



Prosthodontics

PROSTHETIC MANAGEMENT OF POST-SURGICAL DEFECT USING A CUSTOM-MADE SURGICAL STENT – A REPORT OF TWO CASES.

Dr Sarjubala Nongthombam*	PG Student, Department Of Prosthodontics, Crown And Bridge & Oral Implantology, J.N Kapoor DAV (C) Dental College, Yamunanagar. *Corresponding Author
Dr Rishabh Khare	PG Student, Department Of Prosthodontics, Crown And Bridge & Oral Implantology, J.N Kapoor DAV (C) Dental College, Yamunanagar.
Dr Viram Upadhyaya	Associate Professor, Department Of Prosthodontics, Crown And Bridge & Oral Implantology, J.N Kapoor DAV (C) Dental College, Yamunanagar.
Dr Monika	Associate Professor, Department Of Prosthodontics, Crown And Bridge & Oral Implantology, J.N Kapoor DAV (C) Dental College, Yamunanagar.
Dr Manisha Dahiya	Prosthodontist, Department Of Prosthodontics, Crown And Bridge & Oral Implantology, J.N Kapoor DAV (C) Dental College, Yamunanagar.

ABSTRACT Maxillomandibular defects may be the result of congenital malformations, trauma or surgical resection of tumors. The primary objective of rehabilitating these defects is to eliminate the disease by surgical resection and improve the quality of life. Prosthetic reconstruction of these defects may be achieved with the help of varied prosthesis, removable and fixed. The present case reports described a series of cases for post-surgical defects managed with surgical -stents which allowed closure of the defect by secondary healing through granulation tissue maturation and associated bone fill.

KEYWORDS : Prosthetic management, Post-surgical, Stent, Mandibular cyst.

INTRODUCTION

Odontogenic cysts and tumors represent a diverse group of lesions of the jaws and overlying soft tissues. In cases of large lesions, marsupialization or Parnis I is the preferred procedure due to its minimal post-operative complications and preservation of vital structures unlike enucleation. However, this approach results in a post-surgical defect in the form of an intra oral opening. This opening needs to be maintained, so that bone is deposited within the cyst cavity and the cyst will ultimately decrease significantly in size. Therefore, maintenance of the surgical opening before the bony infill occurs.^[1] Any intra-oral defect including post -surgical defects can result in multiple problems such as swallowing, difficulty deglutition, in impaired speech, and facial disfigurement.^[2] There are various approaches to maintaining the patency of the post-surgical defect, namely iodoform gauze packing, decompression stents and obturator prosthesis.^[3] Stents are appliances constructed to cover the tissues or the teeth for their protection, to carry medicaments, radium material, to control bleeding, to determine radiographically the prospective site of dental implant. Stents are used for shaping the alveolar process or positioning of gingival tissues. It enhances faster healing of the wound by preventing food impaction.^[4] The prosthodontist plays an important role in the rehabilitation of such defects. The present article described a report of two cases for post-surgical defects managed with surgical -stents.

Case Report-1

A 17 years old male patient reported to the Department of Prosthodontics, Crown & Bridge and oral implantology, who was referred from the Department of Oral and Maxillofacial Surgery, J.N Kapoor D.A.V(C) Dental College and Hospital, for the prosthetic rehabilitation of post-marsupialization of mandibular epidermoid cyst. History of the patient revealed that he had undergone marsupialization procedure of epidermoid cyst in the lower left back vestibule of the mouth corresponding to teeth 32,33 region 2 days back. Intra oral examination revealed a huge hollow space in the vestibule of mouth in relation to teeth 32,33 region. The treatment plan suggested to the patient was surgical stent.

Radiographic Examination



Figure: 1- Orthopantomogram

Orthopantomogram (OPG) reveals a well-defined unilocular radiolucency involving 31,32,33,41,42 .The radiolucency area is attached at the cemento-enamel junction and envelops the crown. The lesion demonstrates a corticated margin, suggestive of epidermoid cyst. Displacement of adjacent teeth is evident, with divergence of roots of teeth 31,32,33,42,42 and 43. No significant root resorption or cortical plate perforation is observed. Radiographic features are consistent with an epidermoid cyst of the mandible.

