VSPM'S DENTAL COLLEGE INTERDEPARTMENTAL SCIENTIFIC ACTIVITY 2018-19

VISA


HITACHI


HITACHI


with the Clinical,
Histopathologic
Final Diagnosis
ed was
US CYST WITH
ODONTOME.


NEGATIVE POINTS:
1. Age (M)F occurs in young age group 2nd to 3rd decade of life)
2. Female predilection 2:1

DR. MUKTA MOTWANI

CONVENER

DR. USHA SHENOY

CO-CONVENER

DR. HIMIJA KARIA

CORE COMMITTEE MEMBER

DR. APURVA MOHITE KHATOR

CORE COMMITTEE MEMBER

FOREWORD

I am pleased to introduce the third edition of VISA magazine for the year 2018-2019. VISA team has had yet another successful year in bringing together all the post graduates and staff members to discuss comprehensive management of rare and interesting cases by interdisciplinary approach.

The cases presented this year were overall good and the discussions are an effective way to promote interactive learning. This magazine is a compilation of these interesting cases and serves as a good read for everyone.

I congratulate team VISA for this third issue and appreciate their efforts and contribution in continuing uninterrupted VISA activities.

Dr. Usha Radke

Dean

VSPM Dental College and Research Centre

FROM THE DESK OF THE VICE DEAN

I congratulate team VISA for taking out the third edition of VISA magazine which was started in 2016. This indeed is the materialization of all the efforts put in by the team and the post graduate students in presenting the best of cases during this year and fostering better coordination between all the departments.

The brain storming sessions are always healthy and they aid the clinicians in making better diagnosis and treatment plan and the end beneficiaries are the patients.

Wishing the team VISA a very successful new year.

Dr. Ramakrishna Shenoi

Vice dean

VSPM Dental College and Research Centre

FROM THE EDITOR'S DESK

Dear Readers,

It gives me immense pleasure to present the third issue of VSPM's interdepartmental scientific activity (VISA). The aim of VISA is to encourage and facilitate holistic learning by post graduate students by conducting interdepartmental case discussions every month in the institute. The staff members and the students have done full justice to this aim during this year. Some very interesting cases were presented this year with complete treatment plans and follow ups. We hope to have even better sessions in the future.

On behalf of the VISA team, I extend my heartfelt thank you to our management and our respected Dean madam for supporting us in all our endeavors. I also congratulate all the post graduate students who have presented these cases and my VISA team for all the efforts put in to compile this issue.

Regards

Dr. Mukta Motwani

Convener VISA commitee

CONTENTS

MANAGEMENT OF RADICULAR CYST

Presented by
Dr. Darshan U. Heda (Dept. of Conservative Dentistry and Endodontics)
Dr. Nilima Surve (Dept. of Oral and Maxillofacial Surgery)

Introduction: Traumatic injuries to the teeth are relatively common, usually involving the anterior teeth of patients. "Cyst is a pathological cavity that may be filled with fluid, semi-fluid or gaseous contents, but never pus and it may or may not lined by epithelium." Most cysts of the jaws arise from odontogenic epithelium.

Radicular cyst is an odontogenic cyst of inflammatory origin. Also called as apical periodontal cyst, periapical cyst, root end cyst. It is the sequel of the periapical granuloma. It is the second most common pulp-periapical lesion. It is a true cyst and often fluid filled.

Radicular cysts arise from the epithelial rest cells of Malassez in the periodontal ligaments. Caries or trauma to the teeth leading to necrosis of pulp and followed by chronic apical periodontitis and periapical granuloma. Activated T cells in the Periapical granulomas produce lymphokines that act on the rest cells of Malassez causing proliferation and altered differentiation leading to cyst formation.

Epithelial proliferation follows irregular pattern. As this proliferation increases in size by division of cells on the periphery, cells in central portion of mass become separated further from the nutrition. Central cells degenerate, becomes necrotic and liquefy. This creates an epithelium-lined cavity filled with fluid. Once begun, size of cyst increases by various mechanisms like osmosis, local fibrinolysis and continued epithelial proliferation.

It is mostly Asymptomatic and present no clinical evidence of their presence. It is Commonly seen between ages of 20 and 60 years. It is Commonly involved with maxillary anteriors. Associated tooth is non-vital or shows deep carious lesion or a restoration which is seldom painful or even sensitive to percussion. It Rarely causes expansion of cortical plates.

It Resembles granuloma with larger size with well circumscribed radiolucency seemingly attached to the root apex. It is Associated with resorption of bone which may or may not be accompanied by resorption of root. It Exhibits thin, radiopaque line around the periphery of the radiolucent area, and this indicates a reaction of bone to slowly expanding mass.

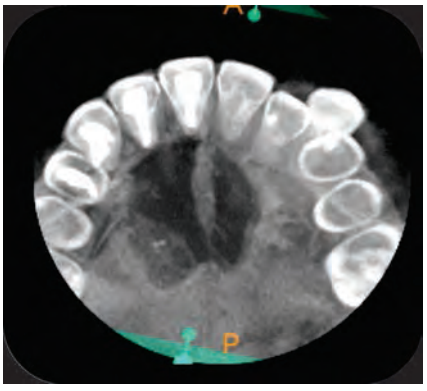
The treatment options for radicular cyst can be conventional root canal therapy when lesion is localized and small and surgical treatment like enucleation when lesion is large. When the involved tooth is hopeless, enucleation of the cyst followed by extraction of involved tooth is recommended.

Larger the lesion, worse is the prognosis of the tooth.

In following case reports, a characteristic radicular cyst, was successfully managed with root canal therapy (RCT) followed by apicoectomy along with surgical enucleation.

CASE REPORT

Chief complaint: A 21-year-old male patient reported to the Department of Conservative Dentistry and Endodontics with the chief complaint of large swelling in upper right anterior region of the jaw since 2 years.



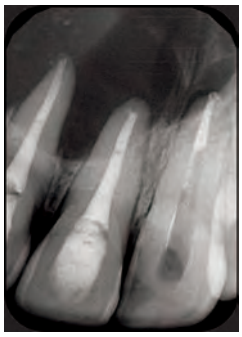
Patient was apparently alright 7 years back when he had a fall. He experienced mild pain in the upper front region of jaw for which he took medicines & symptoms were relieved. 2 years before he noted a frank swelling in upper front region of jaw which was associated with mild, dull, intermittent, throbbing type of pain. He visited to VSPM's Dental College where on clinical & radiographic examination he underwent root canal treatment with 11 12 13 14. However, Pt. did not turn up for the surgical treatment at that time as advised. 2 months ago again patient reported to VSPM's Dental College with same chief complaint & he was evaluated for the same. Patient is a known case of dilated myopathy. On clinical examination there was no extraoral swelling or facial asymmetry. Introral examination revealed large intra oral swelling in palatal vault from 15 crossing the midline extending up to 21. Radiographic evaluation revealed a large Unilocular radiolucent lesion at the apical region wrt 21, 11, 12, 13, 14, 15. Also 11, 12, 13, 14 were endodontically treated. Bone resorption adjacent to the lesion was seen.

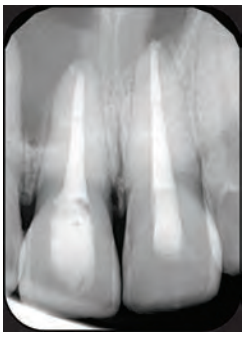
From the history, clinical examination and investigation, a provisional diagnosis of **Radicular cyst** was made.

Treatment plan: Root canal treatment with 21 & 15 followed by Surgical Enucleation & root end resection with all involved teeth.

Treatment: The entire endodontic treatment was performed under strict aseptic conditions. After rubber dam application, the isolated teeth along with the clamps and the surrounding sheet were swabbed with 5% povidone-iodine. The access cavities were prepared in the affected teeth. Working length determination was done by electronic apex locator. Establishment of glide path and BMP was done using rotary Protaper Universal files (Size F5-6/50). Irrigation was done with 5.25% sodium hypochlorite & 0.9% normal saline between each instrument change. A final rinse after biomechanical preparation was done with 0.2% chlorhexidine. The canals were then dried using paper points. A premix of calcium hydroxide and iodoform (Metapex; META Biomed Co Ltd, Chungbuk, Korea) was placed as an intracanal medicament, and the access cavities were temporarily sealed with Cavit G (3M ESPE Dental Products, St Paul, MN) for 2 weeks. On a subsequent visit, the patient was comfortable with no exudate was observed in the canal. After irrigation canals were dried followed by Orthograde MTA placement in both the teeth.

A moist cotton pellet was placed above the barrier for 2 days, and the final set was ascertained with gentle tapping of a finger plugger. The remaining canal was obturated with injectable thermoplasticized gutta-percha (Calamus Dual, DentsplyMaillefer) and Sealapex sealer. The access cavity was restored with composite resin.





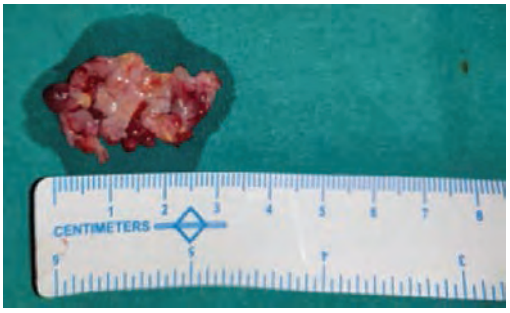

Then patient was refered to department of Oral and Maxillofacial surgical enucleation of cyst.

Surgical procedure:

A) PRE-OPERATIVE WORK UP

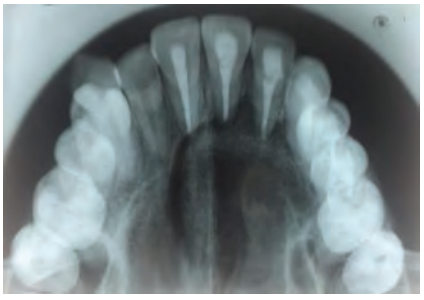
- Endodontic treatment with 21, 15.
- All routine investigations.
- Radiographic evaluation.
- Pre-anesthesia fitness.
- Pre operative antibiotic prophylaxis.
- Informed & written consent.

B) The surgical enucleation of the cyst was planned under local anesthesia where bilateral infraorbital and naso palatine nerve block was given. Leubke-Ocshenbein or submarginal incision with bilateral oblique releasing incisions was placed to expose the lesion. The cyst encasing the tooth was enucleated and soft tissue curettage was performed.Cyst lining was gently dissected to prevent palatal perforation and nasal perforation superiorly. Apicectomy was performed with all endodontically treated teeth. Surgical cavity was irrigated and closed using 3-0 vicryl. Enucleated tissue specimen were sent for histopathological examination.

C) Histopathology report: H&E stained section shows non keratinized stratified squamous epithelium with connective tissue capsule showing dense chronic inflammatory cell infiltrate chiefly lymphocytes, deeper part shows boneytrabeculae. Suggestive of Radicular cyst in anterior right maxillary region.

The healing was uneventful and the patient is on follow up.



Post operative radiograph 15 days after surgical intervention.

Discussion: Radicular cyst also known as periapical cyst, root end cyst or dental cyst originates from epithelial cell rests of malassez in periodontal ligament as a result of inflammation due to pulp necrosis or trauma. It is a most common jaw cyst occurring in third to fifth decade of life .More common in males and have predilection for anterior region of maxilla

Rationale for Non Surgical treatment: Even when surgical treatment is the likely definitive approach, nonsurgical therapy before the procedure is recommended to help reduce the number of micro-organisms in the root canal system. To prevent re-contamination through root canal system.

Rationale for use of intracanal medicament: Takahashi et al after analyzing the pH and the concentration of calcium ions in the periapical area, concluded that at least 2 weeks were necessary for calcium hydroxide bactericidal activity. In the current case, calcium hydroxide (Metapex) intracanal medicament was used for 2 weeks.

In present case patient underwent root canal treatment with involved teeth 2 years back. However, it did not provide the desired outcome. This could be attributed to :-

- Undiagnosed & untreated involved teeth.
- Expansile & destructive nature of the lesion.
- Patient's compliance.

