

**VSPM'S DENTAL COLLEGE
INTERDEPARTMENTAL
SCIENTIFIC
ACTIVITY
2016-2017**



VISA



**VSPM'S INTERDEPARTMENTAL SCIENTIFIC ACTIVITY
COMMITTEE MEMBERS**



DR. MUKTA MOTWANI
CONVENER



DR. USHA SHENOY
CO-CONVENER



DR. HIMIJA KARIA
CORE COMMITTEE MEMBER



DR. APURVA MOHITE KHATOR
CORE COMMITTEE MEMBER



FOREWARD



VISA: VSPM's Interdepartmental Scientific Activity was started in April 2016 with the aim of creating a platform for discussion of multi-disciplinary cases treated in various departments of VSPM Dental college and research centre. This activity not only emphasizes on the holistic treatment approach, it also creates awareness about the various advances and newer treatment modalities available in various departments in our institute.

It is noted, with increasing specialization in every field the specialists tend to concentrate only on the problems concerned with their own specialty and tend to overlook the bigger picture. VISA provides an opportunity to keep in touch with the other branches of dentistry; it also inculcates an attitude of healthy discussion among peers for the greater benefit of the patients.

The activity has generated lot of interest and enthusiasm among the staff and post graduates in the past year. Several interactive sessions were conducted and healthy discussion regarding treatment options in various scenarios has taken place. I congratulate the VISA team for their untiring efforts and dedicate this first case compilation of VISA (2016-17) to the post graduates who must strive to achieve excellence in their respective fields.

Dr. Usha Radke

Dean

VSPM DCRC



FROM THE DESK OF THE VICE DEAN



It is a very proud moment for me that the proceedings of the VISA activity is going to be released. This compendium would enrich the staff & students regarding the approach, diagnosis & management of complex cases being handled in our institute.

This special issue possibly one of its kind in the region is a matter of honour for all those who have contributed it with special thanks to the VISA Team to publish it. This also is a testimony of our management led by hon'ble chairman Shri Ranjit Babu Deshmukh's vision for excellence in clinical skills and academics.

I would like to once again congratulate Team VISA and all the contributors on this occasion.

Dr. Ramkrishna Shenoji

Vice dean

VSPM DCRC



FROM THE EDITOR'S DESK



Dear Readers,

VSPM's interdepartmental scientific activity (VISA) was started in April 2016 with the intent of encouraging interdisciplinary management of patients and learning. It received an overwhelming response from the post graduate students and staff members and every month an interesting case is presented which is treated/ diagnosed by two or more departments.

Interdisciplinary learning and discussions have benefited our students and widened their horizon for managing a patient. These presentations also boost students confidence to face a large audience which will be useful when they present in various conferences and programs.

On behalf of the VISA team, I take this opportunity to thank the management and our beloved Dean to have started this activity and we promise to continue to deliver our best efforts to conduct it successfully in the coming academic year as well like it was done previously.

Warm regards

Dr. Mukta Motwani

Convener VISA committee



CONTENTS

Sr. No.	Title	Page No.
1	Fastrack Orthodontics	1
2	A case of Radicular cyst in the maxillary anterior region	5
3	Functional and esthetic rehabilitation of primary teeth with early diagnosis and management of developing skeletal Class III malocclusion	8
4	Pleomorphic Adenoma: A diagnostic dilemma	12
5	A case of Papilloma emerging from an edentulous area in the mandible	17
6	Orthokeratinized Keratocystic Odontogenic Tumour with Complex Odontoma in a young female	21
7	Does active ingredients in nonalcoholic chlorhexidine mouthwash provide added effectiveness?	25
8	Management of Tempomandibular joint disk displacement: A non-invasive approach by using occlusal splint therapy	28
9	Functional and Esthetic Rehabilitation of Worn out dentition with Multiple Missing teeth.	38



FASTRACK ORTHODONTICS

Presented by

Dr. Rajat Bajaj (Orthodontics and Dentofacial Orthopedics)

Dr. Trupti Sarda (Periodontics)

Introduction: There are many adult patients who are in quest of Orthodontic treatment. In comparison to adolescents there are several psychological, biological and clinical differences. The most frequent concern of Orthodontic patients is to shorten the treatment time in adult patients. With all these considerations in mind, adult orthodontic treatment differs and is challenging. Hence, periodontally accelerated osteogenic orthodontics has offered solutions to many limitations in the orthodontic treatment of adults. The advantages of corticotomy assisted orthodontics includes reduced treatment time, enhanced expansion, increased traction of impacted teeth and post orthodontic stability.

Corticotomy is defined as the osteotomy of the cortical bone. It is a procedure whereby only the cortical bone is cut, perforated or mechanically altered in a controlled surgical manner. Hence, combining orthodontics with selective alveolar decortication and bone grafting can lead to a wider range of tooth movements while simultaneously reducing risk factors that may lead to periodontal breakdown. This case report describes the treatment of patients that was treated in the department using corticotomy procedure.

Case report: A 24 year old female patient reported to the Dept. of Orthodontics and Dentofacial Orthopedics with chief complaint of poor esthetics due to forwardly placed teeth in upper and lower front region of jaw. The patient was systemically healthy with no deleterious habits found. Periodontal examination revealed adequate zone (>3mm) of attached gingiva, having no gingival recession, no signs of acute infection and periapical pathology, root fracture or severe root irregularities and a healthy Cementoenamel Junction (CEJ).

Prior to initiating the case, the purpose was explained to the patient and informed consent was signed by the patient. Her medical history showed no allergies or medical problems. No signs and symptoms of temporomandibular dysfunction was observed. Her intra oral examination revealed Angle's Class II malocclusion with maxillary prognathism and mandibular retrognathism.





Diagnosis:

Skeletal: Skeletal Class II base with prognathic maxilla and retrognathic mandible with vertical growth pattern.

Dental: Angles Class I with Dewey's type 2 modification with proclination with lower incisors, rotations with 14, 34, 35 and 45, slight spacing with upper anteriors and midline shift with lower arch on left side by 2 mm

Soft tissue: Incompetant lips, everted lower lip, increased nasolabial angle, puckering of chin, non consonant smile

Treatment Objectives: Correction of

- Proclination with upper anteriors
- Proclination with lower anteriors
- Spacings with upper anteriors
- Everted lower lip
- Incompetant lips
- Retrusive chin
- Rotation with premolars
- Midline correction with lower arch
- Non consonant smile
- Increased nasolabial angle

Treatment Plan

- Therapeutic extraction of all the 1st premolars
- Leveling and alignment
- Co-ordination of arches and correction of rotations
- Wilckodontics followed by enmasse retraction
- Finishing and detailing

Treatment Procedure: Anchorage preparation is a very important step in Orthodontics, which was done in upper arch using intrusion TPA and indirect anchorage using TADs and in Lower arch-lingual arch.

Prescription and mechanics: Roth 0.022 slot with sliding mechanics

During the course of Orthodontic treatment, objectives of leveling and alignment , correction of rotations, closure of anterior spacings along with stability of arches was achieved.



Plaque control was also monitored during the course of Orthodontic treatment. The periodontal status was reevaluated to check for patient's response to the therapy. In addition, blood investigations including Complete Blood Count (CBC), Haemoglobin (Hb%), Bleeding Time (BT), Clotting Time (CT) and Prothrombin Time (PT) were carried out in laboratory.

Surgical Procedure: Before the surgery, the patient was asked to rinse her mouth with 0.2% chlorhexidine gluconate solution for one minute. Asepsis was maintained throughout the procedure. The maxillary anterior area subjected for surgery was anaesthetized by nerve block and infiltration anaesthesia using local anaesthetic solution of 2% xylocaine containing 1:80,000 concentration of epinephrine. Modified approach consisting of a periodontal access flap was initiated by internal bevel i.e. 2 mm apical to the crest of the margin along with intracrevicular (sulcular) incisions using Bard-Parker surgical blade #15 and #12 on the buccal and palatal aspects respectively, and then 2 mm of gingival margin was discarded.

A mucoperiosteal flap excluding the gingival margin was elevated well beyond the apices of the anterior teeth both buccally and palatally. After the flap reflection based on the OPG, greatest mesiodistal width of the incisors guided the vertical bone cuts in the cortical bone from the crest of the alveolar bone margin to 2-3 mm below the apices of all the anterior teeth.

The vertical cuts were performed from the distal of the right upper canine to the distal of left canine with a 0.5 mm thickness and 5 mm wide carborundum disk bur. The depth of the cuts was 1.5 mm - 2 mm (the thickness of cortical bone). The vertical cuts were joined using the horizontal cuts 2 mm - 3 mm apical to the root apex. After the bleeding was controlled, the flap was repositioned, closed with interrupted sutures and periodontal pack was placed.

Post operative care: After surgery, a non-steroidal anti-inflammatory drug, consisting of combination of Ibuprofen 325 mg and Paracetamol 400 mg, three times a day for five days along with antibiotic consisting of Amoxicillin and Clavulanic acid 625 mg three times a day was prescribed for five days post surgical period. Patient was instructed not to brush the teeth in the treated area and only to rinse with 0.2 % chlorhexidine gluconate twice daily, for 4-6 weeks and was instructed not to disturb the periodontal pack.

One week post surgery, sutures were removed, polishing of the teeth was done and patient was instructed to clean the treated area with chlorhexidine gluconate 0.2% using cotton pellet followed by soft tooth brush. Follow-up was done after 3, 6 and 12 weeks and clinical measurements i.e. width of keratinized gingiva and periodontal pocket depth were recorded post operatively.





The space closure was started with crimping the hooks on heavy wire (0.019 x 0.025) and retraction with closed coil spring. The 15 days activation was followed as per the conventional protocol after corticotomy so as to utilize the maximum of regional acceleratory phenomena. The 6 mm of spacing was closed in a span of three and half months.



In this case report, patient with Class I malocclusion, maxillary anterior proclination was treated by modified alveolar corticotomy and facilitated orthodontic treatment. Ideal aesthetic and functional results were achieved in 15 months or one-third the average treatment time without detrimental periodontal effects such as gingival recession and periodontal pockets. Radiographic examination at three months post-surgery showed no significant reduction in the crest bone height, no marked apical root resorption and no post operative complications like mobility and devitalization of teeth was seen.





A CASE OF RADICULAR CYST IN THE MAXILLARY ANTERIOR REGION

Presented by:

Dr. Disha Lunia (Conservative dentistry and Endodontics)

Dr. Manjiri Chakor (Oral and Maxillofacial Surgery)

Introduction: Traumatic injuries to the teeth are relatively common, usually involving the anterior teeth of patients. Periapical cyst are inflammatory jaw cysts affecting teeth with infected and necrotic pulp. These cysts occur as the direct sequelae of chronic apical periodontitis. Choice of treatment depends on site and size of cyst.

