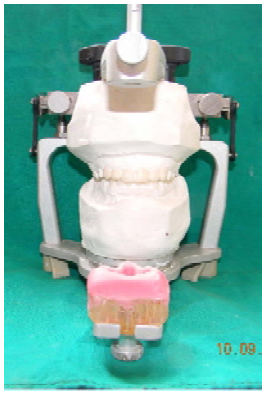
A 21 year old male patient reported to the OPD of Department of Prosthodontics, Crown and Bridge & Implantology in Yashwantrao Chauhan Dental College, Ahmednagar with a chief complaint of spacing between upper front teeth. The patient was unhappy with the appearance of her teeth and restrained himself from smiling due to self-consciousness.



On examination, diastemas were found in his maxillary and mandibular anterior region.

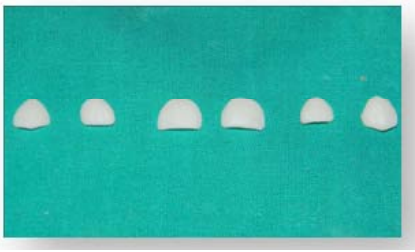


After thorough examination, impressions for diagnostic models were made in irreversible hydrocolloid (Ivoclar vivadent viva NF Italy). The models were studied to decide the shape and size of the restorations with help of a diagnostic wax up. To provide a long term solution, the patient was provided the option of PLV. The patient agreed and opted for maxillary correction only as the mandibular anteriors were less visible.



At the onset of the treatment, thorough scaling and polishing was done. Before proceeding for tooth preparation, shade was selected using Vitapan Classical shade guide (Vita Zahnfabrik, Germany). The maxillary teeth were then prepared from right canine to the left canine to receive porcelain laminate veneers. The tooth preparation was kept in enamel at a depth of 0.5 mm using a depth cutting diamond and a tapered diamond 1 mm in diameter. 0.25 mm chamfer was maintained in the cervical region.

The chamfer finish lines were kept at the level of gingival margin. The length of the extruded left maxillary lateral incisor was adjusted corresponding to the incisal plane. The incisal chamfer was extended palatally as little increase in height was desirable. The centric stops were carefully avoided during preparing the palatal finish line. The proximal preparation was extended beyond the contact area to avoid visibility of the tooth restoration junction. After finishing the sharp line angles and point angles, gingival retraction was performed. Impression of the maxillary arch was made in addition silicone (Affinis, Colte'ne Whaledent) by single step double mix technique. In this technique, a prefabricated perforated tray was coated with tray adhesive (Coltene adhesive, Coltene Whaledent) and putty consistency addition silicone was loaded on the tray. At the same time, light body material was syringed around the prepared teeth to record the fine details and the previously loaded tray was inserted in the mouth to make the impression. Provisional restorations were not required as the tooth reduction was minimal and restricted to enamel.The porcelain laminates were fabricated by refractory die technique (IPS d.SIGN Ivoclar Vivadent, USA).



The laminates were tried in for shade, fit, marginal adaptation, shape, size, symmetry and contacts. First they were tried-in individually using glycerin as a holding medium. After individual evaluation, collective try-in was done to appreciate

the esthetic enhancement. Patient's approval was obtained at the time of try-in.

Laminate Preparation: The laminates were arranged on a wax sheet denoting the position of the tooth in the arch to avoid incorrect placement and inadvertent breakage. The laminates were etched with 4 % Hydrofluoric acid (Porcelain Etchant, Bisco, USA) for 3 minutes carefully avoiding contact on the facial surface (Fig.V). After etching, they were washed thoroughly using liberal amount of water. On drying, a coat of Silane coupling agent (Porcelain Primer, Bisco, USA) was applied.