Hence, surgical treatment was planned after conventional endodontic treatment. **Caroline R A et al 2005** reported that most cases involve some form of bacterial participation and the only definitive means of eradicating such an irritant is physical removal through root-end resection. Also, approximately 75% of teeth have canal irregularities (e.g., accessory or lateral canals) in the apical 3 mm of the tooth. Hence, in present case an apical resection of approximately 3 mm perpendicular to long axis of the root was done as it include most accessory and lateral canals and thus eliminate most residual microorganisms & irritants.

Rationale for MTA Root end filling: The ideal root-end filling material seals the contents of the root canal system within the canal preventing egress of any bacteria, bacterial byproducts, or toxic material into the surrounding periradicular tissues & should be dimensionally stable. MTA (ProRoot MTA; DENTSPLY, Tulsa Dental, Tulsa, OK), is a nonresorbable, biocompatible material and dimensionally stable over time. **Camilleri & Pitt et al 2006** reported that MTA is able to induce regeneration of the PDL complex, specifically cementogenesis over the root-end filling itself. In some conditions in which anatomic access and retrofilling are difficult, the root end filling material can be placed via an orthograde technique, while nonsurgical treatment is performed. The clinician may elect to resect the root end and expose the previously set MTA, rather than placing new MTA, as a root-end filling material.

A proper surgical plan is important for the selection of flap design, adequate exposure of field, ease in surgery and finally good closure resulting in good healing. The incision and flap design is one of the important steps in periapical surgery. Each type of incision is associated with complications like wound dehiscence, gingival recession and scarring. These complications must be anticipated and incorporated into pre-surgical planning. A good flap design with less aesthetic consequences and adequate access will help in minimizing intra-operative complications and improve post-operative healing.

Leubke-Ocshenbein /submarginal incision: The horizontal component of the submarginal incision is in attached gingiva with one or two accompanying vertical incisions. Generally, the incision is scalloped in the horizontal line, with obtuse angles at the corners.The incision is used most successfully in the maxillary anterior region or, occasionally, with maxillary premolars with crowns. Because of the design, prerequisites are at least 4 mm of attached gingiva and good periodontal health.

Advantages:

- The major advantage of this type of incision is esthetics.
- Compared with the semi-lunar incision, the submarginal incision provides less risk of incising over a bony defect and provides better access and visibility.
- Primary closure easily achieved
- Provides healthy bone over which sutures are placed.

Disadvantages:

- Require adequate width of attached gingiva.
- If underneath bony fenestration or dehiscence present, leads to soft tissue dehiscence.
- Occasional healing by scarring, compared with the full mucoperiostealsulcular incision.
- Muscle attachments and frenum present anatomic obstructions and hinders the reflection of flap.

PLATELET-RICH FIBRIN—A Natural Fibrin Matrix :

- PRF was first developed in France by Choukroun et al. for specific use in oral and maxillofacial surgery. This technique requires neither anticoagulant nor bovine thrombin (nor any other gelling agent).
- The PRF protocol is very simple: A blood sample is taken without anticoagulant in 10-mL tubes which are immediately centrifuged at 3000 rpm for 10 minutes.
- Amongst the various growth factors that PRF contains, platelet derived growth factor (PDGF), Transforming growth factor beta (TGF b-1 & b-2), and insulin like growth factor (IGF), epidermal growth factor, vascular endothelial factor, and fibroblast growth factors are believed to play a major role in bone metabolism and potential regulation of cell proliferation. PDGF is an activator of collagenase which promotes the strength of healed tissue. TGF-B activates fibroblasts to form procollagen which deposits collagen within the wound. PRF facilitates healing by controlling the local inflammatory response.

Conclusion: Radicular cysts are odontogenic inflammatory in origin and formed in the periapical area of a tooth having infected necrotic pulp. Radio graphically, radicular cysts appear as an osteolytic lesion at the periapical region of endodontically involved teeth. Various treatment options have been recommended depending on the size and location of cyst.In large lesions endodontic treatment is followed by surgical enucleation however some authors propose nonsurgical management of small lesions. The major advantage of submarginal incision is esthetics. Compared with the semi-lunar incision, the submarginal incision provides less risk of incising over a bony defect and provides better access and visibility. From the presented case, it can be concluded that PRF is efficacious clinically and radiographically in the treatment of intrabony defect. PRF is an autologous preparation and found to be clinically effective and economical than any other available regenerative materials.

DENTIGEROUS CYST WITH ODONTOMA

Presented by :
Dr. Rakshata Sortey (Dept. of Oral Pathology)
Dr. Kunal Sarate (Dept. of Oral Medicine and radiology)
Dr. Satish Kharde (Dept. of Oral surgery)

Abstract: Dentigerous cysts are benign odontogenic cysts that are associated with the crowns of permanent teeth.This is one of the most common types of developmental odontogenic cyst, estimated to be about 20% of all jaw cysts. Odontoma is a benign neoplasm/hamartoma often discovered accidently on panoramic radiographs. Despite literature reports, dentigerous cysts arising from odontomas are very rare and could lead to misdiagnosis. We came across a case of a 46 year old male with Pain and swelling in the upper left front region of jaw since 5 months. On the basis of radiographic and histopathological findings the final diagnosis of Dentigerous cyst associated with odontoma was given. However, this uncommon case is presented here because of its rarity in the site of occurrence and its muddled etiological factor.

Keywords: Dentigerous cyst, odontoma, benign odontogenic cyst, hamartoma.

Introduction: Dentigerous cyst also called Follicular cyst can be defined as an odontogenic cyst that surrounds the crown of an impacted tooth, caused by the fluid accumulation between the reduced enamel epithelium and enamel surface, resulting in a cyst in which crown is located within the lumen.[1] Although most dentigerous cysts are considered to be developmental in origin but also have an inflammatory pathogenesis.3 The most common sites are mandibular and maxillary third molar and maxillary cuspid areas. Occasionally, they are associated with Odontomas or supernumerary teeth. Odontomas are hamartomas composed of various dental tissues like enamel, dentin, cementum, and sometimes pulp. They are slow growing benign tumours showing nonaggressive behaviour. Odontomas are further subdivided into compound and complex types. Compound odontoma had a predilection for the anterior maxilla and complex types had predilection for posterior jaws. Here, in the present case the radiographic and histopathologic findings are suggestive of Dentigerous cyst with odontome, complex type irrespective of its clinical presentation.

Case:

- A 46 year old male reported with Pain and swelling in the upper left side of jaw since 5 months. Patient was apparently alright 5 months back then he got a blunt trauma over the upper front region of his jaw while catching a train, following which he developed a diffuse swelling over the upper lip region. The swelling was initially confined over the upper lip but gradually increased in size and involved the left nostril area over the period of 3 months. Swelling was associated with pain which was of mild, intermittent, non-radiating type and aggravated on applying pressure. Patient also noticed an intraoral palatal swelling 1 month before.
- There was h/o difficulty in breathing from left side of nose. Patient had difficulty in mastication. There was no h/o pus discharge. There was no relevant past medical history. Patient had undergone extraction with 16, 10-15 years back. Patient has habit of kharra chewing 2-3 times a day since 25

years, alcoholic & bidi smoking since 10-15 years. No other significant contributing personal or family history.

- Clinical examination showed a slight diffuse swelling over the left side giving the face an asymmetric appearance. Left nostril was slightly raised. Colour was same as surrounding skin. No visible pus discharge noted. The swelling was firm to hard in consistency and was tender on palpation. There was no local rise in temperature. TMJ-bilaterally synchronous. The mouth opening was normal. Intra-orally, a single diffuse swelling was seen over the anterior part of hard palate extending A/P- from the palatal aspect of 11 21 involving till the palatal rugae area and M/L- from the palatal aspect of mesial side of 14 to 24. A Diffuse swelling was seen over the upper front teeth with obliteration of the labial vestibule in the region of 11 21 23 24. It was hard in consistency and tender on palpation.

Fig 1. Facial asymmetry due to swelling over left side of face with slightly raised left nostril.

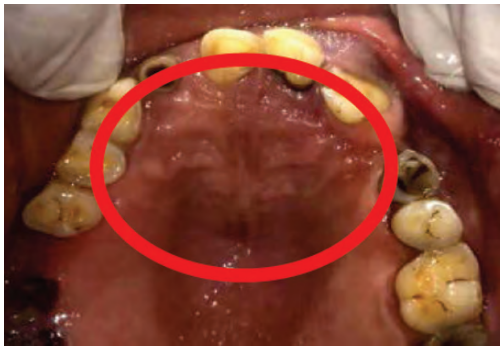


Fig 2. A single diffuse swelling seen over the anterior part of hard palate.

Fig 3. A Diffuse swelling seen over the upper front teeth with obliteration of the labial vestibule in the region of 11 21 23 24.

On further investigative procedure through orthopantomogram, a large well-defined cystic radiolucency with partially corticated borders associated with 53 11 21 23 and on occlusal radiograph a small radiopaque well-defined mass was seen associated with the apical aspect of 21. A provisional diagnosis of Radicular cyst with complex odontome was made. Dentigerous cyst and Incisive canal cyst were considered in the differential diagnosis.

Fig 3: OPG showing a large well-defined radiolucent cystic cavity with partially corticated borders with 53 11 21 23 and Root resorption with 53 11 21.

Fig 4: Occlusal radiograph showing a large well-defined radiolucent cystic cavity with partially corticated borders and a well-defined radiopaque mass seen above the apical aspect of 21.

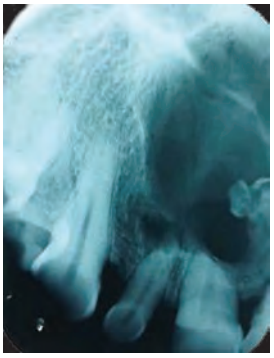


Fig 5: Intra-oral periapical radiograph showing a large well-defined radiolucent cystic cavity with partially corticated borders and a well-defined periapical radiolucency with 53.

Based on the clinical and radiologic findings, surgical treatment was planned. The Dentigerous cyst was enucleated with removal of 53 11 21 23 and the calcified mass.

Histopathologic study of the soft tissue mass revealed cystic cavity lined by thin nonkeratinized epithelium without rete-ridges. Characteristic lining epithelium of 2 to 4 layer thickness having flattened to cuboidal basal cell layer. Connective tissue capsule showed collagen fibres, fibroblasts and mild chronic inflammatory cell infiltrate. H&E stained decalcified section of the calcified mass showed presence of dentinal tubules surrounded by fibrocellular connective tissue stroma.

Fig 5: H & E stained (4X) shows a cystic cavity lined by uniformly thin stratified squamous epithelium. The surrounding connective tissue capsule shows fibrocellular stroma.

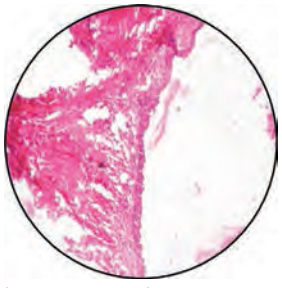


Fig 6: H & E stained (10x) section shows a cystic cavity lined by thin nonkeratinized epithelium without rete-ridges. Surrounding connective tissue capsule shows collagen fibres, fibroblasts and mild chronic inflammatory cell infiltrate.

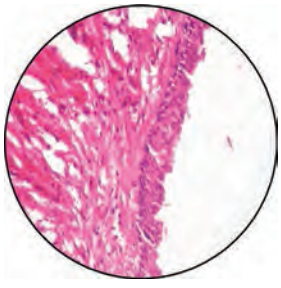


Fig 7: H & E stained (40x) section shows Characteristic lining epithelium of 2 to 4 layer thickness having flattened to cuboidal basal cell layer.Mild chronic inflammatory cell infiltrate seen chiefly plasma lymphocytic.

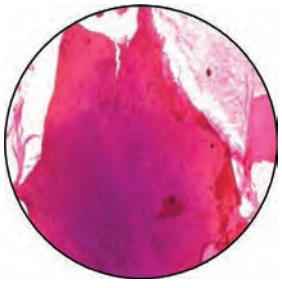


Fig 8: H&E stained decalcified section of the calcified mass (10x) shows presence of dentinal tubules surrounded by fibrocellular connective tissue stroma.