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



A 24-year-old male patient reported to the Department of Conservative Dentistry, VSPM Dental college, Nagpur. On clinical extraoral examination, no extraoral swelling and no facial asymmetry was observed. On intraoral examination, severe discoloration was seen with 21. Electric and thermal pulp vitality testing showed negative responses in 21 while 22, 23 showed a delayed response. Percussion test was negative and mobility was absent. On radiological examination, a unilocular radiolucent lesion which involved periapical regions of 21, 22 and 23 respectively was seen.

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

Treatment plan: Root canal treatment



Informed consent was taken from patient. Root canal opening was done with 21, 22 and 23 under rubber dam isolation. Working length determination was carried out.

Establishment of glide path and BMP was done using rotary Protaper Universal files (DENTSPLY)



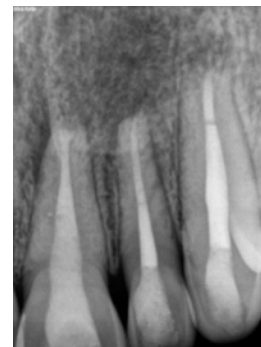
MTA root end filling: Orthograde MTA placement was done in all three teeth. A plug of 5 mm of MTA was placed in apical end using MTA carrier and endodontic pluggers.



Thermoplasticized obturation



Surgical Enucleation and Apicoectomy: After cystic debridement, 3mm of root end of 21,22 and 23 was resected. After surgical enucleation the sample was sent for histopathological evaluation which confirmed.



Follow up:

Discussion: Radicular cyst (periapical cyst, periodontal 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 the most common jaw cyst.

Incidence is common in the third to fifth decade of life. More common in males and have predilection for anterior region of maxilla. In the current case, the patient had given history of trauma previously; which could be the probable aetiology.

Rationale for Nonsurgical root canal therapy: Even when surgical treatment is the likely definitive approach, nonsurgical therapy before the procedure may be recommended to help reduce the number of microorganisms in the root canal system and to prevent recontamination through root canal system.

Rationale for Root end resection: 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. It provides good access and visualization. Approximately 75% of teeth have canal irregularities (e.g., accessory or



lateral canals) in the apical 3 mm of the tooth. An apical resection of approximately 3 mm perpendicular to long axis of the root should include most accessory and lateral canals and thus eliminate most residual microorganisms and 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 by products, or toxic material into the surrounding periradicular tissues.

MTA (ProRoot MTA; DENTSPLY, Tulsa Dental, Tulsa, OK), a material developed specifically as a root-end filling. MTA is a nonresorbable, biocompatible material and dimensionally stable over time. It 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 during periradicular surgery. Therefore the root end filling material can be placed via an orthograde technique, while nonsurgical retreatment 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.

Conclusion: To conclude, a radicular cyst is a common condition found in the oral cavity. The clinical cases reported were managed successfully by endodontic therapy with emphasis on thorough debridement, disinfection and three dimensional obturation of the root canal system which was followed by surgery.



FUNCTIONAL AND ESTHETIC REHABILITATION OF PRIMARY TEETH WITH EARLY DIAGNOSIS AND MANAGEMENT OF DEVELOPING SKELETAL CLASS III MALOCCLUSION

Presented by

Dr. Khusboo Rathi (Pediatric and Preventive Dentistry)

Dr. Pritam Khorgade (Orthodontics and Dentofacial Orthopedics)

Introduction: The American Academy of Paediatric Dentistry defines early childhood caries (ECC) as the presence of one or more decayed (non-cavitated or cavitated lesions), missing due to caries or filled tooth surfaces in any primary tooth in a child seventy one months of age or younger. The disease of ECC discloses a distinctive pattern and the teeth most often involved are the maxillary central incisors, lateral incisors followed by maxillary and mandibular first primary molars.¹

The consequences of leaving untreated carious primary teeth include: 1. Development of pain, infection and need for extractions; 2. Premature loss of primary molars predisposing to malocclusion; 3. Higher risk of new carious lesions in other primary and succeeding permanent teeth. Hence, it is important that primary dentition be maintained in the dental arch, provided it can be restored to function and remain free from the disease.

Angle (1899) stated that Class III malocclusion occurs when the lower teeth occluded mesial to their normal relationship the width of one premolar or even more in extreme cases. The etiology of Class III malocclusion includes familial tendency, functional factors like anteriorly positioned tongue, mental diseases, enlarged tonsils and naso-respiratory diseases, premature loss of deciduous teeth and tongue thrust habit. The final diagnosis relies on clinically establishing the dual closure pattern by asking and guiding the patient to bite in normal centric and habitual positions, observing any familial tendency, cephalometric parameters and incisor relationship. Both these types of malocclusion, if untreated, may affect the normal growth and development of the skeletal bases, leading to restricted maxillary growth and maybe mandibular overgrowth.²

Presenting one such case report regarding functional and esthetic rehabilitation of primary teeth with early diagnosis and management of developing skeletal class III malocclusion.

Case report: A 6 year old, female patient reported to the department of pediatric and preventive dentistry in the month of May, 2016 with the chief complaint of pain in the upper right and left back region of jaw since 1 month. History of presenting revealed that the patient was apparently alright 1 month back when she developed an extra-oral swelling in the upper left back region of jaw. The swelling was hard and persisted for 2 days and then disappeared on its own without any medication. Since 15 days patient was experiencing pain in the upper right and left back region of jaw. The pain was gradual in onset, intermittent in nature, dull aching type and aggravated on mastication. Since 3 days the patient had also developed an intraoral swelling associated with 64.



The extra-oral features revealed an oval facial form, straight facial profile, bilaterally symmetrical face, protrusive chin, competent lips, normal mouth opening.



Intra-oral features revealed high labial frenum attachment, 0 mm of overjet and overbite, left side shift of dental midline. Bilateral mesial step molar relationship was observed on both sides but on right side the step was double than that on left side. Full cusp Class III molar relationship was observed on right side and half cusp class III molar relationship on left side. Canine relationship on both sides was Class III.



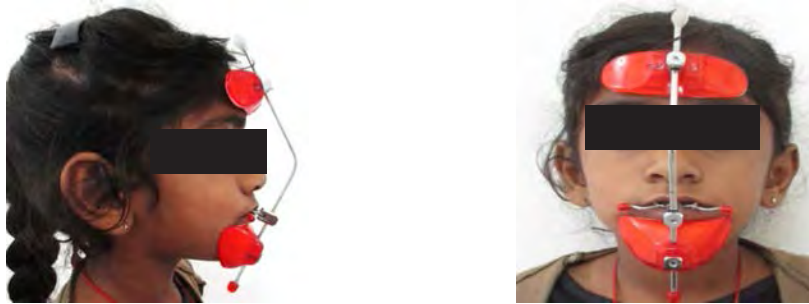
Investigations carried out were intraoral periapical radiograph with the concerned sites, orthopantomogram and lateral cephalogram. The final diagnosis obtained was dentoalveolar abscess with 64, chronic irreversible pulpitis with 54 and 51 and deep occlusal caries with 74 and 84 and developing skeletal Class III malocclusion.



Treatment protocol was divided into 4 phases: The preventive phase included brushing demonstration to parent and child, giving oral hygiene home care instructions, providing 7-day diet diary and diet analysis and counselling and use of fluorides. Interceptive phase included correction of developing skeletal Class III malocclusion with myofunctional appliance for which the patient was referred to the department of



Orthodontics. The patient was given a facemask and maxillary bonded splint with jack-screw with hooks on the canine.



Restorative phase included calcium hydroxide pulpotomy with 74 placement of triple antibiotic paste with 84, pulpectomy with 54. The patient had an edge to edge bite initially and once sufficient amount of overjet was obtained i.e. after 8 months of placement of facemask, pulpectomy was carried out with 51 followed by strip crowns 51 and 61 and composite restoration with 52 and 62. Surgical phase included extraction with 64. Recall and maintenance was carried out every 6 months.

Discussion: The type of restoration placed on primary teeth is dictated by the extent and location of the carious lesion. Indication of pulpotomy in primary tooth include presence of extensive caries, without evidence of radicular pathology when caries removal results in a carious or mechanical pulp exposure. In this procedure the coronal pulp is amputated and the remaining vital radicular pulp tissue is treated with a long-term clinically-successful medicament. The various medicaments that can be used include buckley's solution of formocresol, ferric sulphate, sodium hypochlorite, calcium hydroxide and MTA.³

Heilig J (1984) performed calcium hydroxide pulpotomies in 17 carious primary mandibular molars. Treatment was clinically and radiographically successful for 15 teeth and they suggested that $\text{Ca}(\text{OH})_2$ pulpotomy may be a viable alternative to formocresol pulpotomies in the primary dentition.⁴

Recent trends justify significantly fewer maxillary labial frenectomies. These procedures should only be performed after it has been shown that the frenum is the causative factor in maintaining a diastema between the maxillary central incisors which cannot be determined until the permanent canines have erupted. Thus a maxillary labial frenectomy prior to the age of 11 or 12 is probably not indicated.⁵

Evolving as an alternate treatment procedure in comparison to traditional pulpectomies/root canal treatment and extractions for treatment of nonvital or pulpless teeth is "Lesion sterilization and tissue repair" (LSTR) therapy. The concept of LSTR was developed at the Cariology research unit, School of Dentistry, Niigata University, Japan, 2004 and involves non-instrumentation or minimal instrumentation followed by placement of antibiotic mixture to disinfect root canal systems.⁶

The triple antibiotic paste (3 Mix-MP) was prepared according to Hasino et al (1996) which included mixing ciprofloxacin (200mg), metronidazole (500mg) and minocycline (100 mg) in a ratio of 1:1:1 (3 Mix). The carrier used is (MP)- Macrogol ointment, Propylene glycol (1:1). Takushige T et al (2004) modified this combination and mixed the drugs in a ratio of 1:3:3 (3 Mix) and added either with macrogolpropylene glycol (3 Mix-MP) or a canal sealer (3 Mix-sealer).⁷

The disadvantage of using triple antibiotic paste included tooth discoloration induced by minocycline.



Alternatives for minocycline are cefaclor, fosfomycin and clindamycin. Other vehicles include use of ciprofloxacin ointment.

Taukshige et al (2004) evaluated the effectiveness of LSTR in primary teeth. They found that 87 cases with infected primary molars after a follow up period of 680 days were relieved of symptoms such as abscess, gingival fistulae and pain and the teeth remained asymptomatic until their exfoliation.⁷ Nakornchai et al (2010) compared the clinical and radiographic success of 3-Mix-MP and Vitapex for root canal treatment on pulpally involved primary molars. They suggested that the simple and short procedures of 3-Mix-M P may be superior to other materials used for root canal treatment in children and more advantageous in teeth with preoperative root resorption.⁸

Characteristics of developing skeletal Class III malocclusion seen in the patient included clinical findings of a protrusive chin, edge to edge bite, Class III subdivision right side molar relationship and Class III canine relationship and cephalometric findings which included SNA angle of 79, SNB angle of 79 with retroclined upper and lower incisors.