Tooth Preparation: The procedure for cementation was performed on two teeth at a time starting at the midline.The prepared teeth were etched using 37% Phosphoric Acid (Meta Etchant-37, Meta Biomed Co. Ltd, Korea) for 15 seconds. On air drying bonding agent (Meta P & Bond, Meta Biomed Co Ltd, Korea) was applied & light cured for 10 seconds. Dual cure composite crown and bridge luting agent (Duolink, Bisco, USA) was used for cementation.

The laminates were spot cured for 5 seconds initially. Excess cement was removed with explorer and then complete curing was done for 20 seconds. On completion of the cementation procedure, the occlusion was checked in centric and eccentric positions for interferences. The high points were removed and polished.

Discussion:

The etiology of diastema may be attributed to the hereditary factors, congenitally missing teeth, tooth and jaw size discrepancy, and supernumerary teeth and abnormally placed, or, high frenal attachments; to developmental problems, habits, periodontal disease, tooth loss, and posterior bite collapse (Oesterle & Shellhart, 1999). Treatment planning for diastema correction includes orthodontic closure, restorative therapy, surgical correction or multidisciplinary approach depending upon the cause of diastema (Dlugokinski et al, 2002). The restorative closure of diastema can be achieved by using direct composite veneers, indirect composite veneers, porcelain laminate veneers, all ceramic crowns, metal ceramic crowns and composite crowns ((Dlugokinski et al, 2002; Rammelsberg et al, 2005). Composite resin and porcelain are the most frequently used veneering material for diastema closure conservatively. Smaller diastema can be closed with microfilled and hybrid resins if the diastema is about 1- 1.5 mm in dimension[1,3,4]. Composite resin is easy to use, requires fewer appointments, is economic but offers less wear resistance and surface staining, which makes it inferior to dental porcelain. Besides, failure of the same prompted the patient to opt for porcelain laminates in the current case (Cho et al,

1998). It has become increasingly apparent that conservation of tooth structure is a major factor in determining the long term prognosis of any restorative procedure[12,13]. One of the most important advantages of bonded porcelain veneers is that they are extremely conservative in terms of tooth reduction.

However, porcelain laminates have their own limitations too. They should not be used when remaining enamel is inadequate to provide adequate retention. Large Class IV defects should probably not be restored with veneers because of the large amount of unsupported porcelain and the lack of tooth-colored backing. The amount of unsupported porcelain should be carefully evaluated in cases with a large diastema. Darkly stained teeth are not optimally restored with veneers. The prognosis for veneers in bruxing is doubtful. Certainly, such patients should be instructed to use a night guard after final restoration (Sheets & Taniguchi, 1990)[14,15,16].

Conclusion:

Bonded porcelain veneers can provide successful esthetic and functional long-term service for patients. Porcelain laminate veneers offer more extensive applications when they are used cautiously and the results achieved have been gratifying for the cosmetic dentist and the patient alike. It has become increasingly apparent that conservation of tooth structure is a major factor in determining the long-term prognosis of any restorative procedure.

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Light Curing Units in Orthodontics: A Review

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Abstract:

Because of their wide array of applications, light curing units are now indispensable for any orthodontist or a general dentist, and hence it is very important to be familiar with the various types of light curing units, their history, specifications, advantages and disadvantages.

Conclusion: When selecting curing lights for an office, many variables need to be considered. Armed with knowledge about each curing-light category, orthodontists can evaluate their unique practice style and select the appropriate light or lights.

Keywords: Light curing units, Orthodontics.

Introduction

The advancement in dental bonding procedures has streamlined the placement of orthodontic appliances to a significant extent, with appliances becoming more discreet, easier to maintain, and less arduous to place.[1,2]Bonding necessitates the use of orthodontic adhesives, which set by either chemical or light curing. Light cure systems are easy to use and versatile, with extended working time where necessary.[3]

Consequently, light cure allows sufficient time for careful bracket placement, removal of excess material, and consistent handling properties, and, by virtue of command set, permits seamless engagement of archwires.