Discussion: Dentigerous cyst also called Follicular cyst is a cyst that originates by the separation of the follicle from around the crown of an unerupted tooth. The pathogenesis is uncertain, but apparently it develops by accumulation of fluid between the reduced enamel epithelium and the tooth crown.[3] This is one of the most common types of developmental odontogenic cyst, estimated to be about 20% of all jaw cysts.[1] The most common sites are mandibular and maxillary third molar and maxillary cuspid areas. Occasionally, they are associated with Odontomas or supernumerary teeth. About 70% of dentigerous cysts occur in the mandible, and 30% in the maxilla. Dentigerous cysts usually present in the second or third decade of life. The age range for reported cases varies widely, from 4 years to 57 years of age with slight male predilection (3:2).[6] The histopathologic features vary depending on whether the cyst is inflamed or not inflamed. In the noninflamed dentigerous cyst, the fibrous connective tissue wall is loosely arranged and with considerable amount of glycosaminoglycan ground substance. In the fairly common inflamed dentigerous cyst, the fibrous wall is more collagenized, with a variable infiltration of chronic inflammatory cells.[3]

Odontomas are the most common types of odontogenic tumors.[1] It is rather a hamartomous malformation than a tumour.[2] Odontomas can be Compound - composed of multiple small tooth like structures or Complex - consisting of a conglomerate mass of enamel and dentin with no anatomic resemblance to a tooth.[3] It occurs more frequently on the right side of the jaw. Complex odontoma is less common than compound odontoma and can occur at any age. There is male preponderance. Posterior jaws are most commonly involved. Usually they associated with unerupted or impacted teeth.[1,2] The lesions most commonly associated with odontomas are: Calcifying Epithelial Odontogenic Cyst and Dentigerous cyst.[3] In odontoma, enamel and dentin are laid down in an abnormal pattern as the organization of odontogenic cells fails to reach a normal state of morpho-differentiation. Etiology of odontomas is unknown. It has been suggested that local trauma or infection may lead to production of such a lesion.[1], [3]

Conclusion: Despite of their benign nature, these lesions are well recognized by their growth pattern and should be completely removed to avoid secondary complications like ameloblastoma or epidermoid carcinomas as they exist stemming from dentigerous cyst. With the possible sequelae/follow-up of the patient, good prognosis was obtained following surgery.

References:

1. R. Rajendran, B. Shivpathasundharam. Shafer's Textbook of Oral Pathology. 8th Edition. New Delhi: Elsevier; 2012.
2. Shear M., Speight P. Cysts of the Oral and Maxillofacial Regions. 4th Edition. UK: Blackwell Publishing Ltd.; 2007.
3. Neville, Damm, Allen, Bouquot. Oral and Maxillofacial Pathology. 4th Edition. Noida: Elsevier; 2009.
4. Cawson R. A., Odell W. Cawson's Essentials of Oral Pathology and Oral Medicine. 7th Edition. UK: Churchill Livingstone (Elsevier); 2002.
5. MA Sales, MG Cavalcanti. Complex odontoma associated with dentigerous cyst in maxillary sinus: case report and computed tomography features. Dentomaxillofacial Radiology 2009; 38, 48–52.
6. M. C. Buyukkurt, M. M. Omezli, O. Miloglu. Dentigerous cyst associated with an ectopic tooth in the maxillary sinus: a report of 3 cases and review of the literature. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2010;109:67-71.

EPITHELIOID HEMANGIOMA: A RARE ENTITY TO REPORT

Presented by
Dr. Manjiri Charpe (Dept. of Oral Medicine and radiology)
Dr. Ayushi Pakhale (Dept. of Oral Pathology)

Abstract: Epithelioid hemangioma (EH) or angiolymphoid hyperplasia is an uncommon benign vasculoproliferative neoplasm. We are reporting a case of EH involving the gingiva in a 12-year-old male patient who reported to the outpatient Department of Oral Medicine and Radiology with the chief complaint of gingival growth in the lower mandibular gingiva involving both buccal and lingual gingiva and facial asymmetry due to enlarged left submandibular lymph nodes.

Keywords: Epithelioid hemangioma, capillary hemangioma, gingival growth, vasculoproliferative neoplasm

Introduction: Epithelioid hemangioma (EH) is an uncommon benign vasculoproliferative neoplasm, whose etiology and pathogenesis are still uncertain. The term EH was coined by Enzinger and Weiss in 1983, but EH was first described in 1969 by Wells and Whimser as angiolymphoid hyperplasia with eosinophilia.[1-3] Extraoral counterpart of this entity typically presents as a small angioma-like nodule, red to brown in color, which may be located intradermally or subcutaneously in young adults. It can mimic lymphoproliferative disorders, especially when the lesion arises in typical location, such as the extremities.[4] Oral presentation of EH is nonspecific and it may be difficult to clinically differentiate EH from angioma, pyogenic granuloma, Kaposi's sarcoma, salivary gland tumor, lymphoma, and squamous cell carcinoma.[1] Oral cases of EH were found to be common in males as compared with females, and the lips, tongue, buccal mucosa, and palate are the common sites involved.[5]

Case: A 12-year old male reported to the outpatient Department of Oral Medicine and Radiology with the chief complaint of gingival growth in the lower mandibular gingival involving both buccal and lingual gingiva. Patient gave history of gradual increase in size and involvement with history of occasional gingival bleeding in the last 2 years. No history of weight loss or fever or other constitutional symptoms. Clinical examination showed granular growth involving marginal and attached gingiva, covering cervical third of all teeth in the region [Figure 1]. The growth was painless and not associated with bleeding on probing or any discharge. Lymph node examination revealed enlarged left submandibular node of size was 2×1.5cm, oval shaped, firm, mobile, and nontender. In addition, two smaller submandibular lymph nodes, one on left side and one on right side, were also enlarged and nontender. Patients consent was obtained and radiological investigations such as anIntra oral periapical radiograph and Orthopantomograph were made, which revealed moderate alveolar bone resorption extending from 32 up to 37 region. On ultrasonography of the neck, except for enlarged lymph nodes, no other pathology was observed. Incisional biopsy was done, and at the same time, other investigations were carried out, such as Mantoux test, chest X–ray, and USG-guided FNAC for the lymph node to rule out any systemic cause. USG-guided FNAC for left submandibular enlarged lymph node suggested it as reactive lymphadenopathy, whereas other tests revealed no abnormality.

Fig 1- Extent of lesion from 32 up to the retromolar region involving both buccal and lingual gingival

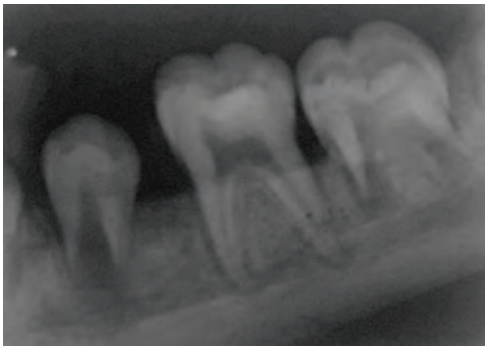


Fig 2: IOPA showing moderate alveolar bone loss with 35, 36, and 37 regions

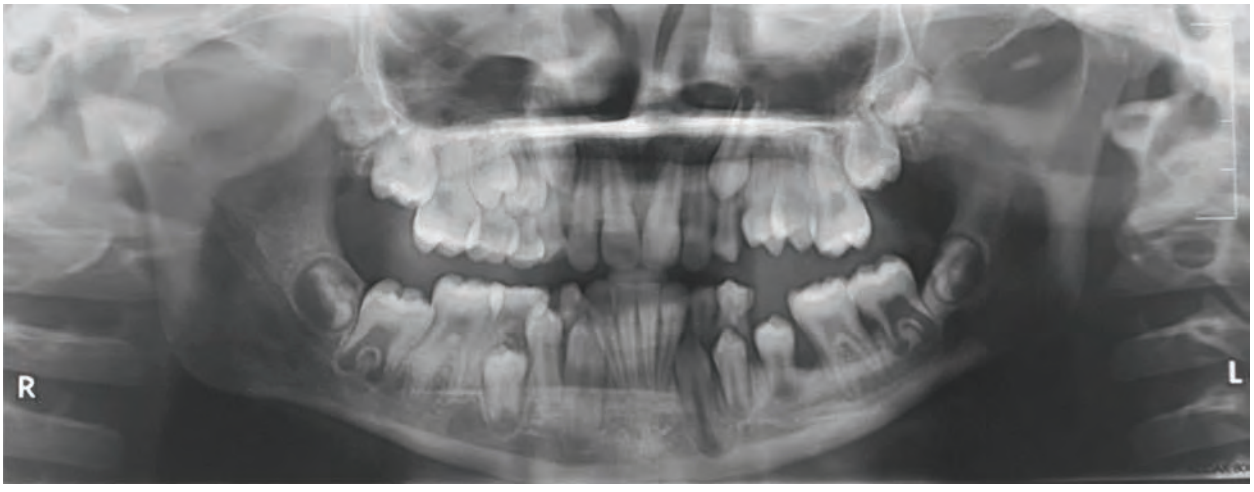


Fig 3: OPG showing moderate alveolar bone loss extending from 32 up to 37 region

Histopathological evaluation showed underlying lesional fibrocellular connective tissue stroma composed of abundant blood vessels of variable sizes mostly capillary sizes. Remarkable endothelial cell proliferation was present in the stroma. There is mild chronic and acute inflammatory infiltration. (fig 4 & 5) In other section, endothelial lining of the vessels showed 'tombstone' appearance which is a feature of Epithelioid Hemangioma. (Fig 6) Immunohistochemical (IHC) evaluation with CD-34 marker heighted proliferation of numerous small blood vessels suggestive of Capillary Hemangioma. (Fig 7)

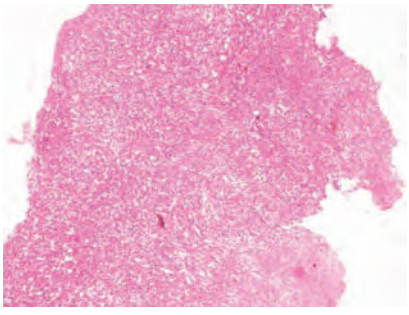


Fig 4: H & E stain (10x)

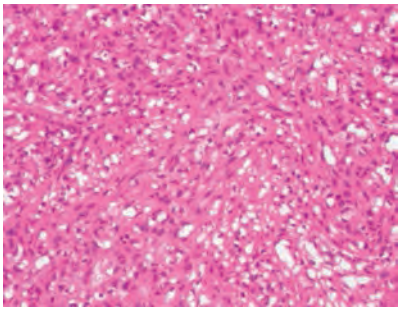


Fig 5:H & E stain (40x)

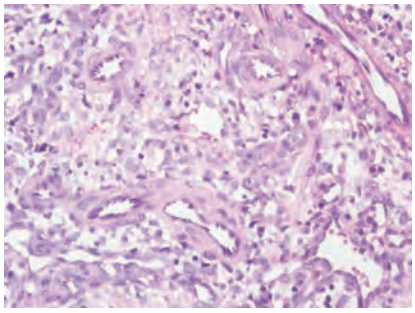


Fig 6:H & E stain (40x)

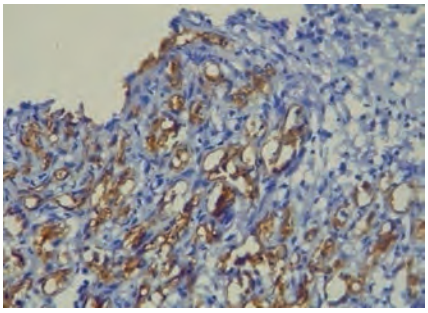


Fig 7: IHC with CD 34 (40x)

Discussion: Haemangiomas are benign tumour composed of disorganized manner of endothelium lined vessels that are filled with blood and connected to the main blood- vascular system. It can be either congenital or traumatic in origin and are characterized by rapid growth phase with endothelial cell proliferation, followed by gradual involution. It is the result of endothelial cell hyperplasia in the presence of certain growth factors involved in angiogenesis like vascular endothelial growth factor (VEGF), basic fibroblast growth factor (b- FGF).

Oral hemangiomas represent 14% of all human hemangioma. There are various subtypes of hemangioma like capillary hemangioma, lobular hemangioma, cellular hemangioma, and epithelioid hemangioma. Various synonyms used for epitheloid hemangioma are angioblastic hyperplasia with eosinophilia (ALHE), nodular angioblastic lymphoid hyperplasia with eosinophilia. It usually appears soon after birth, typically proliferate during the 1st year of life and then involute during the childhood years (up to 12 years). The hemangioma of the oral soft tissue is similar to the hemangioma of the skin and appears as a flat or raised lesion of the mucosa, usually deep red or bluish red and seldom well circumscribed. They are readily compressible and fill slowly when released. They are much more common in females than males (ratio=3:1). Only 21 cases of epithelioid hemangioma have been reported in the oral cavity where lips are the most frequent site, followed by the tongue, buccal mucosa and palate.