Esthetic requirement of severely mutilated primary anterior teeth in case of ECC has been a challenge to pediatric dentist, severely decayed primary anteriors may not be able to withstand occlusal forces if restored with conventional cements. In such cases full coverage anterior crowns are more cost effective and viable option. Different types of full coverage anterior crowns include strip crowns, stainless steel crowns, veneered stainless steel crowns, polycarbonate crowns, shell crowns and zirconia crowns. The advantages of strip crowns include easy placement and removal, they are less time consuming, provide parental satisfaction, easily match the natural dentition and easy shade control with composite.

Conclusion: Early loss of primary teeth in young children continues to be highly prevalent and most commonly leads to malocclusion, lack of confidence and self-esteem of the child. Hence, timely management of these primary teeth is imperative. Early diagnosis and interception of a developing malocclusion in a child is important to prevent development of a full-blown malocclusion later in life.

References:

- 1 Marwah N. Textbook of pediatric dentistry. 3rd edition. Chp. 49. pg. 603.
- 2 Kapur A, Chawla HS, Utreja A, Goyal A. Early class III occlusal tendency in children and its selective management. *J Indian Soc Pedod Prev Dent.* 2008 Sep; 26(3):107-13.
- 3 Guideline on Pulp Therapy for Primary and Immature Permanent Teeth. *Pediatr Dent.* 2016 Oct; 38(6):280-288.
- 4 Heilig J, Yates J, Siskin M, McKnight J, Turner J. Calcium hydroxide pulpotomy for primary teeth: a clinical study. *J Am Dent Assoc.* 1984 May; 108(5):775-8.
- 5 Pinkham J. *Pediatric dentistry-Infancy through adolescence.* 4th edition. Chp. 28. pg. 460.
- 6 Hoshino E, Kurihara-Ando N, Sato I, Uematsu H, Sato M, Kota K, et al. In vitro antibacterial susceptibility of bacteria from infected root dentin to a mixture of ciprofloxacin, metronidazole and minocycline. *Int Endod J.* 1996; 29:125-30.
- 7 Takushige T, Cruz E, Moral A, Hoshino E. Endodontic rearmment of primary teeth using a combination of antibacterial drugs. *Int Endod J* 2004; 37: 132-8
- 8 Nakornchai S, Banditsing P, Visetratana N. Clinical evaluation of 3Mix and Vitapex as treatment options for pulpally involved primary molars. *Int J Paediatr Dent* 2010; 20:214-21.



PLEOMORPHIC ADENOMA: A DIAGNOSTIC DILEMMA

Presented by

Dr. Geeta Karyakarte (Oral Pathology)

Dr. Payal Peshwani (Oral and maxillofacial Surgery)

Introduction: The term Pleomorphic Adenoma was suggested by Willis¹. The other names for this lesion previously included mixed tumor, enclavoma, branchioma, endothelioma, enchondroma.² However, the term mixed tumor is a misnomer as it is not a mixed tumour in a true sense of being teratomatous or derived from more than one primary tissue. Its morphologic complexity is the result of differentiation of tumour cells and the fibrous, hyalinised, myxoid, chondroid and osseous areas are the result of metaplasia or the actual products of tumour cells per se. ¹Pleomorphic adenoma is the most common salivary gland tumour affecting the superficial lobe (90% of cases) of the Parotid gland (55-77% of all salivary glands).³ Histiogenesis of pleomorphic adenoma has been attributed to ductal reserve cell and myoepithelial cell.¹

Prognosis of pleomorphic adenomas is excellent with adequate surgery with a cure rate of more than 95%.¹ However, tumors with mostly myxoid appearance are more likely to recur.³ The purpose of this case report is to present the features of pleomorphic adenoma of mainly myxoid appearance so as to give pathologists and surgeons a better judgement during diagnosis and treatment of such cases for a better prognosis.

Case: A 35 year old female reported with a swelling associated with pain on right side of face since 10-12 years. The swelling was initially small but increased gradually to the present size over a period of 10 yrs. The swelling was associated with mild dull aching pain, gradual in onset, intermittent in nature. There was a history of difficulty in mastication.

On further elicitation, the patient gave a history that visited a medical practitioner in 2011 for the same but had no medical or surgical treatment. She gave a history of FNAC from same lesion but had not visited the medical practitioner for the reports. Patient was on Ayurvedic treatment for the same since 1 yr but had no relief.

Clinical examination showed swelling over the right pre-auricular region extending superio-inferiorly from approx. 2 cm anterior to the pinna on the ala tragus line to approx 4cm just above the angle of the mandible inferiorly. Anteroposteriorly the swelling extended from post auricular region to 3 cm anteriorly slightly raising the earlobe signifying involvement of the tail of the parotid gland. (Fig 1) The swelling was roughly ovoid, firm, nodular and not adherent to the underlying structures. Tenderness was absent. The overlying skin was normal(Fig 2) There was no abnormality seen intra-orally related to the extra- oral swelling (Fig3). Apart from the swelling the patient was clinically healthy. The medical history was insignificant apart from a slight anemia. The clinical features were suggestive of pleomorphic adenoma. Differential diagnosis of primary salivary gland tumors and Metastatic lesion to parotid nodes (rare) was made.



Fig. 1. The lesion



Fig. 2. Closer view of the lesion



Fig. 3. Intraoral photograph

On further investigative procedures, MRI (fig4) showed a hyper-dense area was seen in the superficial lobe of Right parotid gland. Imaging features were consistent with the diagnosis of Pleomorphic adenoma. Fine needle aspiration cytology was done to arrive at a definitive diagnosis of Pleomorphic adenoma (Figs. 5-10)



Fig. 4: Hyperdense area seen in superficial lobe of Right parotid gland. Suggestive of Pleomorphic Adenoma

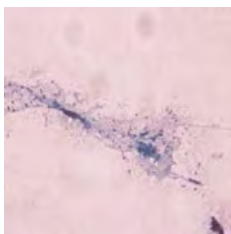


Fig. 5. PAP stained [4X]: Pale blue fibromyxoid stroma interspersed with poorly cohesive epithelial cells.

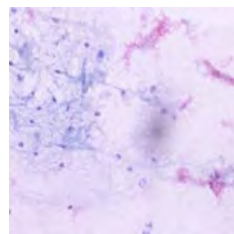


Fig. 6. PAP stained [10X]: Pale blue fibromyxoid stroma interspersed with poorly cohesive epithelial cells.

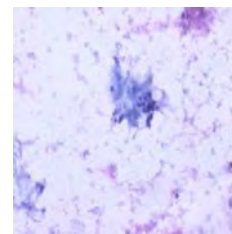


Fig. 7,8: PAP stained [20X]: Pale blue fibromyxoid stroma interspersed with groups of epithelial cells and loosely cohesive epithelial cells.

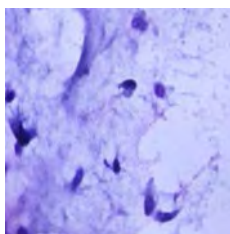
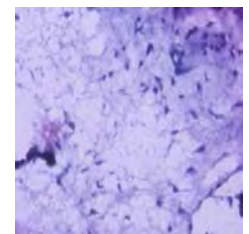


Fig. 5. PAP stained [4X]: Pale blue fibromyxoid stroma interspersed with poorly cohesive epithelial cells.

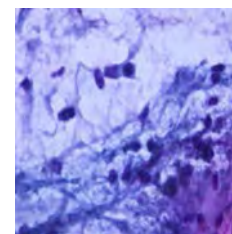


Fig. 6. PAP stained [10X]: Pale blue fibromyxoid stroma interspersed with poorly cohesive epithelial cells.



Based on the clinical, radiologic and cytologic findings, surgical treatment was planned.

Superficial parotidectomy was planned as the lesion was involving only the superficial lobe of parotid gland. Blair incision was given over right side and preserving all the five terminal branches of facial nerve, superficial lobe of parotid gland was excised. The drain was inserted and the surgical site was closed.

The macroscopic findings were a single soft tissue specimen of reddish white colour, roughly ovoid shape, firm consistency and size approx: 4cm x 3 cm. Microscopic findings revealed lesional tissue seperated from the normal salivary gland tissue by a fibrous capsule (Figs.11,12) ductal epithelial cells were arranged in the form of islands, cords and sheets within a mesenchyme like background.(Figs,13,14,15) Myxomatous stroma was also seen.(Fig 16)

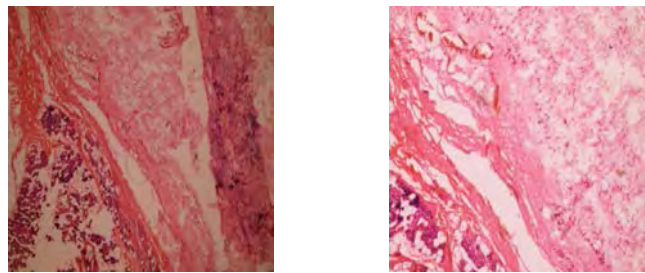


Fig. 11,12: H & E stained sections (4X and 10X) show lesional tissue seperated from the normal salivary gland tissue by a fibrous capsule

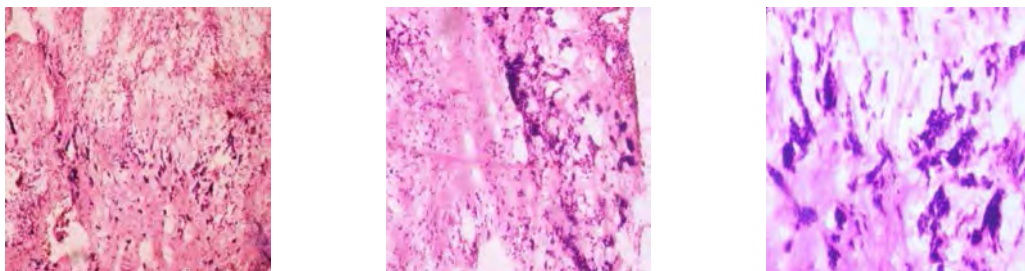
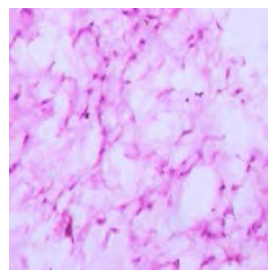


Fig. 13, 14, 15.: – H & E stained section(10X, 20X, 40X) shows tumour is composed of epithelial cells arranged in the form of small islands, sheets and cords within a mesenchyme-like background.



40X – H & E stained section shows myxomatous stroma

A diagnosis of Pleomorphic adenoma was made.

Discussion: Pleomorphic adenoma or benign mixed tumor is the most common salivary gland neoplasm.1 It accounts for 53-77% of parotid tumors, 44-68% of submandibular tumors and 33-43% of minor salivary



gland tumors. It is a benign tumor consisting of cells capable of differentiating to epithelial (ductal and nonductal) cells and mesenchymal (chondroid, myxoid and osseous) cells³. Its morphologic complexity results from the ability of tumor cells to differentiate into fibrous, hyalinized, myxoid, chondroid and osseous areas, as a result of metaplasia or actual products of tumor cells per se^{1,4,5}.