History of Light curing Unit

The light source first used for curing composite resins was an ultraviolet light (UV). The benzoin methyl ether component of composite resin was sensitive to light in the 340 nm spectrum. Because of safety concerns about the long term use of UV light, visible light curing (VLC) was introduced in around 1980s.[4] Compared with UV-cured resins, VLC resins were found to have a greater depth of curing. The curing of VLC resins is based on presence of camphoroquinone, which is sensitive to light in the range of 460 to 480 nm wavelength spectrum, with an optimum at 468 nm.

The earliest visible light curing units used halogen bulbs. The halogen based curing lights are still popular in the market but despite their popularity, halogen bulbs have several shortcomings. These light curing units use most of their energy to heat a tungsten filament until it glows, creating light. Only 1% of the total energy input is converted into light; the remainder is lost as heat. The heat can cause blistering of expensive light filters and discoloration of reflectors. The cooling fan can be noisy and bulky. Halogen bulbs have a limited effective lifetime of approximately 40-100 hours and have to be replaced thereafter. Moreover, with a recommended curing time of 40 seconds per bracket, the light-curing time for bonding both the maxillary and mandibulararches can approach 15 minutes which can be inconvenient. So, reducing the curing time became the next immediate goal for the developers.

The first attempt to reduce curing time was undertaken with argon lasers in the late 1980s.[5] The purpose of these lamps was to increase the output light energy to an intensity that approaches 800 mW/cm2 and to narrow the wavelength to approximately 470 nm.

Plasma arc curing lights (PACL) were introduced in the mid 1990s.[6]The light cure source was a xenon gas that was ionized by 2 electrodes with a large potential drop, to produce plasma. The emitted white light was filtered to a bandwidth of 450-500 nm, and the power density reached more than 2000mW/cm2. In contrast to lasers, plasma arc sources did not emit distinct frequencies but, rather, continuous frequency bands.

Effect of curing times on shear bond strength

Each of the curing lights produces a different light frequency and intensity, resulting in different curing times required for complete adhesive polymerization.

According to Lalani et al [7] and Elvebak et al[8], at 300 mW, argon laser was found to have the capability to maximally polymerize the adhesive in as little as 5 seconds. Oesterle et al[9] and Signorelli et al[10] found out that xenon plasma arc curing lamp exposure times of 6 to 9 seconds produced shear bond strengths equal to those produced with 40 second exposures to a conventional tungsten quartz halogen curing light, in vitro. Based on the above data, it can be concluded that with standard metal brackets, suggested curing times for a complete cure are 15 to 20 seconds on the mesial and distal of each bracket (total 40 seconds) using a halogen light, 10 seconds mesial and distal (total 20 seconds) for LED lights, 2-3 seconds mesial and distal (total 5 seconds) using an argon laser, and 3-4 seconds mesial and distal (total 6-9 seconds) with a plasma arc lamp.

Recently, a new, high-powered halogen light was claimed to achieve ideal bond strength with only 6 seconds of cure time[11]. Ceramic brackets require half of the total time for each light type, and the light source should be aimed directly through the bracket[12]. Molar bonds require about 150% longer curing times on each of the mesial and distal aspects of the tooth structure.

Effect of light intensity on shear bond strength

Elvebaket al[8] compared the shear bond strength produced by an argon laser at 4 different power settings (100, 150, 200 and 250 mW) and found out that brackets bonded using the curing light of 150mW power exhibited the highest bond strength.

Effect of light guides and distance of light tip from the bracket on shear bond strength

Bisharaet al[13] studied the effects of using a smaller diameter light guide on the shear bond strength of orthodontic brackets. They concluded that the use of the Mini Turbo Light Guide (diameter 4mm) did not seem to significantly influence either the shear bond strength or the bracket/adhesive/enamel failure site as compared to a standard curved light guide (diameter 11mm).