A useful approach to the management of hemangiomas can be based on location of the lesion, stage of the lesion and type of lesion. Treatment of haemangioma is often a challenge. Intralesional corticosteroids, cryotherapy, laser cauterization and irradiation have been used but are not proven to be effective.[2,9] Other therapeutic options available are intralesional interferon alpha-2a, indomethacin farnesil, pentoxifylline, and chemotherapeutic agents such as vinblastine, mepolizumab (anti-interleukine-5), and imiquimod.[9]. Surgical excision with periodic follow-up has been accepted as recommended treatment till now. In the present case, patient was advised for surgical treatment. It is reported that patients with oral EH underwent for complete surgical resection without additional therapy, and recurrence was relatively rare in such cases.[7,10,11]. The prognosis of the hemangioma is excellent, since it does not become malignant or recur after adequate removal or destruction. Recurrence observed in about 2% of the reported cases of hemangioma of oral cavity.

Conclusion: Most Hemangiomas are self regressing . But the lesions that do not undergo involution , should be evaluated clinically and histopathologically. Hemangioma clinically present in various forms and so should be considered as differential diagnosis in soft tissue tumours. Thorough clinical examination supplemented with histopathological analysis will help for definite diagnosis

Referances:

1. Henriques ÁC, Vidal MT, Gurgel CA, Rocha SL, Júnior BC, de Azevedo RA, et al. Epithelioid hemangioma in the oral mucosa – A case report. Srp Arh Celok Lek 2016;144:535-40.
2. Kumari VR, Vallabhan CG, Geetha S, Nair MS, Jacob TV. Atypical presentation of capillary hemangioma in oral cavity – A case report. J Clin Diagn Res 2015;9:ZD26-8.
3. Nangia R, Puri A, Gupta R, Bansal S, Negi A, Chauhan I, et al. Epithelioid hemangioma of lingual alveolar mucosa: An immunohistochemical case report. Case Rep Med 2014;2014:436240.
4. Guo R, Gavino AC. Angiolymphoid hyperplasia with eosinophilia. Arch Pathol Lab Med 2015;139:683-6.
5. Aggarwal A, Keluskar V. Epithelioid hemangioma (angiolymphoid hyperplasia with eosinophilia) in the oral mucosa. Indian J Dent Res 2012;23:271-4.
6. Nayak VJ, Chatura RK, Morphological characterisation of capillary hemangioma pattern: An Indian study. Indian J Pathol Res Pract 2017;6:135-40.
7. Sun ZJ, Zhang L, Zhang WF, Alsharif MJ, Chen XM, Zhao YF, et al. Epithelioid hemangioma in the oral mucosa: A clinicopathological study of seven cases and review of the literature. Oral Oncol 2006;42:441-7.
8. Shimoyama T, Horie N, Ide F. Epithelioid hemangioma of the tongue mimicking a malignancy. J Oral Maxillofac Surg 2000;58:1317-9.
9. Venkatesan A, Singh R. Angiolymphoid hyperplasia with eosinophilia of oral mucosa in a child treated with imiquimod. Indian J Paediatr Dermatol 2016;17:196-8.
10. Miličić B, Velnar T, Pregelj R, Limbaeck-Stokin C. Multiple epithelioid hemangiomas with orbital involvement. Case Rep Pathol 2015;2015:629805.
11. Martin-Granizo R, Muñoz E, Naval L, Martín R, Goizueta C, Diaz FJ, et al. Epithelioid hemangiomas of the maxillofacial area. A report of three cases and a review of the literature. Int J Oral Maxillofac Surg 1997;26:212-4.
12. Danjanov I, Linder J. Soft Tissue Tumour, Anderson's Patholgy. 10th ed. St. Louis: Mosby; 1996. p. 2497.
13. Weiss SW, Goldblum JR. Benign tumours and tumour like lesions of blood vessels. Ezinger and Weiss's Soft Tissue Tumour. 4th ed. St. Louis: Mosby; 2001. p. 856-63.
14. Rosai J. Lymph nodes. Ackerman's Surgical Pathology. 7th ed. New Delhi: Jaypee; 1989. p. 856-63.

INTRUSION OF AN OVER ERUPTED MOLAR USING ORTHODONTIC MINISCREW IMPLANT

Presented by
Dr. Anjali Khekade (Dept. of Orthodontics)
Dr. Insiyah Yusuf (Dept. of Prosthododntics)

Introduction: Prosthodontic rehabilitation of edentulous space is often complicated with overeruption of antagonistic tooth and often requires preprosthodontic intervention. In this context, orthodontic intrusion of the overerupted antagonistic tooth to facilitate prosthodontic rehabilitation is a desirable strategy. However, the task is formidable with routine orthodontic mechanics and control of anchorage is difficult. Recently, the introduction of miniscrew implants to the orthodontic armamentarium has widened the scope of intervention. Preprosthodontic intrusion of overerupted tooth with the aid of miniscrew implants is less invasive and simplistic.

Miniscrew implants are made from titanium alloy or surgical grade stainless steel and employ a conical or tapered screw design with asymmetric or symmetric thread pitch. They can be placed directly through the gingival tissue into bone in between the roots of individual teeth with a hand driver or hand piece. Placement is minimally invasive and often completed using only topical anesthetic. Miniscrew implants are unique because unlike restorative endosseous implants they do not require osseointegration. Instead, these devices rely on mechanical retention to maintain rigidity, which also makes their removal relatively simple and noninvasive. Ideally, they should be placed in areas with adequate cortical bone and with the head of the screw in attached alveolar mucosa. They may be loaded immediately, but biomechanical factors must be taken into consideration owing to the increased chance of loosening associated with the lack of integration and torque or rotational forces that may occur under loading. Once they have served their purpose, they are removed.

This case report will focus on preprosthodontic intrusion of an overerupted molar using a miniscrew implants and partial fixed orthodontic appliance.

Case Report: A 18-year-old male was referred to the Department of Prosthodontics with the chief complaint of missing teeth since 3 years.

The patient was apparently alright 3 years back when he underwent extraction of upper left first premolar, lower left first and second molar and lower right second premolar, first and second molar, because of decay. As a result, the maxillary right first molar was overerupted and there was insufficient occlusal clearance.

Lateral cephalometric analyses showed that the patient had a Class I skeletal relationship with an acceptable profile. The right and left canines were in a Class I relationship, noncoinciding upper and lower midline (Fig.1,2,3) the overbite was 40% and the overjet was 2-3 mm.

The objective of the treatment was to intrude the overerupted molar utilizing miniscrew implant anchorage and subsequently regain the appropriate dental space for implant supported fixed prosthesis.

Fig: 1

Fig: 2

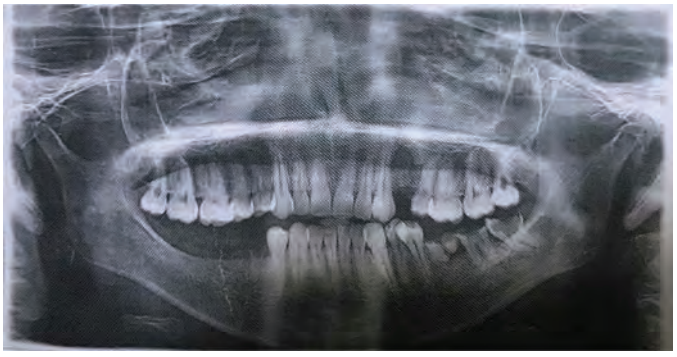


Fig: 3

It was decided to undertake intrusion of the upper right and left first molars using 4 temporary orthodontic anchorage devices to facilitate restorative treatment of missing molars. Four temporary anchorage devices, 7 mm in length and 1.6 mm in diameter, were used (SK Surgicals). Two of the devices were placed between the upper first and second molars on the buccal side and palatal side on left side. The other 2 devices were placed between the upper right first molar and second premolar on the buccal side and between the first molar and the second premolar on the palatal side (right side). These positions were chosen to facilitate the required intrusive movement. One operator placed all of the devices.

About 0.5 mL of local anesthetic (2% xylocaine with 1:100 000 epinephrine) was administered by infiltration before placement of the temporary anchorage devices. Prior to miniscrew placement, a slight purchase point was made by drilling a small pilot hole (according to surgical stent) with a round bur using slow-speed contra-angle hand piece. This facilitated accurate directional control when threading the miniscrew implant into the bone. Sterile saline irrigation and strict antiseptic protocols were followed.Implants were inserted in desired position with the help of implant driver

The temporary anchorage devices were immediately loaded with 100 g of intrusive force using a closed elastic power chain (Rocky Mountain Orthodontics Inc) attached to bite plate hooks .The power chain was activated every 2 weeks.(Fig 4). Bonding of lower arch done for levelling and alingnment of lower teeth.

Fig: 4

Fig: 5

After 6 months of orthodontic treatment with the 4 upper temporary orthodontic anchorage devices, functional occlusion was established in the right and left posterior dentition through 4-mm intrusion of the upper first molars (Fig. 5). This created adequate space to restore the opposing edentulous spaces

Fig: 5

Diagnostic impressions were made using irreversible hydrocolloid impression material. Diagnostic casts were obtained. To determine the exact position of implant placement in the posterior region, radiographic stent was fabricated on the lower cast. This stent was further used as a surgical guide during implant placement. (Fig. 6).

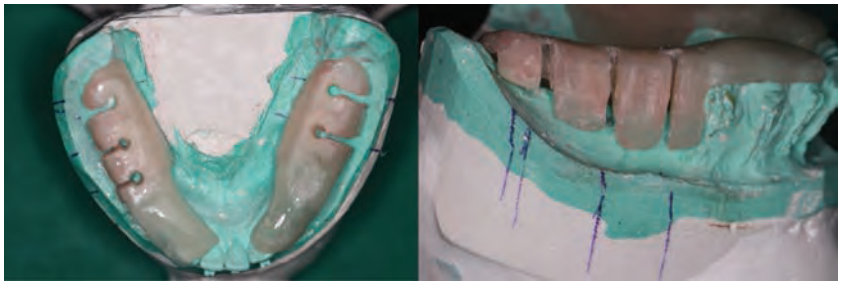


Fig: 6

Surgery was done and 2 dental implants in the left posterior region and 3 dental implants in the right posterior region were placed. (Fig. 7).

Fig: 7

Fig: 8 Post-operative OPG of dental implants placed in the lower posterior region

After a period of 3 months following osseointegration of the dental implants, healing abutments are placed for proper contouring of soft tissue around the implants and prosthetic phase is initiated. (Fig. 9). Diagnostic impressions is made with irreversible hydrocolloid material. . (Fig. 9).

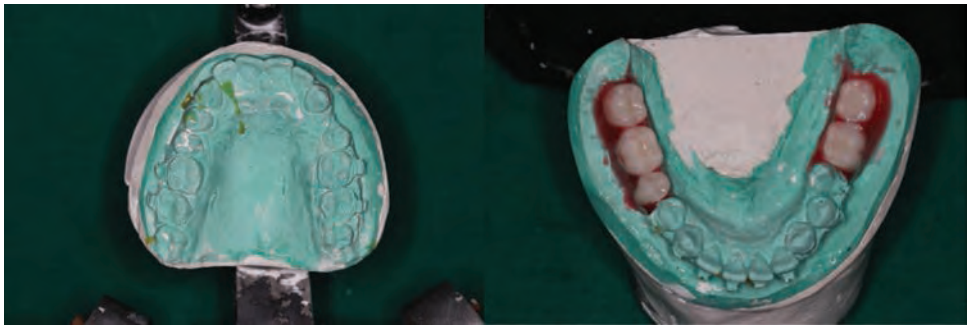


Fig: 9

Casts were obtained and mounted on a semiadjustable articulator using face bow record. Broadwicks occlusal plane analysis is done and lower posterior teeth are arranged according to the determined occlusal plane. . (Fig. 10). Custom tray is fabricated on the lower cast.(Fig. 10).