Numerous theories have been proposed regarding the histogenesis of pleomorphic adenoma. It is related to the myoepithelial cells and to reserve cells in the intercalated duct. Neoplastically altered epithelial cells with the potential for multidirectional differentiation may be responsible for the tumor.⁷ Cytogenetic abnormalities of chromosome 12q 13-15 has been identified^{1,6}. The putative pleomorphic adenoma gene (PLAG1) has been mapped to chromosome 8q12³.

Pleomorphic adenomas can occur at any age, but most common in young and middle aged adults, between 30 to 60 years. A slight female predilection is noticed. Most reported PA of parotid gland occur in the superficial lobe and present as a swelling on the ramus in front of the ear. The tumor is usually an irregular nodular lesion, firm in consistency, although areas of cystic degeneration may be palpated if superficial, and does not show fixation^{1,2,3,7}.

Facial nerve involvement and pain are rare¹. If neglected, pleomorphic adenoma can grow to grotesque proportion^{1,3}. About 10% of the reported pleomorphic adenomas develop within the deep lobe of the gland beneath the facial nerve. A few lesions grow in a medial direction between the ascending ramus and stylomandibular ligament resulting in dumbbell shaped tumor that appears as a mass of the lateral pharyngeal wall or soft palate.^{1,2} Pleomorphic adenoma of minor salivary gland commonly occurs in the palate (50%), upper lips (27%) and buccal mucosa (17%)³.

In cut gross sections, the tumor appears as an irregular-ovoid mass with well-defined borders. It may have an incomplete fibrous capsule or are encapsulated. Cut surface may be rubbery, fleshy, mucoid, or glistening with a homogenous tan or white colour. Areas of hemorrhage and infarction may be noted.⁷

Pleomorphic adenoma, microscopically is characterized by variable diverse structural patterns. It consists of glandular epithelium and mesenchymal like tissue. Foote & Frazell (1954) categorized the tumor into a) principally myxoid, b) myxoid and cellular in equal proportion, c) predominantly cellular and d) extremely cellular.^{1,3}

The epithelial component form ducts and small cysts that contain an eosinophilic coagulum. The epithelium may also occur as small cellular rests, sheets of cells, anastomosing cords and foci of keratinizing squamous, mucous or spindle shaped cells^{1,3}. The myoepithelial cells have variable morphologies like angular or spindle shape, rounded with eccentric nuclei and hyalinized eosinophilic cytoplasm resembling plasma cells (hyaline cells). Accumulation of mucoid material around the myoepithelial cells give a myxoid pattern³. Vacuolar degeneration results in cartilagenous appearance. Foci of hyalinization, bone and even fat can be noted^{1,3}. When highly cellular, it is referred to as 'cellular adenoma'. When myoepithelial cells predominate, it is referred to as 'myoepithelioma'⁸.

The treatment of pleomorphic adenoma is surgical excision. For pleomorphic adenoma of superficial lobe of parotid gland, superficial parotidectomy with preservation of facial nerve is done. For tumors of deep lobe total parotidectomy is necessary. Intraoral lesions can be treated more conservatively by extracapsular excision.^{7,9} Submandibular tumors are treated by total removal of gland with tumor⁹. Prognosis is excellent with a cure rate of 95%.¹ The tumor is radio resistant. So radiotherapy is not indicated.⁷ Frey's syndrome



is one of the rare complications after parotidectomy.³ Malignant transformation, though rare, has been reported in about 5% of cases. Carcinomas ex pleomorphic adenoma and metastasizing benign mixed tumor are two variants of this tumor undergoing malignant transformation^{1,3}.

Conclusion: Pleomorphic adenoma, though a benign tumor of salivary gland, should be diagnosed at an early stage and surgically excised. When involving parotid gland, precaution should be taken to preserve facial nerve, if possible. Care must be taken to remove the lesion entirely to avoid recurrence and malignant transformation. We have reported a case of pleomorphic adenoma with mostly myxoid component. The clinical significance of this lesion is its increased tendency to recur.

References:

- 1 Rajendran R, Shivapathasundaram B. Shafer's Textbook of Oral Pathology. 6th ed. New Delhi: Elsevier; 2016. 219 – 225.
- 2 Regezi, J. A. & Batsakis, J. G. Histogenesis of salivary gland neoplasms. Otolaryngol. Clin. North Am., 10(2):297-307, 1977.
- 3 Neville, B. W.; Damm, D. D.; Allen, C. M. & Bouquot, J. E. Oral & Maxillofacial Pathology. 3rd ed. St. Louis, Saunders Elsevier, 2009. pp.477-9.
- 4 Frazell, E. L. Clinical aspects of tumors of the major salivary glands. Cancer, 7(4):637-59, 1954.
- 5 Friedrich, R. E.; Li, L.; Knop, J.; Giese, M. & Schmelzle, R. Pleomorphic adenoma of the salivary glands: analysis of 94 patients. Anticancer Res., 25(3A):1703-5, 2005.
- 6 Mendenhall, W. M.; Mendenhall, C. M.; Werning, J. W.; Malyapa, R. S. & Mendenhall, N. P. Salivary gland pleomorphic adenoma. Am. J. Clin. Oncol., 31(1):95- 9, 2008.
- 7 Ellis, G. L. & Auclair, P. L. Tumors of the Salivary Glands, Atlas of Tumor Pathology: Third Series, Fascicle 17. Washington D.C., Armed Forces Institute of Pathology, 1996.
- 8 Dardick, I. Myoepithelioma: Definitions and diagnostic criteria. Ultrastruct. Pathol., 19(5):335-45, 1995.
- 9 Bradley, P. J. Recurrent salivary gland pleomorphic adenoma: etiology, management, and results. Curr. Opin. Otolaryngol. Head Neck Surg., 9(2):100-8, 2001.
- 10 Stennert, E.; Guntinas-Lichius, O.; Klussmann, J. P. & Arnold, G. Histopathology of pleomorphic adenoma in the parotid gland: a prospective unselected series of 100 cases. Laryngoscope, 111(12):2195-200, 2001.



A CASE OF PAPILLOMA EMERGING FROM AN EDENTULOUS AREA IN THE MANDIBLE

Presented by

Dr. Girish H. Bodhare (Periodontics)

Dr. Rohit J. Biranjan (Oral Medicine, Diagnosis and Radiology)

A 52 year old male patient named Mr. Dilip Chaukikar reported to the department with the chief complain of swelling in the lower left back region of jaw. The patient was apparently alright 1 month back when he noticed a small growth in lower left posterior region of jaw. The growth was initially small in size approximately pea sized which gradually increased to reach the present size of approximately 1.5 x 2cm. History of discomfort (no pain) associated with the growth while mastication. No History of pain associated with the growth. There was no history of trauma in that region. No history of any discharge from the growth. No history of any growth elsewhere in the oral cavity. No history of any medications for same. Since the growth was increasing in nature so, patient visited V.S.P.M's DCRC on 08.05.2015



Past history: Patient gave history of extraction with 6, 4 months back which was uneventful. No history of any systemic disease or any drug intake. Family history was not contributory. However patient gave history of Smoking bidi since 30-35 yrs, 1 packet, 7-8 times a day. Patient brushes his teeth with toothbrush & toothpaste once daily. The sleep cycle was not disturbed. Bowel Movements were not disturbed.

General Examination showed that the Patient was conscious, co-operative, well oriented with time, place & person. Temperature was afebrile to touch. Pulse was 74 beats /min. Respiration was 18 cycles /min. Blood pressure was 110 / 80 mm of Hg. Pallor, Icterus, Cyanosis and clubbing were absent

Hard tissue examination showed all teeth were present in the upper arch. 46 was clinically missing. Root piece was present with 36. Caries seen with 37,47. Tenderness was negative on V.P and H.P

Soft tissue examination showed a well defined growth seen on the alveolar mucosa in the region of 36. Colour was coral pink with melanin pigmentation while the Contour: Scalloped. Mild Generalised recession



was seen. Consistency was firm . Bleeding on probing was absent.

The area of Chief Complaint showed a single sessile growth present on Mandibular left posterior jaw in the region of 36. extending antero-posteriorly from distal surface of 35 to mesial surface of and superioinferior 0.5 cm above the occlusal level on the lingual side of growth to attached gingiva of 36 and mesiolingual from attached gingiva of 36 buccally to gingiva of 36 lingually covering the entire socket area. Shape was cuboida, size : 1.5 X 2 cm Colour was pink. Borders were well defined, surface granular and indentation of upper teeth was seen. The surrounding area was normal and no visible discharge was present.

On palpation all the findings of inspection are confirmed on palpation. The surface texture was rough. The consistency was firm. Tenderness was absent and Discharge also absent

Investigations: IOPA



Differential diagnosis:

- Traumatic fibroma
- Peripheral Ossifying fibroma
- PGCG
- Fibrosed pyogenic granuloma

Presurgical Patient Preparation

- Medical/Dental history was taken
- Phase I therapy was given

Investigations

- IOPA
- Complete Haemogram
- Excisional Biopsy





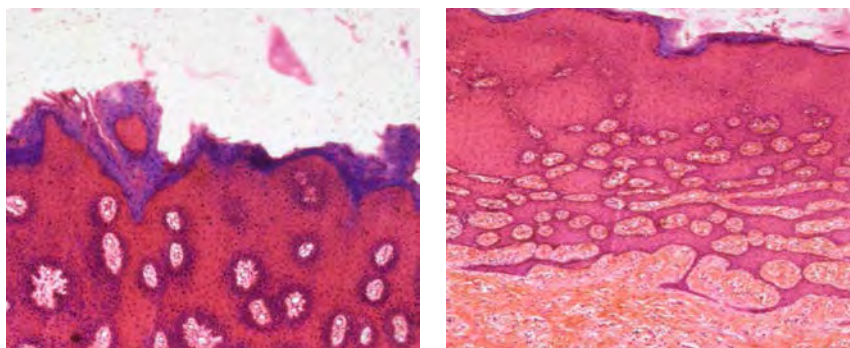
VSPM'S INTERDEPARTMENTAL SCIENTIFIC ACTIVITY - VISA

Local anesthesia 2% Lignocaine 1:80,000 adrenaline was used. Excision was done using No.15 scalpel blade. Extraction of root pieces were done. Full thickness mucoperiosteal flap reflection was done. Curettage done with Gracey curettes. Area of operation was inspected for remaining tissue mass and bone status. Simple interrupted sutures with 3-0 silk were given. Excised tissue was kept in formalin and was sent for histopathological examination to the oral pathology department.



Post Surgical Management: Antibiotics, analgesics and antiseptic mouthwash were prescribed to the patient. Patient was recalled after 7 days for suture removal

Histopathology: H & E stained section shows hyperparakeratinized stratified squamous epithelium with elongated retepegs, loss of intercellular bridge, proliferation of epithelium in papillary pattern. Underlying connective tissue stroma shows dense fibrocellular stroma numerous spindle shape fibroblasts & central connective tissue are support, endothelial lined blood capillaries with engorged RBC's & extravasated RBC's are seen at few places.





