

CLINICAL REPORT

Prosthetic Rehabilitation of Cancellous Osteoma – A Case Report

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ABSTRACT

Osteomas are benign osteogenic lesions of the bone. When this involves the maxilla and requires resection, maxillectomy defect results and this in turn leads to compromised function in terms of mastication, speech and also psychological well-being. Definitive obturator prosthesis fabricated with maximum extension and incorporation of proper design rehabilitates the patient by improving masticatory efficiency, increasing speech clarity, improves the esthetics, thereby enhancing the overall quality of life. This case report presents one such case of a rare intraoral peripheral cancellous osteoma affecting the maxilla and its prosthetic rehabilitation following surgical resection.

Keywords: Osteoma; Obturator; Maxillofacial prosthesis

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INTRODUCTION

Osteomas are benign osteogenic lesions of the bone. Histopathologically, osteoma can be categorized as compact and cancellous osteoma, and depending on the location, it can be categorized as peripheral (periosteal) osteoma, central (endosteal) osteoma, and extra-skeletal growth.¹ Osteoma involves mainly frontal sinus in comparison to ethmoidal and maxillary sinus. In regard to the osteoma of the lower one-third of the face, mandibular involvement is more in comparison to maxilla.^{1,2} The lingual aspect of the mandibular body and inferior border of the angle of mandible are the most commonly affected sites in mandible. Treatment of the lesion commonly involves surgical excision and radiotherapy. When this involves the maxilla, maxillectomy defect caused by surgical resection in turn leads to compromised function in terms of mastication, speech and also psychological well-being.³ Here, we are presenting a rare intraoral peripheral cancellous osteoma affecting the maxilla and its prosthetic rehabilitation with a single piece open hollow bulb definitive obturator following surgical resection.

CASE REPORT

A 40-year-old female reported for the prosthetic rehabilitation of post maxillectomy defect resulting from cancellous osteoma of the left maxilla 12

months back. The patient complained of difficulty in mastication, nasal regurgitation of fluids, and nasal tone in her voice. She had worn surgical and interim obturator post resection. Intraoral examination revealed well-healed surgical defect in the maxilla involving the left posterior part of the hard palate, alveolar ridge, and maxillary tuberosity creating an oroantral communication. All teeth posterior to the canine were missing on the left quadrant of the maxilla (*Fig.1*). Masticatory and phonetic functions of the patient were affected. After a thorough examination, the defect was classified as Aramany's Class II and Brown's Class II-b maxillary defect. The treatment plan was to rehabilitate the patient with a definitive hollow bulb obturator with a cast metal framework.



Fig 1: Intra-oral defect after resection

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Figure 2: Post insertion of obturator



Figure 3: Retention of the prosthesis during wide mouth opening

The primary impression of the defect was made using irreversible hydrocolloid (Zelgan 2002, Mumbai, India) and the obtained casts (Kalabhairkarson, Mumbai, India) were surveyed to design the framework. The design incorporated a complete palatal coverage as the major connector which facilitates a tripodal configuration. Direct retention was provided by a circumferential clasp on the left canine, right second premolar, and right second molar. Rest seat preparations on 15, 17, and 23 were carried out to receive rest of the cast metal framework following the principles of Aramany's Class II obturator design. The definitive cast was prepared from the impression after mouth preparation and jaw relation was recorded after fabrication of record base and occlusal rims (Hindustan modeling wax, India). Teeth were arranged on the occlusal rim in accordance to the ridge and the opposing dentition, followed by wax try-in. After try-in, processing of the definitive obturator was carried out using heat-polymerizing acrylic resin (DPI, Mumbai, India). Finishing and polishing of the same was done. It was then inserted into the patient's mouth after intraoral adjustments (Fig.2 & 3). The patient was happy and satisfied with her improved function, speech, and aesthetics. The patient was instructed about the maintenance of the prosthesis and periodic recall check-up was done at 24 hours, 1 week and 1 month post insertion.

DISCUSSION

Peripheral osteomas occur mainly in the head and neck region. They are the most frequent benign tumours of the paranasal sinuses, that also affects the maxilla and other associated structures leading to maxillectomy.^{4,5} Obturator prosthesis plays a crucial role in the recovery of oral function in postsurgical maxillectomy patients.^{6,8} Framework designs for definitive obturators may vary based on the classification system of the defect. All removable obturator prosthesis should be dictated by basic prosthodontic principles which include broad stress distribution, cross arch stabilization with the use of a rigid major connector and stabilizing and retaining components at locations within the arch to best minimize dislodging functional forces.^{7,8}

A tripodal design was selected for this case owing to the type of the defect. Support of the prosthesis was provided by the remaining teeth, palate, and rest. Rest seat was prepared on the right second premolar, second molar and left canine. Complete palate was designed to ensure maximum distribution of the functional load to the tissue. Indirect retainer was planned on the right first premolar. Direct retention was provided by the circumferential clasps.⁹

In dentate patients, the remaining teeth play an important role in providing retention, support, and stability to the obturator.^{10,11} Retention can be achieved from the remaining teeth or ridge, lateral part of the defect, soft tissue undercut, and scar band. Stabilization and indirect retention components must be positioned effectively to retard the movement of the prosthesis away from its terminal position.¹¹

CONCLUSION

The major challenge encountered in rehabilitating a maxillectomy patient is to obtain adequate retention, stability, and support from the remaining anatomical structures. Thorough knowledge and skills coupled with a better understanding of the needs of the patients enables successful rehabilitation of such patients. Definitive obturator prosthesis fabricated with maximum extension and incorporation of proper design rehabilitates the patient by improving masticatory efficiency, increasing the clarity of speech and thereby enhancing the overall quality of life.

CONFLICT OF INTEREST

There is no conflict of interest

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