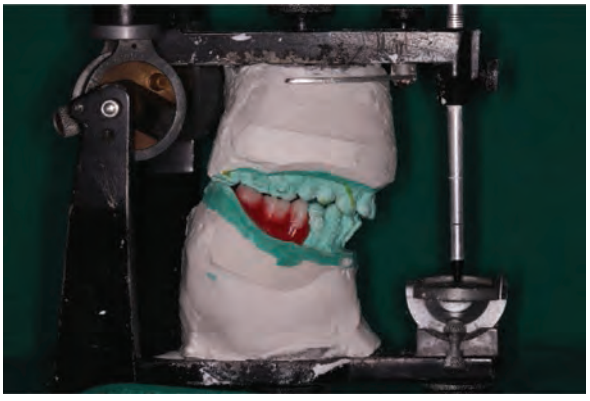


Fig: 10

Healing abutments are recovered after a period of 7 days and open tray impression copings are placed. . (Fig. 11).

Fig: 11

The impression copings are splinted with pattern resin and the custom tray is adjusted intraorally to accommodate these impression copings. (Fig. 12). Final impression was made by single step putty wash technique using light bodied addition silicone impression material.(Fig. 13)

Fig: 12

Fig: 13

Temporary crowns were placed in the lower posterior region and bonding of maxillary arch were done to bought upper posteriors into occlusion according to the lower posteriors (Fig. 14).

After 3 months of orthodontic treatment, levelling and alignment of maxillary teeth was completed and, occlusion was established in the right and left posterior dentition. (Fig. 15)

Fig: 14

Fig: 15

Conclusion: TAD-supported molar intrusion is controlled and timely and may be accomplished without the need for full-arch brackets and wires. Supraerupted maxillary first molars can be intruded 3 to 5 millimeters in 7.5 months (approximately 0.5–1.0 mm per month), without loss of tooth vitality, adverse periodontal response or radiographically evident root resorption.

ERGONOMICS IN DENTISTRY

Presented by
Dr. Shruti Jain (Dept. of Oral Surgery)
Dr. Kartik D S (Dept. of Physiotherapy)

Introduction: Ergonomics has become the overseer of all the professions in past decade. An inside out of ergonomics could definitely aid in reducing the number of dentists retiring due to musculoskeletal disorder.

Past decade has seen ergonomics emerging as an overseer of almost all the practiced professions where dentistry is no different. Occupational hazard in dentistry requires addressing musculoskeletal disorders majorly. In a study conducted on 200 practicing dentists in the Delhi - NCR area, 64.5% of the clinicians have experienced symptoms of MSDs

Discussion: Pain experienced by dentists is no more a new agenda but preventing its occurrence is now in lime light. Repetitive motions, awkward postures for reaching the oral cavity and static postures are all inevitable in dentistry but ergonomics can help combat these risk factors of MSDs

Our survey revealed that a vast majority of dentists were aware of ergonomics existing in dentistry but only handfuls of them have ever attended a workshop or a lecture on the same. In our study 25.6% attended seminar or a workshop related to ergonomics which was not harmonious with only 7% in a study conducted by Khan et al in Malaysia.

Neutral Position: In our study a majority of dentists were aware of neutral position. In order to assess the confines of oral cavity, bending and twisting of dentists is not unusual. For most of the time these postures are beyond the acceptable range of flexion, extension, adduction or abduction of a joint. It is very important to clearly understand these neutral positions for an effective practicing of the same.

Whenever the head is bend the muscles of neck contract to keep head from falling thereby causing fatigue of neck muscles if bending is for prolonged duration. Though a straight neck posture is barely possible for a dentist, a flexion till 20-25 degrees is permissible without causing much damage.

Shoulder slouching is again not uncommon in dentists that needs to be consciously corrected while working by knowing the ill effects of it. Whenever the shoulder is 5 bending forward it leads to increase in interscapular distance thereby causing stretching of related muscles

The arms and the forearms need to be kept as close to body as possible. The angle between arm and forearm ideally should be 90 degrees but a flexion till 60 degrees and extension till 100 degrees is acceptable. At all times forearms should be supported which is best facilitated by the chairs that have fully adjustable hand rest.

Hand should be in line with forearm with barely permissible adduction abduction extension and flexion. Hand could be bent on the side of little finger and to be avoided towards the thumb. Spinal curve should be maintained by an apt back rest especially at the lumbar region. Hip to thigh angle should be approximately 110 degrees which implies that hip should be slightly higher than knees. Such a posture

also aids in positioning closer to patient. The knee end of thigh should not be resting on the seat so as to prevent the leg from becoming numb. Both the feet should be in contact with floor entirely with all sorts of foot controls in near reach

Stretch Breaks: Having operators take frequent breaks and reverse their positions is integral in an effective injury prevention program. Directional stretches such as rotation, side-bending or extension can he performed either while sitting on chair or outside the operating room. Directional stretching involves a component that generally is in the opposite direction of that in which the operator frequently works thereby addresses the muscle imbalances that tend to develop. Frequent stretching breaks address the detrimental physiological changes that can develop while working in optimal or awkward prolonged static postures.

Operator and Patient Position: A common mistake among dentists is positioning patients too high. This causes elevation of the shoulders and abduction of the arms, leading to prolonged static muscular tension in the neck and shoulders. Operators should take the time to position their patients properly for mandibular and maxillary procedures. Supine position of the patient increases accessibility of both the sides with less bending and twisting of operator.

Four Handed & Six Handed Dentistry: This is a chair side ergonomic arrangement about which maximum respondents were aware which was in consonance with the percentage of dentists practicing it. A definite position of the dentist and the trained assistant is designed so as to avoid twisting and bending to grab an instrument as well as for the procedure.

Conclusion: By now it is well established that musculoskeletal disorders are common amongst the dentist due to awkward postures. The call is for an ergonomic intervention for increased productivity and delayed retirement of dentists. This intervention is not medicinal rather it's a practice at personal level which can only come by a thorough knowledge of the topic which was found to prevail only fairly.

MANAGEMENT OF ELLIS CLASS IV FRACTURE IN YOUNG PERMANENT TOOTH

Presented by:
Dr. Shrutika Mankar (Dept. of Pedodontics)
Dr. Resham Pakhmode (Dept. of Periodontics)

Abstract: Traumatic injuries to the oro-facial region often result in maxillary anterior teeth fracture in children and young adults. The challenge in performing root canal treatment in teeth with necrotic pulps & wide open apices is to obtain an optimal apical seal. Apexification is the method of inducing the formation of a calcific barrier in a non-vital, young permanent tooth. Mineral trioxide aggregate has been proved to be the best available material for apexification since its introduction in 1993. This case report describes a multidisciplinary approach to treat a traumatized tooth with open apex.

Keywords: Elli's class IV fracture , Gingivectomy, MTA, Fiber post, Polycarbonate Crown

Introduction: Dental trauma occurs in frequently the 7-11 years age group and is mainly due to accidental falls.1 It has been reported by The International Association of Dental Traumatology that one out of every two children sustains a dental injury. It occurs primarily in the anterior region of the mouth, affecting the maxillary more than the mandibular anterior teeth.2 Most crown fractures occur in young, caries-free anterior teeth.

Case report: A 12-year-male patient reported to the department of pediatric and preventive Dentistry V S P M Dental College and Research Centre, Nagpur, with the chief complaint of poor aesthetics due to broken tooth in upper anterior region of jaw since 2 years. There was history trauma 2 ½ years back while playing. Clinical examination revealed discolored and fractured maxillary left central incisor. Patient was in developing permanent dentition. Maxillary anterior teeth were protruded with increased overjet and an insufficient lip closure.

On intraoral examination fracture involving enamel dentine and pulp was seen with 21 (complicated crown fracture) associated with localized gingival enlargement. Radiographic examination revealed incompletely formed apex and thin dentinal walls. Teeth elicited negative response to electric pulp testing. Hence, a diagnosis of Elli's class IV fracture leading to pulpal necrosis was made.

Figure 1- Ellis class IV fracture – 21

figure 2- Localize gingival hyperplasia - 21

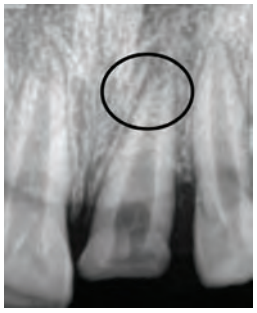


Figure 3- IOPA showing open apex -21

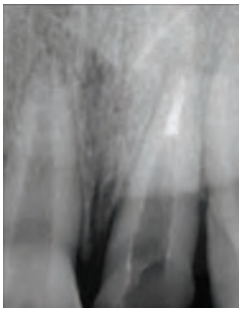


figure 4- IOPA after placement of MTA

The treatment protocol included complete oral prophylaxis followed by gingivectomy with 21. On second visit oral prophylaxis done followed by gingivectomy procedure in relation to 21. Third visit was scheduled after 15 days of gingivectomy and access opening done with 21 from palatal aspect followed by gently irrigating the walls of root canal with 20 ml 2.5% NaOCl through 26-gauge side vented needle. Calcium hydroxide dressing was placed for the disinfection of root canal for 2 week.

On fourth visit the calcium hydroxide dressing was removed irrigation done with 3% NaOCl followed by saline. Canal was dried with paper point, An apical barrier of 3 mm was established using MTA. A moist cotton pellet was placed over the MTA and access cavity was sealed with MD temp. Patient was recalled on next day. In fifth visit the setting of MTA was confirmed using gutta percha cone and the root canal reinforcement was carried out as the remaining dentinal thickness of the canal was very less. 3 mm of gutta percha was filled using thermoplasticized technique (Dia-Pen by Diadent). Snuggly fitted 1.5mm diameter, tapered translucent fiber reinforced post was cemented with flowable composite resin (Hercules precise) and Coronal built up was then done using nanohybrid composite resin (Hercules precise). On sixth visit prefabricated poly carbonate crown was selected. Tooth preparation done with 21. Chamfer finish line was given. Adaptation of Poly carbonate crown done followed by its Cementation with type 1 GIC done.

Figure 5- selection of post (fiber reinforced)

Figure 6- composite core build up

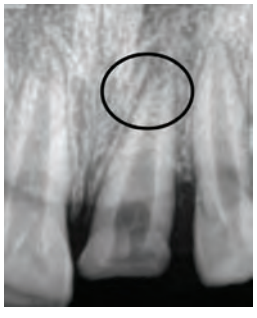


Figure 7- IOPA of post selection

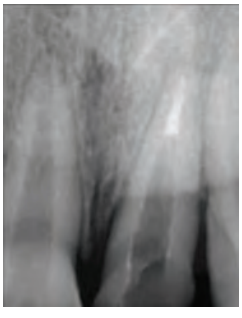


Figure 8- IOPA of core build up

Figure 9 – polycarbonate crown placement

Discussion: Dental injuries usually causes severe problems that effect patients from the point of pain, function, aesthetic and psychological . The basic factors that determine the injury level following dentoalveolar trauma are; the severity of trauma, type, direction, elasticity of the object, the absorption level of lips and other soft tissues, the quantity and quality of the tooth and jaw structures.

Calcium Hydroxide (Intra Canal Medicament) Calcium hydroxide was originally introduced to the field of endodontics by Herman in 1920 as a pulp-capping agent. Ca(OH)2 has a high Ph (about 12.5-12.8), is insoluble in alcohol, and is chemically classified as a strong base.[5]

Its main actions result from the ionic dissociation of the Ca2+ and OH- ions and their effect on vital tissues, such as inducing hard tissue deposition and being antibacterial, Mechanism of action Calcium hydroxide has antibacterial properties. The antimicrobial activity of Ca(OH)2 is dependent on the release of hydroxyl ions in a aqueous environment.[6] The lethal effects of hydroxyl ions on bacterial cells are probably due to damage to the bacterial cytoplasmic membrane, denaturation of proteins, or damage to the DNA.[5]

Apexification, or root-end closure, is the process whereby a non-vital, immature, permanent tooth which has lost the capacity for further root development is induced to form a calcified barrier at the root terminus.[7] There are various materials that have been reported to successfully stimulate apexification. MTA is a bioactive material, which induces hydroxyapatite crystal formation on its surface when in contact with tissue fluids. This phenomenon is responsible for its biocompatibility, hard-tissue induction potential and sealing ability, features that make MTA an appropriate material for use as an apical plug in teeth with necrotic pulps and open apices.[7]

Post-core applications are usually performed in teeth with severe crown destruction. The purposes of restoration are; support, replacement and retention. Retention problem may occur at teeth with severe crown destruction and root-canal treatment.[8] In recent years, in order to fix this problem, the usage of fiber supported post materials are commonly in use. The less invasive treatments are important for the young patients. The use of fiber posts is a conservative treatment plan for the tooth which is traumatized and with severe tissue destruction.