Features suggestive of : Papilloma, Follow up after 1 Month



Squamous Papilloma: WHO defines papilloma as “a range of localised hyperplastic exophytic and polypoid lesions of hyperplastic epithelium with a verrucous or cauliflower-like morphology.” This lesion was first described as a “gingival wart” by Tomes in 1848. Papillomas are the fourth most common oral mucosal mass accounting for around 3-4% of all biopsied oral soft tissue lesions.

Etiology: Exact etiology of papilloma is unknown, it is most commonly associated with HPV 6, 11 and 16. The common sites of occurrence include the palatal complex, uvula, tongue and gingiva. Its malignant transformation is documented in other sites such as the trachea and the larynx. With evidence of HPV infections leading to cervical cancer and papilloma in other regions showing malignant transformation the question of whether oral squamous papilloma should be considered a potentially malignant disorder needs to be addressed. Papillomas resemble a number of verrucopapillary lesions clinically and microscopically such as

- Verruca Vulgaris
- Condyloma Accuminatum
- Inflammatory Papillary Hyperplasia
- Verrucous Carcinoma

Conclusion: Eventhough, squamous papillomas are common tumors of the oral cavity, its histopathological features are vague and overlap with a number of other verrucopapillary lesions. Differentiating papillomas from other lesions may prove to be a challenge and requires a shrewd eye to look for minute features that helps to differentiate it from other similar lesions.



ORTHOKERATINIZED KERATOCYSTIC ODONTOGENIC TUMOUR WITH COMPLEX ODONTOMA IN A YOUNG FEMALE

Presented by

Dr. Sapna Vadera (Oral and Maxillofacial Surgery)

Dr. Geeta Karyakarte (Oral Pathology)

Abstract: Orthokeratinized Keratocystic odontogenic tumour (Previously called Orthokeratinized Odontogenic Cyst-OOC) and odontoma are the lesions that are minimally destructive neoplasms of head and neck region. Orthokeratinized Keratocystic odontogenic tumor is a rare variant of KCOT characterized by the presence of orthokeratin covering the cystic lining. Odontoma is a benign neoplasm/hamartoma often discovered accidentally on panoramic radiographs. We came across a case of a 20 year old female with swelling on the right side of her lower jaw. On the basis of radiographic and histopathological findings the final diagnosis of Orthokeratinized KCOT associated with complex odontoma was given. However, there are very few reports in the English literature of the simultaneous occurrence of these two lesions and hence this case is very rare. It is unclear whether the two lesions were just coincidental or were actually related to each other.

Keywords: Keratocystic odontogenic tumour, Orthokeratinized, odontoma, Orthokeratinized Odontogenic cyst

Introduction: The term Odontogenic Keratocyst was suggested by Phillipsen.¹ OKC is a distinctive form of developmental odontogenic cyst that deserves special consideration because of its specific histopathologic features and clinical behaviour.¹ OKC has been renamed as "keratocystic odontogenic tumor" (KCOT), because it more appropriately reflects its local destructive and aggressive behavior.² KCOT arises from remnants of the dental lamina-cell rests of Serres. (usually found in a dormant state).¹ Orthokeratinized KCOT shows orthokeratinized surface epithelium with a few other peculiarities as compared to the classic KCOT.³ Odontomas are hamartomas composed of various dental tissues like enamel, dentin, cementum, and sometimes pulp. They are slow growing benign tumours showing nonaggressive behaviour. Complex odontoma consists of a conglomerate mass of enamel and dentin with no anatomic resemblance to a tooth.^{1,2} This is a rare combination of occurrence of Orthokeratinized KCOT and Complex Odontoma together.

Case: A 20 year old female reported with swelling and Pain over lower right side of face since 15 days. Patient was apparently alright 15 days back when she noticed a swelling over right side of the face, which was initially of pea size and gradually increased to the present size. Patient also experienced pain over the same region which was gradual in onset, sharp shooting type and intermittent in nature. Pain was of radiating type, radiating up to the right ear and right temporal region.

She went to nearby private clinic for the same where primary medications were administered and then she was referred to VSPM Dental College, Nagpur for further management. There was a History of fever (multiple episodes). Patient had difficulty in mastication. There was no difficulty in swallowing. There was no relevant past medical or dental history. No other significant contributing personal or family history.

Clinical examination showed a diffuse swelling over the right mandibular angle giving the face an



asymmetric appearance. The swelling was extending from 2 cm below the right infra-orbital rim and 2 cm below the right inferior border of mandible. supero-inferiorly. Antero-posteriorly, it extended From 2 cm lateral to right corner of mouth to 2cm posterior to posterior border of mandible right side Colour was same as surrounding skin. No visible pus discharge noted extraorally. The swelling was firm to hard in consistency and was tender on palpation. Local rise in temperature was present. TMJ- Bilaterally synchronous. The mouth opening was reduced to approximately 10 mm. Intraorally, Cortical expansion was noted, extending from mesial surface of mandibular right 1st premolar to distal surface of mandibular right 2nd molar. It was hard in consistency and tender on palpation.



Fig 1. Facial asymmetry due to swelling in mandibular right posterior region.



Fig 2. Reduced mouth opening. Cortical expansion from mesial surface of mandibular right 1st premolar to distal surface of mandibular right 2nd molar

On further investigative procedure through orthopantomogram, a well defined unilocular radiolucency was seen distal to impacted mandibular right third molar and a radiopaque ill defined mass was seen associated with the same tooth. CT scan also confirmed buccal cortical expansion in mandibular right posterior region. A provisional diagnosis of Keratocystic odontogenic tumour with complex odontome was made. Dentigerous cyst and unicystic ameloblastoma were considered in the differential diagnosis of KCOT.



Fig 3: OPG showing well defined unilocular radiolucency was seen distal to impacted mandibular right third molar and a radiopaque ill defined mass was seen associated with the same tooth.



Fig 4: CT scan shows buccal cortical expansion in mandibular right posterior region

Based on the clinical and radiologic findings, surgical treatment was planned. The KCOT was enucleated with removal of mandibular right 3rd molar and the calcified mass.. The drain was inserted and the surgical site was closed.



Histopathologic study of the soft tissue mass revealed cystic cavity lined by an orthokeratinized stratified squamous epithelium of uniform thickness with surface corrugation. Surrounding connective tissue capsule showed collagen fibres, fibroblasts and mild chronic inflammatory cell infiltrate. The surface epithelium was Orthokeratinized stratified squamous epithelium. There was a prominent granular cell layer. Surface corrugations could be clearly appreciated. H&E stained decalcified section of the calcified mass showed disorganized mass of dentin and pulp like tissue arranged in an irregular pattern.

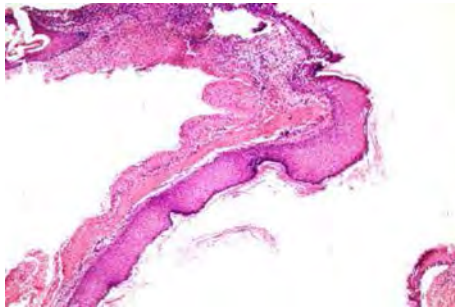


Fig 5: H & E stained (4X) shows a cystic cavity lined by uniformly thick stratified squamous epithelium. No retepegs. The surrounding connective tissue capsule shows fibrocellular stroma.

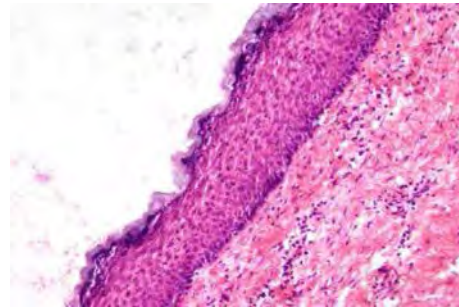


Fig 6: H & E stained (20x) section shows a cystic cavity lined by an orthokeratinized stratified squamous epithelium of uniform thickness with surface corrugation. Surrounding connective tissue capsule shows collagen fibres, fibroblasts and mild chronic inflammatory cell infiltrate.

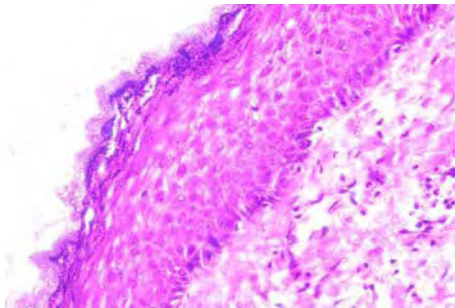


Fig 7: H & E stained (40x) section shows Orthokeratinized stratified squamous epithelium. There is a prominent granular cell layer. Surface corrugations can be clearly appreciated

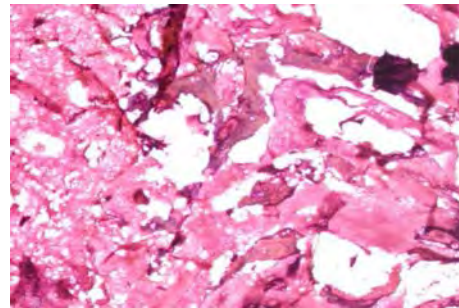


Fig 8: H&E stained decalcified section of the calcified mass (10x) shows disorganized mass of dentin and pulp like tissue arranged in an irregular pattern. Enamel spaces are seen in some areas.

Discussion: OKC is a distinctive form of developmental odontogenic cyst that deserves special consideration because of its specific histopathologic features and clinical behaviour.¹ Reichart and Philipsen renamed OKC as Keratinizing cystic odontogenic tumour under subheading - "benign neoplasm of odontogenic epithelium with mature, fibrous stroma; odontogenic ectomesenchyme not present." This classification got the approval by WHO at the Editorial and Consensus Conference, held at Lyon, France in July 2003. Present classification is that OKC has been renamed as "Keratocystic odontogenic tumor"⁵

There are three basic reasons for reclassification as a tumor: 1) Behaviour: Locally destructive, highly recurrent. 2) Histopathology: Daughter cysts seen, mitotic figures in suprabasal layer of epithelium. 3) Genetics: Disregulation of PTCH (patched) gene which is a tumor suppressor gene leading to Loss of Heterozygosity(LOH) at chromosome associated with PTCH. LOH by definition is a feature of tumorigenic



tissue.^{4,5} Frequency - 3 to 11% of all odontogenic cysts. KCOTs occur with a Wide age range with a peak frequency in the 2nd and 3rd decade of life.¹ There is a predilection for males.² Posterior mandible most commonly affected.¹ Smaller KCOTs are usually asymptomatic. Large KCOTs may be associated with pain, swelling or drainage.⁴

KCOT arises from remnants of the dental lamina – cell rests of Serres. (usually found in a dormant state). It may also arise from the extension of basal cells of overlying oral epithelium. Orthokeratinized KCOTs have slight different characteristics as compared to the classic KCOTs.⁵ Some of these characteristics are - pyknotic nuclei are NOT seen in superficial cell layer, prominent granular cell layer is seen, surface corrugations are absent in most cases, basal cell layer shows cuboidal to flattened cells, recurrence rate is lower and it is less aggressive than the parakeratinized variant.^{3,4}

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.¹ 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 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 morphodifferentiation. Etiology of odontomas is unknown. It has been suggested that local trauma or infection may lead to production of such a lesion.³

This is a very rare case and only a few reports have been made in the English literature about an orthokeratinized KCOT associated with a complex odontoma.