However, Evans et al[14] studied the effects of using Power Slot and Turbo Tip light guides and concluded that these light guides with their collimation of visible light to increase its intensity can be recommended as advantageous alternatives for curing composite resins for orthodontic bonding procedures. The distance of the light tip to the bracket can decrease bond strength. With increased distance, bond strength degrades more significantly with LED lights than with other curing lights; if access is difficult, a non-LED light source should be considered.

Temperature rise

Halogen, argon laser, and plasma arc lights all generate significant heat and require a cooling fan. All of these instruments therefore generate significant noise during and after the procedure. Although halogen lights have powerful fans to cool the unit, the intense heat does damage the light bulb so that the effective bulb life is only about 100 hours.[15] The minimal heat generated by LED lights can be easily dissipated by heat sinks, and these lightscans therefore operate noiselessly. Heat from curing units is transferred to teeth during bonding procedures at times leading to discomfort to the patients. It is known that any increase in pulpal temperature exceeding 5°C to 6°C may result in irreversible tissue damage. Powell et al[16] showed that in vitro pulp chamber temperature increase from laser units were significantly lower than that from the conventional curing lights. Tarle et al[17] measured the temperature rise in the composite samples with three different light sources, and because of very short exposure time, they found a slight temperature rise with the high-power plasma light.

Microleakage

Asli Baysal et al[18] studied the microleakage under bonded lingual retainers using high-intensity curing lights and found that little or no microleakage

occurred at the composite/enamel interface with high-intensity light curing units. However, high-intensity light curing units allowed more microleakage at the composite/wire interface and concluded that they might not be safe for bonding of lingual retainers. **Conclusion**

When selecting curing lights for an office, many variables need to be considered. Each practitioner needs to evaluate the infrastructure and patient flow of the office. Some orthodontists choose to have a light at each chair, while others are comfortable having one or two portable lights. The speed offered by plasma arc curing can be coupled with the portability of an LED light to move from chair to chair. Some practitioners choose to do extensive gingival recontouring, and a laser could provide both high-speed curing and hemostatic surgical potential. Other practitioners may object to fan noise and use LED exclusively. Armed with knowledge about each curing-light category, orthodontists can evaluate their unique practice style and select the appropriate light or lights.

Serdar Arikan et al[19] compared microleakage beneath ceramic and metal brackets photopolymerized with light emitting diode or conventional light curing units and observed microleakage along all bonding interfaces, regardless of the type of bracket or LCU used. The tested light emitting diode curing unit provided a reduction in chair time but caused more leakage between adhesive-bracket interface when metal brackets were used. However Mustafa Ulkeret al[20] found that the type of light-curing unit (Halogen, light emitting diode, plasma arc curing) did not significantly affect the amount of microleakage at the enamel-adhesive-bracket complex. The energy efficiency and minimal heat generation of LED curing give them many characteristics that the other sources do not have. Because they use minimal energy and do not need a cooling fan, LED lights are able to be marketed as cordless units with a rechargeable battery. And because they do not have any moving parts or light filaments, they better resist vibration and shock.[21] As there is no heat damage to the diodes, LED lights are effective for more than 10,000 hours of use with little output degradation.

Although their exact mechanisms are unknown, argon lasers uniquely restructure enamel-surface characteristics, conferring some demineralization resistance when used for bonding. This protection increases synergistically with the protection imparted by fluoride.[22]

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Quacks and Quackery: A Review

Dr. Rahul Gandhi, Dr. Shweta Gandhi***

Introduction:

Oral health is an integral element of general health and well being. Good oral health enables individuals to communicate effectively, to eat and enjoy a variety of foods, and is important in overall quality of life, self esteem and self confidence. However oral diseases affect a significant proportion of world's population and exert a heavy toll in terms of morbidity and mortality. Oral diseases are highly prevalent and their impact on both society and individual is significant. Although overall improvements in oral health have occurred in many developed countries over the past 30 years, oral health inequalities have emerged as a major public health concern because lower income and socially disadvantaged groups experience disproportionately high levels of oral disease. At present, India has one dentist for 10,000 persons in urban areas and for about 2.5 lakh people in rural areas. It is often difficult for the poor urban and the rural population to get access to emergency care. Community oriented oral health programs are seldom found. For years, the Indian Government has waged an unsuccessful war against people such as 'unqualified medical practitioners' - otherwise known as quacks. Reports suggest that there are about one million unqualified medical and dental healthcare providers, or 'quacks', in India. Random house dictionary describes a quack as a fraudulent or ignorant pretender to medical skill or a person who pretends, professionally or publicly, to have skill, knowledge or qualifications he or she does not possess; a charlatan.