A fiber post consists of reinforcing fibers embedded in a resin polymerized matrix.[9] Bonding fiber posts to root canal dentine improves the distribution of forces along the root, thereby contributing to the reinforcement of the remaining radicular structure and decreasing the risk of root fracture.[3] The matrix commonly comprises epoxy or acrylic polymers, with or without filler materials. Light transmission through the FRC post permits the use of a light-cured adhesive or dual-cure resin cement.[3] The translucent glass-fiber post has a modulus of elasticity (30-40gpa) similar to that of dentin(15-25gpa) and offers adequate mechanical properties.[3] Transmission of light through the post also makes it possible to light-cure the

resin cement and the bonding system in only one clinical step thus simplifying and shortening the clinical procedure Polycarbonate crowns are easy to use and handle along with considerably reducing the chair side working time thereby overcoming the difficulties reported so far pertaining to placement and retention. The newer generation of Pediatric polycarbonate crowns are more clinician friendly and esthetically acceptable. The material is flexible, easily adaptable, and reduces the chair side placement time considerably.[10]

Conclusion: Apexification with a novel biocompatible and bio-active material like MTA is a convenient approach for managing immature open apex roots. Tooth strengthening using glass reinforced fiber posts and composite resin is a successful alternative to cast post and core in necrosed teeth with wide open canals, because of the better stress distribution. Compared with conventional restorations, polycarbonate crowns provide an overall protection to the affected tooth and it is accepted greatly by patient and parent.

References:

1. 1. Skaare AB, Jacobson I: Dental injuries in Norwegians aged 7-18 years. Dent Traumatology 19:67, 2003
2. Bastone EB, Freer TJ, mcnamara JR: Epidemiology of dental trauma: a review of the literature. Austdent J 45.2
3. Boschian Pest L, Cavalli G, Bertani P, Gagliani M: Adhesive post- endodontic restorations with fiber posts: push-out tests and SEM observations. Dent Mater 18:596- 602, 2002
4. Sjogren U, Figdor D, Spangberg L, Sundqvist G. The antimicrobial effect of calcium hydroxide as a short-term intracanal dressing. International Endodontic Journal 1991; 24: 119–25
5. Mohammadi Z, Shalavi S, Yazdizadeh M. Antimicrobial activity of calcium hydroxide in endodontics: a review. Chonnam Med J. 2012 Dec;48(3):133-40
6. Gutmann JL. Grossman's Endodontic Practice - 13th Edition.
7. Paul D, Das PK, Bora A, Banerjee S, Zahir S, Kundu GK. Rehabilitation of a Fractured Anterior Tooth with Open Apex. Int J Oral Health Med Res 2015;2(3):53-56.
8. Dogan MS, Yavuz I, Atas O, Karaali AE, Demirci F, et al. (2015) Treatment Approach in Teeth with Complicated Crown and Crown-Root Fracture: Three Case Reports. Int J Pediatr Res 1:006
9. Peroz I, Blankenstein F, Lange KP, Naumann M (2005) Restoring endodontically treated teeth with posts and cores-a review. Quintessence Int 36: 737-746.
10. Venkataraghavan K, Chan J, Karthik S. Polycarbonate crowns for primary teeth revisited: Restorative options, technique and case reports. J Indian Soc Pedod Prev Dent 2014;32:156-9.

A GUIDE TO SURGICAL CROWN LENGTHENING PROCEDURE AND TOOTH RESTORATION IN ANTERIOR ESTHETIC REGION

Presented by:
Dr. Kanan Shah (Dept. of Periodontics)
Dr. Runali Chavhan (Dept. of Prosthodontics)

Introduction: The odontologists know, but often underestimate importance of periodontal tissues health to restoration of defected teeth or dental arches. It is necessary to prepare periodontal tissues properly before restorative treatment to ensure good form, function and esthetic of masticatory apparatus and patient comfort. In time bad quality restorations alters periodontal tissues. Precision of restorations is important as well as relationship with periodontium. Sometimes even precise restoration can induce inflammation of periodontal tissue.

Close attention to both soft and hard tissues around teeth and implants before, during, and after restorative procedures will greatly increase the probability of a successful outcome.

Clinical crown of the tooth is the distance from gingival margin to incisal edge or occlusal surface of the tooth. This distance should be increased when:

- Margins of caries lesion are subgingivally;
- Margins of tooth crown fractures are subgingivally;
- Tooth crow is too short for retention of restoration;
- There is excess of gingiva and anatomical tooth crown is opened partially.

In these cases, except the last, it is necessary to evaluate the gingival biologic width (GBW), to clear out if it is no altered, will it remain healthy after tooth restoration.

Gingival biological width (biologic membrane, dentogingival attachment) is the area of gingiva attached to the surface of the tooth coronary from the alveolar bone. This determination is based on the study of Garguilo A. W., Wentz F. and Orban B. in 1961 on dentogingival junction of cadavers. It was established the width necessary for gingiva to attach to the tooth. They studied 287 teeth of 30 cadavers and established the relationship between marginal alveolar bone, connective tissue attachment (CTA), epithelial attachment (EA) and gingival sulcus (GS). Gingival biological width (GBW) was calculated by adding widths of connective tissue attachment and epithelial attachment: GBW = CTA + EA = 2.04 mm. It was calculated mean values, though values in the study varied, especially width of epithelial attachment (1 mm to 9 mm), however connective tissue attachment width value was almost constant.[1]

Tooth wear can be classified as attrition, abrasion and erosion. Excessive tooth wear can result in, occlusal disharmony, pulpal injury, impaired esthetics and function and can also lead to loss of vertical dimension. In some cases VDO is maintained by tooth eruption and alveolar bone growth. Aesthetic and functional restoration of the severely worn dentition represents a significant clinical challenge.[2] One of the most demanding aspects of such cases involves the development of sufficient restorative space, while

simultaneously fulfilling aesthetic, occlusal, and functional parameters essential for long-term success.[3] Meticulous treatment planning with multidisciplinary approach is essential for successful treatment outcome.

The patients were classified into three categories by Turner and Missirlain

- Category 1 - Excessive wear with loss of vertical dimension.
- Category 2 - Excessive wear without loss of vertical dimension of occlusion but with space available.
- Category 3 - Excessive wear without loss of vertical dimension of occlusion but with limited space available.[4]

Over the year many occlusal concept were developed by different authors for management of patietnt with severely worn out dentition. Two Most commonly used concepts are Pankey-Mann-Schuler philosophy and Hobo technique.

Clinical method of evaluation for violation of biologic width: If a patient experiences tissue discomfort when the restoration margin levels are being assessed with a periodontal probe, it is a good indication that the margin extends into the attachment and that a biologic width violation has occurred.

Direct or indirect restorations of tooth crown defects with margins located in the gingival biological width area induce gingival inflammation, loss of connective tissue attachment and unpredictable bone loss. Clinically it could be manifested as:

- Gingival bleeding,
- Periodontal pocket formation,
- Gingival retraction.

Human body tries to repair this dimension of 2 mm by resorbing bone as much as needed to create the space for gingival attachment between restoration and alveolar bone. Gingival inflammation depending on status of immune system, earlier or later, induces loss of periodontal ligament and bone of this area, till it is enough width for gingival attachment.[5]

The biologic width can be identified by probing under local anesthesia to the bone level (referred to as "sounding to bone") and subtracting the sulcus depth from the resulting measurement. If this distance is less than 2 mm at one or more locations, a diagnosis of biologic width violation can be confirmed.

The first step in using sulcus depth as a guide in margin placement is to manage gingival health. Once the tissue is healthy, the following three rules can be used to place intracrevicular margins.[5]

Rule I: If the sulcus probes 1.5 mm or less, place the restoration margin 0.5 mm below the gingival tissue crest. This is especially important on the facial aspect and prevents a biologic width violation in a patient who is at high-risk in that regard.

Rule II: If the sulcus probes >1.5 mm, place the margin one half the depth of the sulcus below the tissue crest. This places the margin enough below tissue so that it is still covered if the patient is at higher risk of recession.

Rule III: If a sulcus >2 mm is found, especially on the facial aspect of the tooth, then evaluate to see whether a gingivectomy could be performed to lengthen the teeth and create a 1.5 mm sulcus. Then the patient can be treated as mentioned in Rule-I.

This clinical report describes a case using Twin-stage procedure by HOBO for full mouth rehabilitation of a severely worn out dentition to produce definite aesthetic and functional harmony of the stomatognathic system. The severe attrition of the teeth demanded for crown lengthening procedure which was carried out by surgical approach.

Case Report: A 49 years old male patient reported to Dept of Prosthodontics VSPM DC RC with chief complaint of multiple discoloured, worn out upper and lower teeth and difficulty in chewing. No significant medical history was reported by the patient. Past dental history revealed RCT with 21 followed by crown. Extra oral examination was done and no abnormality was detected in temporomandibular joints and muscles of mastication. Intra oral examination revealed severe attrition and abrasion involving multiple maxillary and mandibular teeth, Caries with 24,25,36,47 was seen. Interocclusal space of 5 mm (Turner's Classification - Category I patient). Treatment planned was full mouth rehabilitation with porcelain fused to metal full coverage fixed partial dentures and crowns at an acceptable restored vertical dimension of occlusion to improve esthetic and functional value of patient.

Maxillary occlusal view
Maxillary arch

Mandibular occlusal view
Mandibular arch

Right lateral view

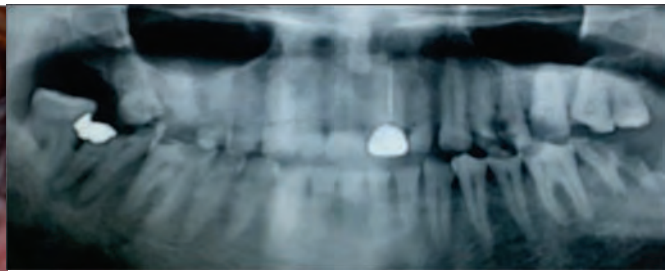
Right lateral view

Diagnostic maxillary & mandibular impressions were made with irreversible hydrocolloid impression material and casts were retrieved. Centric records were made at restored vertical dimension of occlusion of 2 mm using anterior deprogramming jig. Facebow transfer of maxillary cast was done on hanau-wide –vue semiadjustable articulator and mandibular cast was mounted in centric relation with the help of anterior deprogramming jig and interocclusal records.

The semi adjustable Hanau articulator was programmed to Condition 1 of Hobo's Twin stage procedure (Table 1) wherein posterior segment mock wax up was done in bilaterally balanced occlusion after removal of the maxillary anterior segment. The settings were changed to Condition 2 where the maxillary anterior

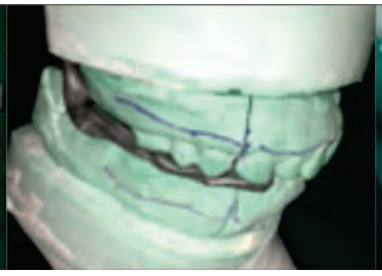
segment was replaced and the anterior wax up was completed and checked for proper anterior guidance to achieve disocclusion in eccentric movements. Simultaneously twin tables were fabricated according to condition 1 and 2 using pattern resin.

OPG



Centric record

Facebow records made and transferred to articulator



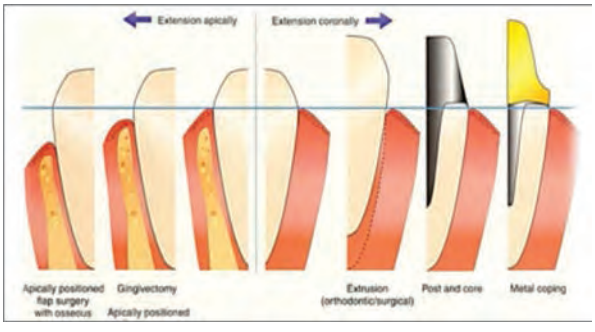
Diagnostic Mounting

Diagnostic Wax Up

Multidisciplinary approach: After the completion of diagnostic wax up, the patient was referred to Department of Periodontics for crown lengthening procedure. The improper gingival contour in the maxillary esthetic area and reduced crown height hampering placement of prosthesis were the indications for crown lengthening procedure in the present case.