Conclusion: The occurrence of an orthokeratinized KCOT associated with a complex odontoma is a very rare entity. It is considered to be a very rare case as the two arises from the exactly opposite activities of dental lamina. Further research work and literature is required to justify this association.

References:

- R. Rajendran, B. Shivpathasundharam. Shafer's Textbook of Oral Pathology. 7th Edition. New Delhi: Elsevier; 2012.
- Shear M., Speight P. Cysts of the Oral and Maxillofacial Regions. 4th Edition. UK: Blackwell Publishing Ltd.; 2007.
- Neville, Damm, Allen, Bouquot. Oral and Maxillofacial Pathology. 3rd Edition. Noida: Elsevier; 2009.
- Cawson R. A., Odell W. Cawson's Essentials of Oral Pathology and Oral Medicine. 7th Edition. UK: Churchill Livingstone (Elsevier); 2002.
- Nayak M., Singh A., Singhvi A., Sharma R. Odontogenic Keratocyst- What is in the name? Nat Sci, Biol Med, 2013; 4(2): 282-285.
- Kulkarni M., Kher S., Agarwal T., Ingle Y. Orthokeratinizing Odontogenic Cyst Of Maxilla With Complex Odontoma. J Oral Maxillofac Pathol, 2013; 17(3): 480



DOES ACTIVE INGREDIENTS IN NONALCOHOLIC CHLORHEXIDINE MOUTHWASH PROVIDE ADDED EFFECTIVENESS?

Presented by:

Dr. Harish Tibdewal (Public Health Dentistry)

Introduction: Dental plaque is a key factor in the etiology of gingival inflammation¹. It favours calculus accumulation that play an essential role in the development of periodontal diseases.⁴ Though mechanical cleaning procedures are considered to be the most reliable means of controlling plaque it needs greater manual dexterity for complete removal therefore chemical control of plaque is becoming widespread as an adjuvant to mechanical control. Chlorhexidine (CHX) is the most effective antibacterial agent for chemical plaque control and found to reduce plaque and gingivitis by 60%.⁶ The antibacterial effect of CHX solution however is largely influenced by the other ingredients which have an additive or synergistic effect rather than an inhibiting effect. Other than CHX, Zinc (Zn) salts also have a moderate inhibitory effect against plaque and gingivitis.¹¹ The combination of Zn along with the other antiseptic agent has shown additive and synergistic effect. Apart from Zn salts, NaF has been used as additive ingredient with CHX. Though CHX is the most tested and the most effective antimicrobial compound free from systemic toxicity.¹⁵ it has an unpleasant taste and causes discoloration of the pellicle.¹⁶ Bascones et al. observed that the combination of CHX-NaF had fewer adverse events when compared to CHX. Though, the effectiveness of CHX-ZnCl₂ and CHX-NaF were evaluated we could not trace any study that evaluated the influence of both ZnCl₂ and NaF present as active ingredients.

Aims and objectives: The aim of the present study was to compare the effectiveness of CHX and CHX+NaF+ZnCl₂ mouthwash and assess the occurrence of adverse events.

Material and methods: Study population comprised of 24 healthy male volunteers. Final sample was collected after following stringent exclusion and inclusion criterion. Inclusion criteria constituted subjects ready to give written informed consent, presence of full complement of teeth, those having high standard of oral hygiene and gingival health and has no relevant medical history

Excluded students represented those who had periodontal pockets > 5mm, wearing orthodontic or removable dental appliances, receiving pharmacotherapy, history of hypersensitivity or specific oral allergy, systemic diseases and smokers.

The present study is a randomized double blind crossover trial with the random distribution of subjects into any one of the two experimental non alcoholic mouthwashes, a CHX mouthwash (0.2% CHX gluconate) and a CHX mouthwash with active ingredients – (0.2% CHX gluconate, 0.05%NaF, 0.09% ZnCl₂). Ethical approval was availed.

After a baseline clinical evaluation, thorough oral prophylaxis was done. Subjects were instructed to maintain excellent oral hygiene for 14 days (pre experimental phase) by brushing their teeth twice a day. The aim was to assure the least possible presence of plaque and practical non existence of gingivitis. It was followed by 21 days 1st expt. phase. In it, the subjects discontinued all the oral hygiene procedures and



were treated solely with one of the randomly assigned mouth rinse. The participants rinse twice daily with 10ml for about 1min in the morning (after the breakfast) and in the evening (after the dinner). Participants were refrained from rinsing with water, eating or drinking within 30 minutes of mouthwash use.

First experimental phase was followed by professional prophylaxis and 14 days wash out period, during which participants maintained good oral hygiene by brushing the teeth twice daily. The objective of washout period was to assure the least possible presence of plaque and gingivitis, before starting of 2nd experimental phase carried out for the further 21 days during which the subjects again discontinued all the oral hygiene procedures and were treated solely with the mouthwash not used in the first experimental phase.

The levels of gingivitis, dental plaque, supragingival calculus, and dental staining were assessed at the baseline and at the end of each (21 days) experimental phase. Gingival appraisal was done using gingival index of Loe and Silness. Extrinsic tooth staining was scored using Lobene stain Index. The amount of supra-gingival calculus was measured based on the Volpe Manhold index. At the end of the experimental phase, any adverse effects like oral itching, soreness, dry mouth and burning sensation were

Statistical analysis (1 min): The statistical analysis was performed using the SPSS Version 15 pack for Windows (SPSS Inc., Chicago, Illinois). Means and standard deviations for all the indices are presented at baseline and end of experimental phase. Mann-Whitney test was used to assess the baseline homogeneity and to compare the mean scores at baseline and after the experimental phase. Friedman's repeated measures test to compare the evolution of the treatments. The chi-squared test was used to compare various adverse events in the treatment groups. P value of less than 0.05 was considered as statistically significant.

Results: The two treatment groups were homogenous at the baseline with regard to gingival, plaque, supra gingival calculus and extrinsic stains indices which was assessed using Mann Whitney test. A statistically significant difference was found between the two mouthwashes for gingivitis. The increase in gingivitis observed in the CHX group was 0.13 while with CHX+NaF+ZnCl₂ it was 0.09 Also, CHX+ NaF+ZnCl₂ showed better anti calculus effect where the difference in the mean score at baseline and after experimental phase was 1.47 in contrast to 1.93 among CHX group. Friedman repeated measures test revealed significant difference between the mouthwashes (p=0.000) with regard to supragingival calculus formation.

Though the plaque accumulation was more evident among subjects using CHX, no significant difference was observed between the groups in plaque accumulation. The increase in the mean stain index at the end of the experimental phase was greater in CHX group (3.29) than the active ingredients group (2.73).

There was no significant difference for the occurrence of adverse events between the interventions. Oral itching, soreness, aphthous ulcers, burning sensation was found to be more common in the CHX group as compared to active ingredients group. However, dryness was found more in 29% of subjects in the CHX-NaF-ZnCl₂ group compare to 16% in CHX group. While, burning sensation was the least possible adverse event recorded in both the groups.

Discussion: Wennstrom proposed that gingivitis occurs in 14-21days with no application of mechanical oral hygiene measures.²³ Loe et al.⁴ suggested a time frame of 10-21 days to develop experimental gingivitis. In the present study, we opted for 21 days where the subjects abstained from any mechanical oral hygiene measures. CHX-NaF-ZnCl₂ resulted in significantly less development of gingivitis than CHX and was found to be more effective. This was in contrast, to the study of Bascones et al.¹⁷ and Quiryen



et al.¹⁴ who observed CHX+NaF to be least effective on plaque and gingivitis in comparison to CHX. This difference between the past studies and our study could be due to the additive influence of ZnCl₂ which was present as an active ingredient in addition to NaF, as it was found that addition of the ZnCl₂ with the CHX had additive or synergistic effect rather than addition of NaF. It was even observed that CHX was least effective in supragingival calculus prevention. This is in accordance to previous literature which suggests that chlorhexidine encourages supragingival calculus formation.^{24, 25} It was evident that the occurrence of stains was less in active ingredient group than CHX in comparison though the difference was not statistically significant. Quriyen et al. recorded the same results like our study and stated a higher ranking to the CHX-NaF for its anti-staining effect.¹⁴ Also, CHX group showed lower capacity to retard the formation of new dental plaque however difference was not significant. With respect to adverse events, There was no significant difference between the interventions. However, CHX+NaF+ZnCl₂ was more associated with dryness.

Conclusions: It was concluded that addition of active ingredients in the non-alcoholic mouthwash was found to be significantly more effective in the reduction of gingivitis and supragingival calculus. Moreover, it caused less extrinsic staining and dental plaque than CHX however the results were insignificant. In spite of their superior effectiveness, mouth rinse with active ingredients produced comparatively more dryness.



MANAGEMENT OF TEMPOMANDIBULAR JOINT DISK DISPLACEMENT: A NON-INVASIVE APPROACH BY USING OCCLUSAL SPLINT THERAPY

Presented by:

Dr. Neha Iyer (Oral Medicine and Radiology)

Dr. Nupur Shirao (Prosthodontics)

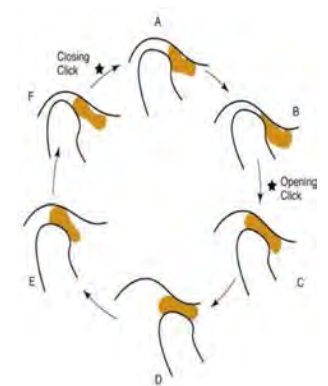
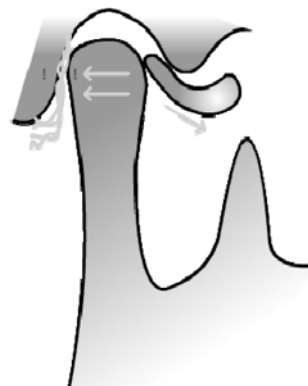
Introduction: Temporomandibular Joint Disorders(TMD) is largely responsible for non-odontogenic orofacial pain and involves masticatory muscles and/or the TMJ.

The most common form of internal TMJ derangement is anterior displacement of articular disc above the condyle. Symptoms are localized jaw pain and popping on jaw movement. Disc displacement is mainly of two types

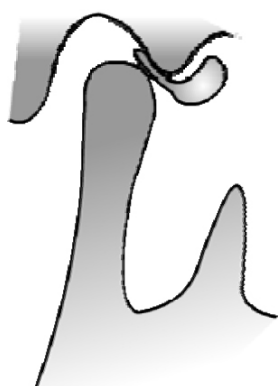
- 1) With reduction - Which causes clicking and pain.
- 2) Without reduction - Does not cause clicking but reduces maximum jaw opening to less than 30mm.