Reasons for Quackery: Several reasons why quackery is accepted by patients in spite of its lack of effectiveness are:

Ignorance: Those who perpetuate quackery may do so to take advantage of ignorance about conventional medical treatments versus alternative treatments, or may themselves be ignorant regarding their own claims.

The placebo effect: Medicines or treatments known to have no pharmacological effect on a disease can still affect a person's perception of their illness with this belief causing the patient's condition to improve.

The regression fallacy: Certain "self-limiting conditions", such as warts and the common cold, almost always improve, in the latter case in a rather predictable amount of time. A patient may associate the usage of alternative treatments with recovering, when recovery was inevitable.

Distrust on conventional medicine: Many people, for various reasons including the risk of side effects, have distrust on conventional medicines or the major drug corporations.

Fear of side effects:A great variety of pharmaceutical medications can have very distressing side effects, and many people fear surgery and its consequences, so they may opt to shy away from these mainstream treatments.

Cost: There are some people who simply cannot afford conventional treatment, and seek out a cheaper alternative. Nonconventional practitioners can often dispense treatment at a much lower cost.

Desperation: People with a serious or terminal disease, or who have been told by their practitioner that their condition is "untreatable," may react by seeking out treatment, disregarding the lack of scientific proof for its effectiveness, or even the existence of evidence that the method is ineffective or even dangerous.

Fraud: Some practitioners, fully aware of the ineffectiveness of their medicine, may intentionally produce fraudulent scientific studies and medical test results, thereby confusing any potential consumers as to the effectiveness of the medical treatment.

Types Of Quacks:

1) Dispensers and medical assistants

These are the commonest and most dangerous type of quacks

2) Household Quacks

Usually found in every house and if not then at least in every street. They have never received any formal health education but they seem to know everything about every illness. They possess a box full of medicines of all kinds including antibiotics, sedatives, anti inflammatory etc drugs.

3) Aamils and Jinnati babas

This is a totally unique category of practitioners. These derive their roots from the ancient evil arts of magic and related categories. Most of them are pure exploiters and frauds that are making fool of the ignorant people of our country.

4) Sex Experts

This is another commonly encountered category of quacks. We can witness a very strong advertising campaign by these experts throughout the country by various methods. As the authenticity of training in such fields and its verification in our country is quite ambiguous so quacks often work under the umbrella of any form of alternate medicine. These include:

Hakeem's of Tib e Yunani and Veds of Ayurveda

These are the creeds who claim to be carrying ancient arts of healing through naturally occurring ingredients.

Homeopaths: There are two practice approaches by these homeopaths:

The traditional and pure homeopathy practitioners are rare but they follow the treatment principles laid down by Samuel Hahnemann

The second group of homeopathic practitioners which is by and large most common in the country, practices conventional allopathic and certain other combinational methods including antibiotics, NSAIDs and steroids under the veil of homeopathic practice.

Pehalwaans and Hadi jor experts

These are the people who claim to possess ancestral knowledge of orthopedic surgical skills. They have their own diagnostic methods and treatment techniques.

Quack is someone who offers treatments and medical advice that are not based on established medical knowledge or scientific principles. Quacks often provide questionable psychological advice as well. Quacks often have charismatic and reassuring personalities, heartwarming testimonials, or complicated charts and graphs. But not all quacks are alike.