Biologic width violations can be corrected by:

1) Surgically removing bone away from proximity to the restoration margin.
2) Orthodontically extruding the tooth and thus moving the margin away from the bone.



Surgical treatment is faster and more favorable for indirect restoration when higher clinical tooth crown is necessary.[6]

The patient was evaluated for the gingival biotype and probing depth to decide the appropriate method of choice for crown lengthening procedure.

The probing depth was as follows:

Probing Depths with Anterior teeth

Disto	Mid-buccal	Mesio-buccal
2mm	2mm	2mm

Probing Depths with Posterior teeth

Disto	Mid-buccal	Mesio-buccal
4mm	4mm	4mm

The surgical stent was fabricated over the cast model of the patient.

The surgical steps are as follows:

- Incisal infiltration with 2% lignocaine hydrochloride with adrenaline (1:80000) in relation to 43-33.
- Transcrevicular circumferential probing prior to surgery was performed to determine probing depth.
- This will serve as a guide to determine if CLP can be done by gingivectomy alone or with osseous reduction.
- Internal bevel incision was placed
- Sulcular incision was placed
- Flap was raised with the periosteal elevator.
- Osseous reduction was done.
- Suturing of the flap was done with direct loop suture.
- Periodontal dressing was placed

Discrepancy in the height of the gingival zenith positions in maxillary anterior region

Fabrication of surgical stent as guide


Marking the Bleeding Points


After Gingivectomy


Excised Gingival tissue


Correlating with surgical guide


Osteotomy procedure

Sutured Flap

Sutures were removed after a week and patient was revaluated after 7 days.

Pre and post-therapy evaluation at 1 week

The patient was referred back to the department of prosthodontics for further rehabilitation procedures.

Tooth preparations for full coverage metal ceramic crowns were done for the maxillary and mandibular teeth. Provisional restorations were made from the diagnostic wax-up template with autopolymerizing acrylic resin, and esthetics and occlusion were evaluated. Provisional crowns were cemented with zinc oxide noneugenol cement (Rely X, 3M ESPE, Germany).Once the patient was adapted and comfortable with this position, A final full-arch impression for maxillary and mandibular teeth was made using polyvinyl siloxane impression material with double-mix two stage putty wash impression technique & and casts were poured in die stone.

Table 1: Values of conditions 1 and 2 according to Hobo twin-stage Technique (Values in degrees)

	Horizontal condylar guidance	Lateral condylar guidance	Anterior guidence	Lateral anterior guidence
Condition 1	25	15	25	10
Condition 2	40	15	45	20

Posterior Teeth Prepared

Maxillary arch

Mandibular arch

Maxillary arch

Mandibular arch

Anterior Teeth Prepared

Anterior Temporization

Wax build up was done and casted.Metal copings were tried in and adjusted. Articulator was programmed to Condition 1 and 2 for ceramic build up of posterior and anterior segments respectively to achieve effective cusp angle of 250 posteriorly and incisal guidance of 400 anteriorly, which produced standard amount of disocclusion. Bisque try-in was done. Occlusal adjustments and equilibration was carried out. Anterior guidance and disocclusion was verified using previously fabricated twin tables. Permanent restorations were cemented with glass ionomer type I (GC Fuji, Tokyo) luting cement and oral hygiene instructions were given to the patient.

Metal Coping Trial

Bisque Stage

Occlusion In Centric

Frontal view

Right lateral view

Left lateral view

Canine Protected Occlusion

Working side

Non working side

Occlusion In Protrusive

Frontal view

Right lateral view

Left lateral view

Discussion: Treatment of severly worn out dentition is not designed to increase it but is intended to restore the lost vertical dimension. All our efforts for full mouth rehabilitation are directed towards re-establishing a state of functional efficiency in which the hard and soft tissues of stomognathic system function in synchronous harmony.[7] Dawson stated that interocclusal space is never lost and any loss is compensated by tooth eruption, alveolar bone expansion and muscle action.[8,9] The vertical dimension of occlusion (VDO) and vertical dimension at rest are not constant throughout life and the vertical dimension of occlusion can be raised up to vertical dimension at rest, being the minimal muscle activity position.[10]

In 1984, Turner and Missirlian[4] classified the patients requiring full mouth rehabilitation into three categories:-

1. Excessive occlusal wear with loss of vertical dimension but with space available to restore the vertical height.
2. Excessive wear without loss of VDO but space available.
3. Excessive wear without loss of VDO but with limited space.

The rationale behind altering and restore the vertical dimension by 2 mm in the patient was to allow adequate inter occlusal space for the permanent restorations and to achieve occlusal stability.[11]

Surgical lengthening of clinical tooth crown is performed before prosthetic to increase retention of restorations in case of short clinical crowns. The margin of primary preparation is reference point for surgeon who is asked to increase the distance of 1-2-3 mm to marginal bone. The best way is to make temporary crowns or tray guide with the margins of final restoration before surgical clinical tooth crown lengthening. Doing so surgeon could define more exactly the relationship between margins of final restoration and marginal bone during surgical procedure. [12, 13]

The methods of surgical clinical tooth crown restorations are:

1. Gingivectomy
2. Apically positioned flap
3. Apically positioned flap with bone reduction
   a) Osteoplastic – bone reduction without periodontal ligament altering
   b) Osteotomy – bone and periodontal ligament reduction

The study of Bräger U., Launchenauer D. and Lang N. P. (1992) showed how periodontal tissues change after surgical clinical tooth crown lengthening. After six weeks after operation attachment level and probing depth did not change, the level of marginal gingiva established during operation almost precisely corresponds to the level of marginal gingiva after healing.[14] According the study final restoration should

be made not earlier than 6 weeks after operation, and because of possible retraction it is recommended to wait longer in esthetical areas. The other important reason to delay dental treatment in the operated area is still week, easy injured gingiva. It is established, the epithelial basal membrane – membrana basalis (lat.) bonding epithelium with connective tissue under it, totally recovers just after 4 weeks. [15, 16]

Stuart and Stallard in 1957 proposed cuspid protected occlusion concept which was given to the patient as it had many advantages over the group function.[17] Canine-protected occlusion reduces the chances of temporomandibular dysfunction, since it reduces the lateral tooth contact and possibility of interfering contacts. Consequently the chance of muscular dysfunction is reduced.

D'Amico stated that cuspid protected occlusion and disocclusion were natural adaptations for preventing destructive occlusion.[18] Hobo and Takayama studied the influence of condylar path, incisal path, and the cusp angle on the amount of disocclusion and concluded that cusp angle was the most reliable and used as a new determinant of occlusion.[19]

Twin-stage procedure proposed by Hobo and Takayama was adopted because studies have proved that it is possible to accurately control the amount of disocclusion on the restoration without measuring the condylar path.[20] Twinstage procedure helps in achieving a standard disocclusion of 1.1 mm on protrusion, 1 mm on nonworking side, and 0.5 mm on working side in eccentric movements at 3-mm protrusion from centric relation.

Conclusion: The reorganization of occlusion should be carried out only when indicated. Proper diagnosis and treatment planning with multidisciplinary approach, knowledge and judgment is paramount for success. The treatment goal was to restore the occlusion, eliminate posterior interferences, restore the worn out surfaces to enhance mastication and to improve the esthetic appearance and to achieve overall harmony of stomatognathic system.

References:

1. Gargiulo AW, Wentz F, Orban B. Dimentions and relations of the dentogingival junction in humans. J Periodontol 1961; 32: 261-7.
2. Brown KE. Reconstruction considerations for severe dental attrition. J Prosthet Dent 1980;44(4):384–388.
3. Binkley TK, Binkley CJ. A practical approach to full mouth rehabilitation. J Prosthet Dent 1987;57(3):2616.
4. Kenneth Turner & Donald Missirlian: Restoration of the extremely worn dentition, J Prosthet Dent 1984 ;52:467-474.
5. Spear FM, Cooney JP. Periodontal-restorative interrelationships. Carranza's clinical periodontology. 9th ed. 2002., Chap.75. p. 949-64.
6. Wennström JL, Pini Prato GP. Mucogingival therapy-periodontal plastic surgery. Clinical Periodontology and Implant Dentistry. 4th ed. 2003. Chap. 27. p. 619-24.
7. Kazis H. Complete mouth rehabilitation through restoration of lost vertical dimension. J Am Dent Assoc 1948;37(1):19-39.
8. Dawson PE. Functional Occlusion - From TMJ to smile design. 1st ed. New York: Elsevier Inc.; 2008.
9. Thomson JR. The rest position of mandible and its significance to dental science. J Am Dent Assoc 1946;33:151.

10. Weinberg LA. Vertical dimension: a research and clinical analysis. J Prosthet Dent 1982;47(3):290-302.
11. Carlsson GE, Ingervall B, Kocak G. Effect of increasing vertical dimension on the masticatory system in subjects with natural teeth. J Prosthet Dent 1979;41(3):284-9.
12. Scutella F, Landi L, Stellino G, Morgano SM. Surgical template for crown lengthening: a clinical report. J Prosthet Dent 1999; 3: 253- 6.
13. Walker M, Hansen P. Template for surgical crown lengthening: fabrication technique. J Prosthodont 1998; 7: 265-7.
14. Brägger U, Launchenauer D, Lang NP. Surgical crown lengthening of the clinical crown. J Clin Periodontol 1992; 19: 58-63.
15. Häkkinen L, Uitto VJ, Larjava H. Cell biology of gingival wound healing. Periodontology 2000 2000; 24: 127-52.
16. Pontoriero R, Carnevale G. Surgical crown lengthening: a 12- month clinical wound healing study. J Periodontol 2001; 72: 841-8.
17. Stuart CE. Good occlusion for natural teeth. J Prosthet Dent 1964;14:716-24.
18. Damico A. Function occlusion of natural teeth in man. J Prosthet Dent 1961;11:899-915.
19. Hobo S. Twin-tables technique for occlusal rehabilitation: Part I: Mechanism of anterior guidance. J Prosthet Dent 1991;66(3):299-303.
20. Hobo S. Twin-tables technique for occlusal rehabilitation: Part II: Clinical procedures. J Prosthet Dent 1991;66(4):471-477.

REHABILITATION OF AURICULAR DEFECT WITH IMPLANT SUPPORTED EAR PROSTHESIS

Present by
Dr. Richa Sahai (Dept. of Prosthodontics)
Dr. Jignesh Rajguru (Dept. of Oral Surgery)

Abstract: Differences in the balance of shape, size, and position of body organs are immediately perceived as "looking wrong" and this perception can subject the individual to significant peer ridicule and social ostracism, often expressing as intense shame and anguish in the attitude of the afflicted. Rehabilitation of such patients can be remarkably beneficial on the individual's self-esteem and body image. The onus of the deed lies in the hands of a team that combines artistic excellence with surgical expertise, by combining the skills of anaplastologists, surgeons, and prosthodontists. This is a case report with a surgical and prosthetic considerations in the management of auricular defect.

Introduction: Causes of facial tissue loss are known to often be acquired the congenital malformation, tumoral lesions or accidents. Facial defects can cause not only functional problems but also some serious psychological problems that could cause the individual to avoid social contact.In view of this, the first aim of maxillofacial rehabilitation should be solving esthetic problems. Long term success of a facial prosthesis mainly depends on retention.Anatomic undercuts, skin adhesives and implants are important factors to provide sufficient retention. Extraoral implant retained prosthesis have been proven to be a predictable treatment option for maxillofacial rehabilitation. Implant retained auricular prosthesis provides multiple advantages for the patient: convenience, security, consistent retention and positioning, elimination of the need for adhesives, and maintenance of marginal integrity and longevity.

The implant-retained auricular prosthesis has become a viable treatment alternative for auricular deformed patients because of its predicable results. Numerous attachments are available for the retention of implant-retained prosthesis including Locator and O-Ring. Implant-retained auricular prosthesis usually requires a bar with clips or retentive elements in addition to the prosthetic ear. This case report describes the clinical and laboratory procedures for fabricating implant-retained auricular prosthesis with an ear defect resulting from an electrical burn.