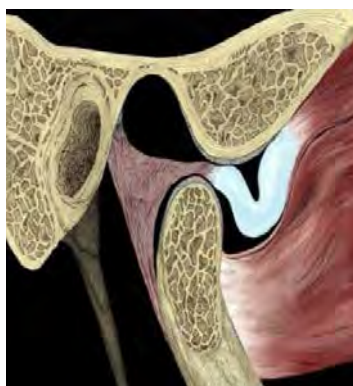
MRI ADDR



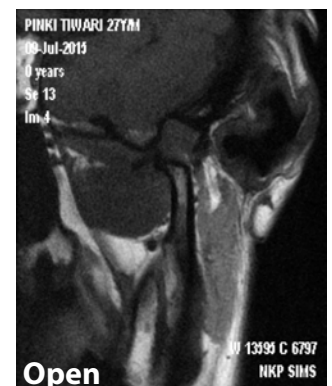
Disc displacement with Reduction



Disc displacement without Reduction



Closed



Open

MRI ADDwoR



Predisposing factors:

1. Very steep articular eminence.
2. Alteration of disc morphology.
3. Laxation of discal ligaments .
4. Trauma or malocclusion, results in the spasm of the lateral pterygoid.
5. Increased muscular tone of the superior head of lateral pterygoid
6. Idiopathic

Case Design: A study was carried out in Department of Oral Medicine and Radiology where 50 symptomatic subjects(100 joints) with disc derangement were selected and underwent MRI. Evaluation of both right and left TMJ was done in the closed and open mouth positions. Depending upon the severity of the disc derangement, patients were instituted non-invasive symptomatic therapies.

Principles of Management: Multidisciplinary approach to fully address the problem, Least invasive and most reversible treatments should be tried first, Only after failure to alter the disease process and clinical symptoms, more invasive approaches.

Pharmacological Agents:

1. Non-steroidal anti-inflammatory drugs
2. Muscle relaxants
3. Corticosteroids
4. Tricyclic antidepressants(History of depression)
5. Anxiolytics

Behaviour Modification: Patient should be advised to avoid stress-related lifestyle habits, such as clenching, bruxism, and excessive gum chewing, Psychological consultation may be indicated for stress management. They should be counselled to be aware when clenching or grinding your teeth, Exercise jaw regularly, Cut tough food into small pieces, Change to a soft food diet and avoid hard and chewy foods. Wide mouth opening , Sleeping head down , Excessive chewing (e.g. Nails, gum, pen tops), Resting jaw on hand or holding telephone to ear using just shoulders should be avoided.

Prosthetic Approach to Disc Displacement disorders of the TMJ

CASE REPORTS

Case Report 1: A 40 year old male reported to the Department of Prosthodontics, VSPM DC with the chief complaint of pain in TMJ area with radiating pain in the temporal region of left side since 1 year.

- Medical History – History of Postural vertigo since 6 months – under medication
- Past Dental History – Patient has undergone restoration with 15, 3 years back.
- Extraoral examination – Tenderness on left temporomandibular joint, masseter, sternocleidomastoid muscles and back of the neck. Jaw deviation towards right side while opening the mouth. Clicking present on left side while opening the mouth



VSPM'S INTERDEPARTMENTAL SCIENTIFIC ACTIVITY - VISA

- Intraoral examination – Restoration with 15. Palatally erupted 12. Attrition with 31,32, 36,37, 41,42,46,47
- Diagnosis: Disc displacement with reduction
- Treatment plan: - 2 parts, Definitive, Supportive

Definitive Treatment plan: Non invasive management with muscle stabilizing appliance to be worn at night for 1 month, followed by soft splint for 2 months.

Left and Right
Lateral view



Maxillary And
Mandibular
Arch
(occlusal view)

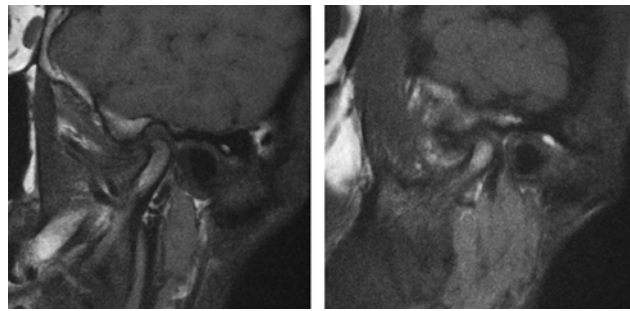


Maxillary And
Mandibular
Arch
(frontal view)



Radiographic
Examination:
OPG





Magnetic Resonance Imaging (MRI)

Rationale:

- Attrition suggested nocturnal bruxism
- Tenderness was seen on left temporomandibular joint, masseter, sternocleidomastoid muscles and muscles back of the neck.
- A stabilization appliance is generally used to treat muscle pain disorders.
- Studies have shown that it can decrease the parafunctional activity that often accompanies periods of stress.
- Thus, when a patient reports with a TMD that relates to muscle hyperactivity like bruxism, a stabilization appliance should be considered.



Maxillary And Mandibular Alginate Impressions



Facebow Record



Facebow Record transferred on articulator

Fabrication of the muscle stabilizing splint:

1. The most common method is use of articulated casts mounted in CR, that is the most MS position.
2. The outline of the splint was marked with an indelible pencil, usually covering the incisal 1/3rd of all the teeth
3. Undercuts in the maxillary casts were blocked out and separating medium was applied.



VSPM'S INTERDEPARTMENTAL SCIENTIFIC ACTIVITY - VISA

4. Auto polymerizing acrylic monomer and polymer was sprinkled on to the maxillary cast and allowed to set.
5. The anterior guide pin was raised to develop the eccentric guidance and thickness of the occlusal splint, usually 2-3mm
6. Intraoral adjustments were made.



Intraoral View Of The Appliance

- 2 **Supportive:** Cold and Hot fomentation was advised and Non-Steroidal Anti-Inflammatory agents were prescribed.

Maintenance Phase: Soft Splint was given.





Case Report 2: A 22 year old female reported to the Department of Prosthodontics, VSPM DC with the chief complaint of pain in left TMJ area since 5-6 years.

Past History: Patient had a road traffic accident 6-7 years ago. Patient gave history of locked jaw 2-3 months later, which patient reduced herself. Pain was present at that time, but tolerable which increased with time, a year ago it increased intensely.

Past Dental History: Not significant, no history of parafunction.

Extraoral Examination: Pain on wide opening, jaw deviation towards right side, slight swelling on left side and Clicking present on right and left side while opening the mouth.

Intra Oral Examination:

- Occlusal caries with 36, 37, 46, 47
- Class 1 gingival recession with 31



Maxillary & Mandibular Arch (Frontal view)



Maxillary & Mandibular Arch (Occlusal view)



Left & Right Lateral View

Radiographic Examination: MRI

Diagnosis: Disc displacement with reduction

Treatment plan: 2 parts, Definitive, Supportive

Definitive Treatment plan: Non invasive management with anterior repositioning splint to be worn at night for 2 weeks , followed by soft splint for 2 months.

Rationale:

- The anterior positioning appliance is used primarily to treat disc derangement disorders and joint sounds.
- Intermittent and chronic locking of the joint can be treated with it.
- There is immediate reduction in the pain and hence should be considered for cases with intense pain.
- This appliance positions the mandible in the least protruded position that will re establish the normal condyle – disc relationship



Maxillary and Mandibular Alginate Impressions



Protrusive Record



Records transferred on articulator

Fabrication of the anterior repositioning splint:

1. The initial steps were same as that of the stabilizing splint, but of minimum thickness
2. The protrusive records were placed and the articulator was programmed .
3. An anterior stop was constructed on the splint , lingual to the maxillary incisors.
4. It is approximately 4 mm wide and should extend to the region where the mandibular incisors contact.
5. The stop should provide a thickness that maintains the anterior teeth 3 to 5 mm apart resulting in posterior separation of 1-3 mm.

Note: If the splint is intended for long time use, self curing acrylic resin is added to the remaining occlusal surfaces so that all occlusal contacts can be established.

Intra oral view of the Appliance





2. **Supportive :** Cold and Hot Fomentation, Soft diet was advised and Non-Steroidal Anti-Inflammatory agents were given.

Maintenance Phase: Soft Splint was given



Fabrication of Soft splint:

1. The cast was modified to remove the excess stone labially and palatally on a model trimmer.
2. This case was then placed in a pressure adapter or vacuum forming machine.
3. A 2 mm thick, soft, clear, thermoplastic resin sheet was placed in the sheet holder of the machine and allowed to soften under heat, after which it was pressed on the cast, under vacuum.
4. The outline of the appliance was cut with a separating disc in such a way that
 - a. the lingual border of the appliance extends 10-12 mm beyond the gingival border of the teeth.
 - b. the labial border of the appliance terminates between the incisal and middle thirds of the teeth.

Conclusion: The use of splints is a very effective and non-invasive method to treat patients with disc displacement and should be routinely employed by clinicians.



FUNCTIONAL AND ESTHETIC REHABILITATION OF WORN OUT DENTITION WITH MULTIPLE MISSING TEETH.

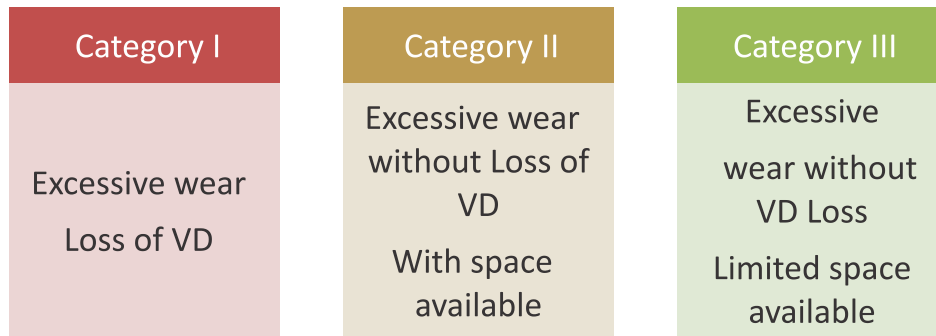
Presented by:

Dr. Vinay Kothari (Prosthodontics)

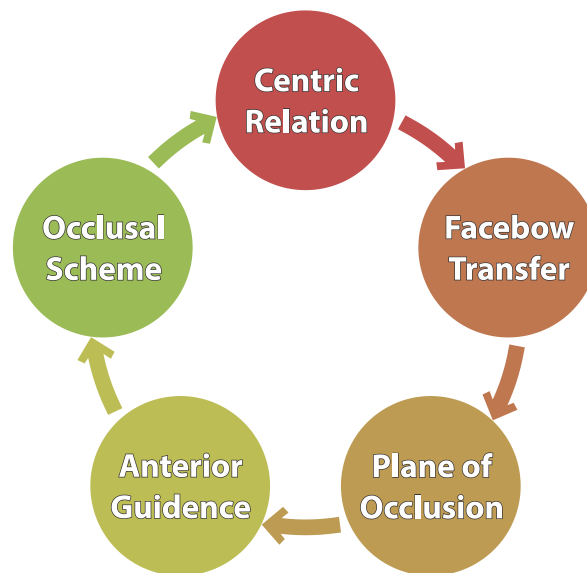
Dr. Ishita Wanikar (Periodontics)

Introduction: Patients with severe tooth wear may need extensive restorative procedures to achieve appropriate function, esthetics, and comfort. The existing vertical dimension of occlusion (VDO) has to be assessed. Sometimes the vertical dimension has to be restored. The contributing factors for excessive wear of teeth are evaluated and should be removed or reduced if possible.