Here are three general types of quacks:

1. **Charlatans**: These con artists know that their cures don't work. Crooks at heart, they don't mind lying about their credentials or fabricating success stories to persuade people to pay for their fake cures. They are likely to have polished, well-scrubbed appearances, which hide their selfish motives.
2. **Wishful Thinkers**: These quacks often have a poor understanding of scientific principles and may sincerely believe that their remedies work and may seem like the most honest souls you've ever met.
3. **Delusional Quacks**: Whether they've studied medicine or not, these quacks have an antagonistic view toward the established medical community. They sell their questionable cures by emphasizing the limitations or apparent narrow-mindedness of certified physicians.

There are definite ways by which quacks practice. They are not registered as practicing medicines in any of the forms and claim to cure medical and dental illness.

Different ways by which these quacks practice are:

- They practice without name board.
- They practice without prescription.
- They have visiting practice, no clinic.
- They keep on periodically shifting of places.
- They may or may not be trained under some qualified doctor.

What are the main risks with quacks???

- A quack can put the health and life of a patient being treated by him in danger due to lack of proper professional knowledge.
- Indiscriminate use of injections by these quacks is main cause of the rampant spread of Viral Hepatitis in our country.
- Many a times these quacks put the life or organs of their patients in danger by embarking upon those therapeutic procedures or using those medicines regarding which they have the least knowledge.

- Indiscriminate use of several life saving antibiotics by these quacks is rapidly producing resistance against several difficult to treat micro-organismic infections.

Any person with a sense can make a difference between the quack and a registered practioners by just inspecting a certificate of registration. Some of the quacks practice the therapy which includes massage, acupressure, and acupuncture. The poor villagers at one time can be excused for taking treatment from quacks as there may not be suitable option or they are in one way ignorant and sometimes innocent. But even the rich people, well educated people are also getting attracted or involved in this type of scandal. These quacks delay the proper treatment to commence thus resulting in worsening of medical illness. Unproven, usually ineffective, and sometimes dangerous medicines and treatments have been peddled throughout human history. Theatrical performances were sometimes given to enhance the credibility of purported medicines. Even where no fraud was intended, quack remedies often contained no effective ingredients whatsoever. Some remedies contained substances such as opium, alcohol and honey, which would have given symptomatic relief but had no curative properties.

The question arises that are we really short of physicians and dentists? To answer this query, one should understand the distribution of general and oral health care providers in India. The problem lies at the level of distribution rather than the number of dental surgeons. About 80% of dentists work in major cities in India; compared to the population where more than 70% of the Indians reside in the rural areas. Very little oral health care services are provided in the rural areas, however; oral healthcare seeking behavior is also very low, especially among the rural population. A mismatch exists between oral health care professionals & the population they serve.

Big Question Is: Though very easy to separate unqualified persons from qualified medical professionals, under which department it comes? It is rather easy to take legal action and then to take proper steps to stop their practice of various forms of medicines. But who will take the action? Will the action be effective? Answer is unanswered. On medical side, there are many policy matters discussed to give quacks formal training and absorb them in the healthcare system. Former director of School of Tropical Medicine, Kolkata, PK Sarkar, argues that these ideas need serious thought, particularly, when Government healthcare centers in villages have collapsed and qualified doctors are unwilling to go to the villages. So why not train quacks, who can at least ensure basic facilities to the villagers? Even the Government of India through National Rural Health Mission seeks to train quacks and permit them to perform a limited medical practice. On the dental side, these matters have to be carefully analyzed. Whether these quacks can be legally trained with minor first-aid procedures should be given a serious thought. The World Health Organization suggests of having New Dental Auxiliaries like dental aid, dental licentiate, and frontier auxiliaries with little training to work in rural remote areas. Until the Government intervenes, takes them into the health system, and provides a stable means of income, there are more chances that the quacks may thrive to earn money by practicing quackery and leading to an irreversible damage or, play with the health of the people which most of the times delays actual/effective treatment or, infact they may even turn-out into fatality.

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