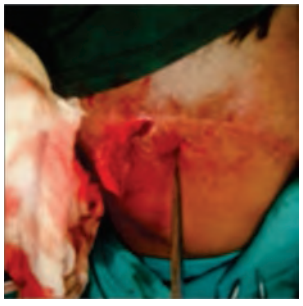
Case Report: A 30-year old male patient reported to the department ofProsthodontics, with the chief complaint of missing ear for 18months.

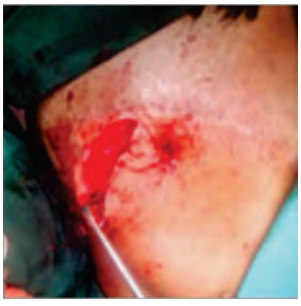

Right lateral

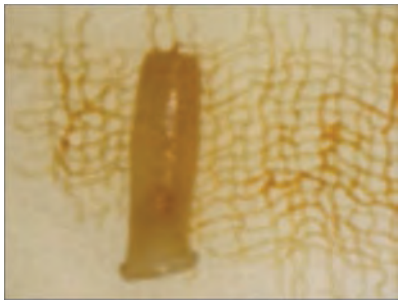

Frontal


Left lateral

Patient was apparently alright 18 months back, when he suffered burn injury due to bursting of transformer, where his right ear was burnt along with the right shoulder; for which he was admitted at NKP SIMS, NAGPUR and underwent surgery. His first plastic surgery was done by DP flap elevation (to cover the defect) 14 months back, followed by 2nd and 3rd surgery to give thickness to the defect area in a span of 6 months. Almost 2 months after the 3rd surgery, a swelling was noticed in the preauricular region, which was diagnosed as an auricular abscess due to blocked EAC, for which patient underwent drainage of abscess twice, 6 months back. The abscess recurred 3rd time and it was then decided to open theEAC and give a stent to maintain the patency of the canal.



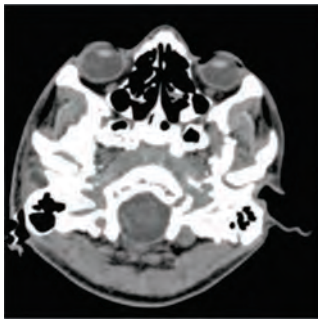



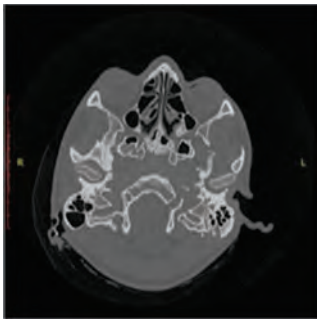

Follow-up after 1 month

Diagnostic investigationsincluded:

- CT scan of temporal region (0.1 x slices)
- Diagnostic Ear impression of patient and donor.
- Diagnostic models and Wax up

CT scan was done in coronal and Sagittal section to find out the vivinity of vital structures. 5 mm diameter and 5 mm length, external hex implants with sintered porous surface at the 2 sites i.e. Implant placement in 8 and 10 o'clock position were planned.All the implants were within 15-20 mm radius from the location of the EAM and the distance between 2 consecutive implants was 12-15 mm.

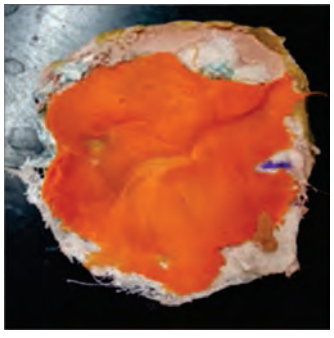




Diagnostic aids for implant placement comprised of preliminary impressions, fabrication of a wax prototype, an acrylic diagnostic template, and a computed tomographic (CT) scan of middle third face. Tentative sites for implants were marked on the patient's face and transferred to diagnostic impressions.

Preliminary diagnostic impressions in alginate backed by putty were then made.

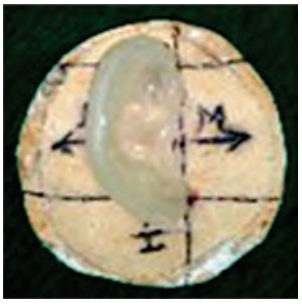
Wax prototype was fabricated using the diagnostic model and clinical landmarks. The landmarks used were superiorhorizontal line through superior tarsal plate and nasion, inferior horizontal line through base of nose, anterior verticalline through outer rim of orbit and perpendicular to horizontal lines, and posterior vertical line through angle ofmandible and perpendicular to horizontal lines.



The wax prototype enabled to ascertain that theimplants were positioned well concealed by its thickest portion (antihelix and antitragus) and also provided an estimateof the amount of removal of rudimentary cartilage, which impaired the design of the prosthesis.A wax pattern was constructed by using a cast of the patient's normal auricle. It was tried on the defect, and its dimensions and contours, as well as its relationships with the head and contralateral auricle, were evaluated. The borders of the wax pattern and the areas adjacent to the healthy tissues were left thin in order to appear natural.

After blocking soft tissue undercuts on diagnostic model, an acrylic diagnostic template was fabricated over the diagnostic model in clear self-curing resin. The prospective site of implants was transferred to the acrylic diagnostic template by indelible pencil marks on the diagnostic casts.

The surgery was done and the implants were placed. Acrylic diagnostic templates were converted to surgical templates by drilling holes in the prospective implant site location (transferred from diagnostic cast at the time of diagnosis)



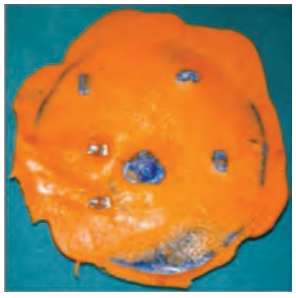
This surgical template assisted in transferring the prospective site of implant as decided during diagnosis into actual placement of implant. Two Ossteum Implants (5*6mm) at 8 and 10 o'clock position .(2)

Then, uncovering of implants by removal of soft tissue and placement of secondary healing caps 4 months from the date of 1st stage surgery (subsequent to osseointegration) was carried out.

An impression of the defect was made with impression copings and splinting of implants with a custom tray using polyvinyl siloxane impression material. The impression was removed, and the cast was poured in type IV die stone Then bar was fabricated.

Open tray copings

Splinting and custom tray fabrication



Open tray impression

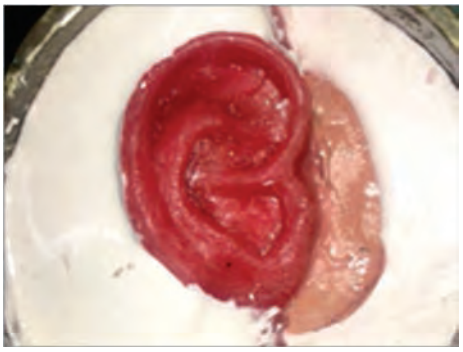
Soft tissue marking and cast fabrication

The bar was screwed to the abutments, and retention clips were positioned over the bar.

The plastic fabricating rider clips was placed on the bar on the mastercast at the desired location and then metal housings were placed over the fabricating rider clips.

The fabricating plastic riders used for stabilisation of the metal housing during processing of denture were removed with the help of haemostat. The retention sleeves/clips were then placed in the metal housing . There should be a snap when the clips are pushed into the position. The special shape of the metal housing provides secure retention of the clips while providing leeway space in the labiolingual direction to allow the clips/riders some flex during insertion or removal of the prosthesis.

4 plastic sleeves and metal housing attached on the bar & Acrylic backing



3 piece mould dewaxing

Acrylic backing placed back before silicon backing & RTV silicon fabricated ear

On next visit after 1-week, the RTV silicon elastomer (MDX 4-4210, Dow Corning, USA) was mixed chairside and intrinsic coloration was done to simulate the patient's normal skin color. Afterward, the mixed silicone was packed at room temperature and allowed to set for 3 days according to the manufacturer's instructions. After 3 days, the silicone prosthesis was secured, the excess materials were trimmed, and the prosthesis was tried on the patient. Extrinsic coloration was done to match the patient's ear. The final auricular prosthesis was delivered to the patient, and the home care instructions were given.

Postoperative – before staining

External staining

Discussion: The surgical technique for auricular prostheses retained on osseointegrated implants seems to be simple and is associated with a low rate of perioperative and long-term complications. The major advantages of this technique are that it puts less strain on the patient and has superior esthetics, compared with traditional surgical reconstructive techniques. The disadvantages of the method are the lifelong daily skin care and dependence on the health services that are required. The use of craniofacial implants for retention of extraoral prostheses not only offers excellent support and retention, but also improves the patient's appearance and the quality of life. Implant retained auricular prosthesis provides multiple advantages such as convenience, security, consistent retention and positioning, elimination of the need for adhesives, which may cause tissue irritation, and maintenance of marginal integrity and longevity. For an auricular prosthesis, two implants are sufficient to retain the prosthesis. Magnet and bar clip retention are the two other forms of retention used in the auricular region. Use of magnet was not recommended in this case because though magnet may provide acceptable retention, it is less stable under the lateral force.

The bar-clip system provides good retention for the prostheses. However, bars may limit access for performing hygiene procedures. Hence, in our case, implant retained auricular prosthesis was indicated.

Numerous attachments are available for the retention of the implant-retained prosthesis. Locator and O-ring are also used. In addition to the prosthetic ear, implant-retained auricular prosthesis usually requires a bar-clip with other retentive elements like ERA to offer better retention.

Conclusion: In contrast with a conventional craniofacial prosthesis, an implant-retained auricular prosthesis often is not experienced as a prominent foreign object and can improve the quality of life. Utilization of Hader bar attachments on implant in the craniofacial region is considered viable option than magnetic attachment system. Although adequate patient hygiene is a must, this clinical report indicates that type and fit of the attachment, to create an intimate seal around the peri-implant epithelial tissue is crucial to maintaining healthy tissues in the peri-implant abutment site.

References:

1. Dib LL, de Oliveira JA, Neves RI, Sandoval RL, Nannmark U. Auricular rehabilitation by means of bone grafting from the iliac crest in combination with porous extraoral implants: a case report. Clin Implant Dent Relat Res. 2007; 9:228–932.
2. Gumieiro EH, Dib LL, Jahn RS, et al. Bone-anchored titanium implants for auricular rehabilitation: case report and review of literature. Sao Paulo Med J. 2009;127:160–165.

3. Karakoca S, Aydin C, Yilmaz H, Bal BT. Retrospective study of treatment outcomes with implant-retained extraoral prostheses: survival rates and prosthetic complications. J Prosthet Dent. 2003; 103:118–126.
4. Alvi R, McPhail J, Hancock K. Closed-field titanium magnets for the retention of complex craniofacial prostheses. Br J Plast Surg. 2002;55:668–670.
5. dos Santos DM, Goiato MC, Pesqueira AA, et al. Prosthesis auricular with osseointegrated implants and quality of life. J Craniofac Surg. 2010;21:94–96.
6. Del Valle V, Faulkner G, Wolfaardt J, Rangert B, Tan HK. Mechanical evaluation of craniofacial osseointegration retention systems. Int J Oral Maxillofac Implants. 1995;10:491–498.
7. Gary JJ, Donovan M. Retention designs for bone-anchored facial prostheses. J Prosthet Dent. 1993;70:329–332.
8. Lemon JC, Chambers MS. Locking retentive attachment for an implant-retained auricular prosthesis. J Prosthet Dent. 2002;87: 336–338.
9. Goiato MC, dos Santos DM, Gennari-Filho H, Zavanelli AC, Dekon SF, Mancuso DN. Influence of investment, disinfection, and storage on the microhardness of ocular resins. J Prosthodont. 2009; 18:32–35.


ildren
dren aged 8 to 12
cts of the gingiva


VSPM'S DENTAL COLLEGE &
RESEARCH CENTRE,NAGPUR
DEPARTMENT OF
ORTHODONTICS
& DENTOFACIAL
ORTHOPEDICS
WELCOME
DELEGATES !!


l trauma to upper anterior region
ing in tracture of upper anterior
and bleeding.
welling
and unconsciousness after trauma :
octor for the same, was prescribed
atic for 2 years
noticed bleeding from gums during
o dept of pediatric and preventive

Published by:
Vidya Shikshan Prasarak Mandal's Dental College and Research Center
Hingna, Nagpur