Turner and Missirlian classification:



Rational:



Case Report: A 44 year old male patient reported to the Department Of Prosthetic Dentistry and implantology of VSPM DC with chief complaint of difficulty in mastication and missing teeth since the past 4 years.



Past Medical History:

Patient had no significant medical history.

He was treated for femur fracture 4 years back.

There was history of road traffic accident and trauma to maxillary and mandibular anterior teeth



Past Dental History:

Endodontically treated 31,32,33 and 35

Extra-oral examination:

- Facial form - square tapering
- Lip competency - Incompetent
- Lip length - 23 mm
- Temporomandibular joint - Bilaterally synchronous

Intraoral Examination:

- Teeth present

8 7 6 5 4 3 2 1	1 2 3 4 5 6 7 8
8 7 6 5 4 3 2 1	1 2 3 4 5 6 7 8
- Attrition on mandibular anterior teeth
- Occlusal facets on maxillary posterior teeth.
- Missing

7		7 8
		6
- Anterior deep bite present
- Supraeruption of mandibular anteriors seen
- Labially displaced 11. Rootpiece with 46,37 grade II mobile with 38
- Interocclusal space – 3mm



Category I: (This is a Turner and Mislrian category 1 case with following features)

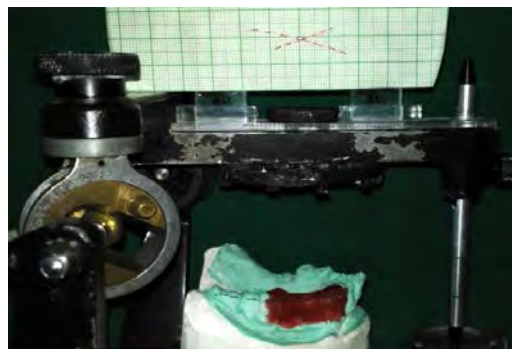
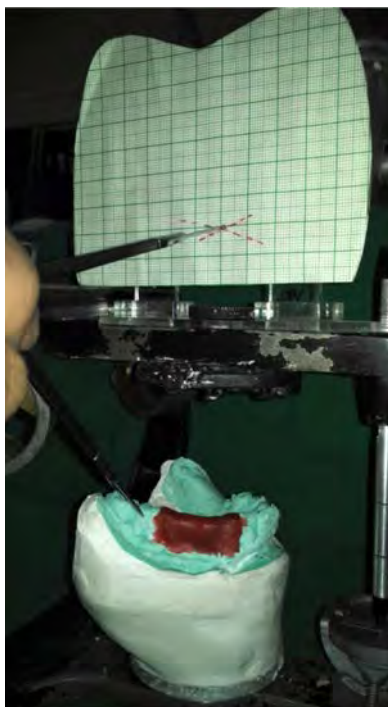
- Missing few posterior teeth
- Unstable posterior occlusion
- Excessive wear of anterior teeth
- An interocclusal distance of 3-4 mm,
- Some loss of facial contour
- Probably lost some occlusal vertical dimension concomitant with the occlusal wear.



PREOPERATIVE PHOTOGRAPHS

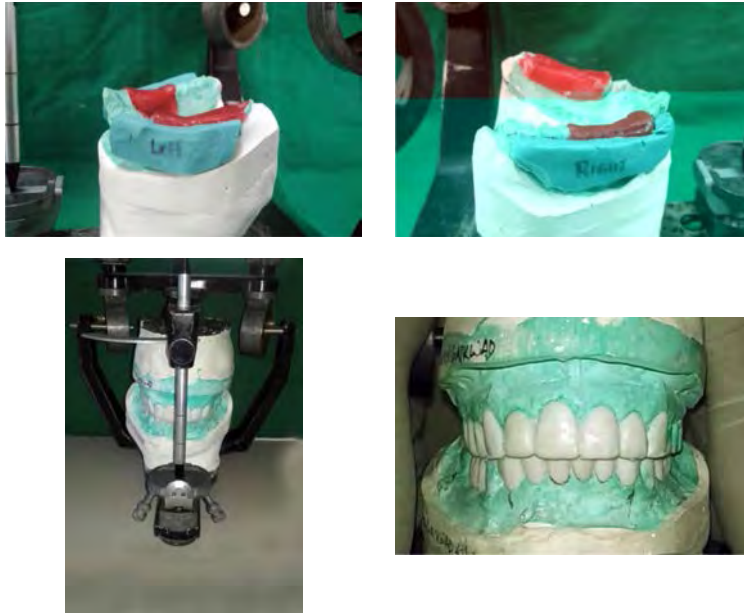


ESTABLISHING PLANE OF OCCLUSION USING BOPA





DIAGNOSTIC WAXUP



Treatment Planning: Treatment: Full mouth rehabilitation by Pankey Mann Schuyler technique. Pre-prosthetic treatment: (MULTIDISCIPLINARY)

- Oral prophylaxis
- Extraction with 11, 47, 45, 46, 37, 38
- Root canal treatment with 12, 16,
- 41, 42, 43, 44
- Crown lengthening procedure with 31, 32

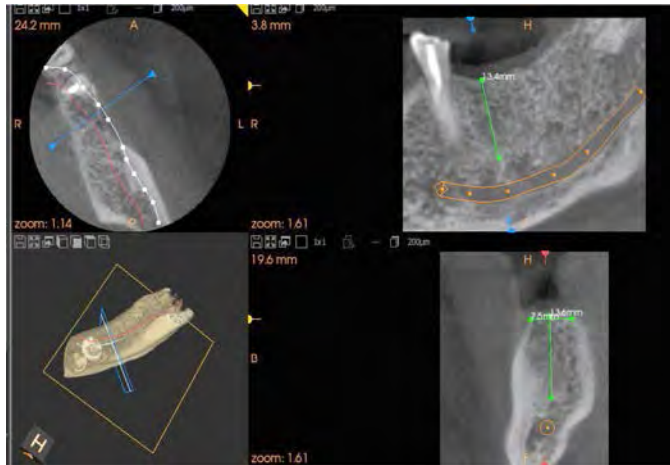


Prosthetic Phase:

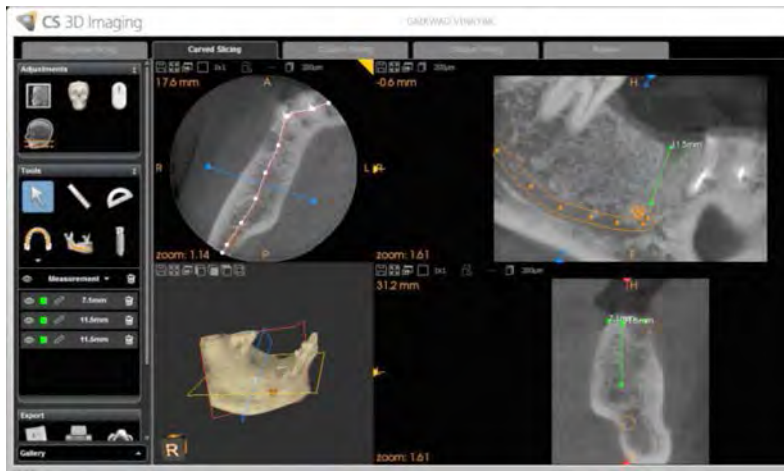
- Implants with 45, 46 and 36 were placed
- Ovate pontic with 11.
- Occlusal scheme canine guided occlusion (mutually protected occlusion)
- Restorative material – porcelain fused to metal (metal ceramic)



IMPLANT PLACEMENT IN 36 REGION



IMPLANT PLACEMENT IN 45,46 REGION





PREPARATION OF ANTERIOR TEETH AND PROVISIONALIZATION



PREPARATION OF POSTERIOR TEETH AND PROVISIONALIZATION



FABRICATING WAX PATTERNS FOR COPINGCASTING OF THE WAX PATTERNS





BISQUE TRY-IN AND OCCLUSAL CORRECTIONS



FINAL IMPRESSION FOR POSTERIORES



POSTERIOR TEETH WAX PATTERN

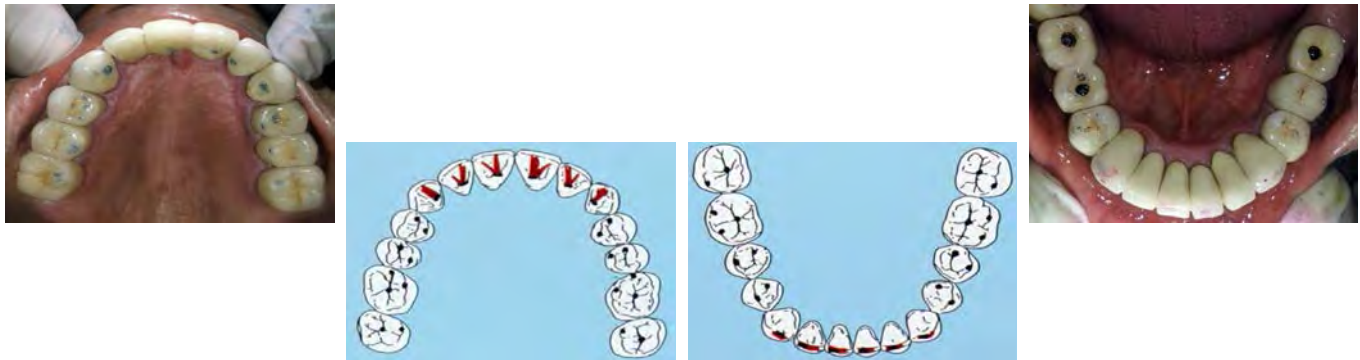




METAL COPING TRIAL



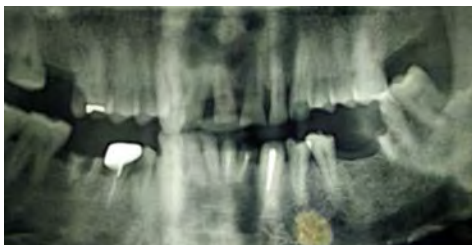
OCCUSAL EQUILIBRATION



FINAL CEMENTATION OF CROWNS (CANINE GUIDED OCCLUSION)



PRE-TREATMENT OPG



POST-TREATMENT OPG





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