Procedure For Fabrication Of Stent

The patient was explained about the treatment plan. The diagnostic impressions were made to obtain diagnostic casts and treatment planning was done. The defect was irrigated with normal saline and placement of iodoform gauze pack was done. The mandibular impression was made using irreversible hydrocolloid impression material in a stock tray and a master cast was poured in Type III dental stone. Clasps were fabricated and modified to adapt on 33, 36 and 46 to serve to connect the plug and the lingual plate. Acrylization was carried using cold cure acrylic resin following routine protocol. The next day, the completed surgical stent was tried in patient's mouth, and adjustments were made for proper extension and comfort of the patient and delivered to the patient with instructions regarding its use and maintenance. One week after the prosthesis delivery, the patient came for his first follow up. The patient was well adjusted to the prosthesis with no complains. The next follow up was done 1 month later.



Fig:2- Post-operative view

Fig : 3- Irreversible hydrocolloid impression



Fig:4- Clasp adaptation

Fig:5- Finish and polished surgical stent



Fig:6- Intraoral insertion of the surgical stent



Fig: 7- Examination during follow up

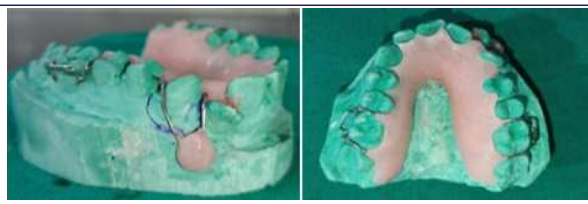


Fig :11,12- Prosthesis fabrication

Case Report-2

A 14-year-old male patient reported to the Department of Prosthodontics, Crown & Bridge, and Oral Implantology, following referral from the Department of Oral and Maxillofacial Surgery, J.N. Kapoor D.A.V. (C) Dental College and Hospital, for prosthetic rehabilitation after marsupialization of a maxillary dentigerous cyst. The patient provided a history of undergoing a marsupialization procedure in the labial vestibule corresponding to the region of teeth 22 and 23, performed seven days prior to presentation. Intraoral clinical examination revealed the presence of a large hollow defect in the labial vestibular region associated with teeth #22 and #23.

Radiographic Examination

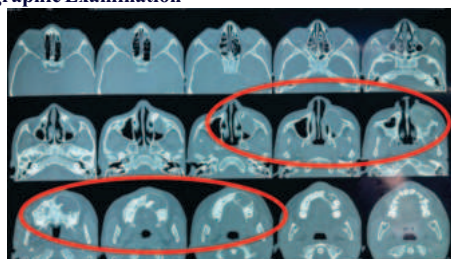


Figure : 8- CT scan

CT imaging demonstrates a well-defined, unilocular, hypodense lesion associated with the crown of the impacted maxillary left canine (tooth 23). The lesion is attached at the cemento-enamel junction and envelops the crown. The margins are smooth and corticated, suggestive of a benign cystic pathology.

There is noticeable expansion and thinning of the adjacent labial cortical plate, without evidence of frank perforation. Displacement of the adjacent lateral incisor (tooth 22) and first premolar (tooth 24) is observed. Mild root resorption of the adjacent lateral incisor is evident. The floor of the left nasal cavity shows slight elevation, but no involvement of the maxillary sinus is noted.

Procedure For Fabrication Of Stent

Following intraoral examination, primary impressions were recorded using irreversible hydrocolloid impression material, with the cystic opening blocked using gauze to prevent ingress. The impressions were subsequently poured in Type III dental stone to obtain diagnostic casts. The defect area on the cast was modified into a rounded convex contour at the center to facilitate intimate adaptation and closure of the cystic opening. For mechanical retention, C-clasps were designed and adapted bilaterally on teeth #16 and #26, while a canine loop clasp was incorporated into the modified defect region. After application of a separating medium (cold-mold seal), autopolymerizing acrylic resin was mixed in a silicone jar, flowed into the defect site on the cast, and contoured into a bulb extension. Following complete polymerization, the stent was retrieved, finished, and polished.

In the clinical procedure, the cystic cavity was irrigated thoroughly, and iodoform gauze packing was placed. The fabricated cyst plug prosthesis was then inserted, and postoperative instructions were delivered. The patient was reviewed after one week, during which clinical changes were evaluated, and the bulb extension was relined with a resilient soft liner material to improve adaptation and comfort.



Fig: 9- Modification of defect area



Fig:10- Canine loop

CONCLUSION

The post-surgical defect, following marsupialization can be well maintained with the provision of an interim prosthesis such as surgical stents in the form of an acrylic plug. Addition of clasp can enhance the retention and stability of such prosthesis. Such type of interim prosthesis enhanced the healing of post-surgical defects by preventing food lodgment into the defect, reduced halitosis, maintained better oral health. Surgical wound healing period was quite comfortable and faster with less possibility of repeating infection.

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