From Independence to Interdependence - A saga of managing maxillary defect with obturator

Ravvali T[1], Ashok Maurya V[2], Ravi Kumar C[3], Chalapathi Rao D[4]

Quick Response Code

doi: 10.5866/2015.7.10067

[1]Post Graduate
[2]Consultant
[3]Professor and Head
[4]Reader
Department of Prosthodontics, Crown and Bridge and Implantology, Mamata Dental College and Hospital, Khammam, Telangana State, India.

Article Info:
Received: January 13, 2015
Review Completed: February 12, 2015
Accepted: March 11, 2015
Available Online: April, 2015 (www.nacd.in)

Email for correspondence:
talarii.ravvali@gmail.com

ABSTRACT:

The acquired defects of the palate are created commonly during the surgical intervention of benign or malignant neoplasms. The size and location of the defect influence the level of difficulty in prosthodontic rehabilitation. Surgical intervention creates anatomic defect which forms communication among the oral cavity, nasal cavity and maxillary sinus. The goal of prosthodontist is to rehabilitate the missing intra oral and extra oral structures with a restoration to accomplish normal anatomic and physiologic function. Prosthetic rehabilitation with obturator restores the oral structures and also acts as barriers between communications among the cavities.

Key words: Maxillary defect, Obturator, Oro antral communication.

INTRODUCTION:

An individual with maxillary defects either because of congenital or acquire reasons suffers from dysfunction of speech, deglutition, mastication and psychological disturbances. Acquired defects of maxilla may be due to trauma and excessive pathologies such as cyst, tumors and infections. Depending on the situation the resection is performed**.** Violation of hard palate creates an anatomic defect that allows the oral cavity, maxillary sinus, nasal cavity and nasopharynx to become one confluent chamber. Prosthodontists play vital role in restitution of such individuals. The mechanism of rehabilitation commences from pre surgical outline of the prosthesis and planning for its retentive aspects, as in cases of surgical excision of tumours, in consultation with the surgeon. Likewise, he also plays an important post insertion role in conjunction with speech therapist and clinical psychologist. The present case report provides evidence for such situation.

Case report:

A 53 year old female patient was referred to Department of Prosthodontics, Mamata dental

college, Khammam with the chief complaint of swelling in right side of face since 1year. History revealed that she was asymptomatic 1year back, then she noticed a small peanut size swelling in upper right posterior region of jaw associated with mobility of teeth. She underwent extraction of 15, 16 and 17 six months ago after which the swelling gradually increased in size. On extra oral examination gross asymmetry was noticed on the right side of mid face, extending superiorly 2.5 cms away from infra orbital rim, inferiorly 2 cms above lower border of mandible, medially up to corner of mouth, laterally 3.5 cms away from post border of ramus (Figure 1).

On Intra oral examination, a dome shaped swelling was noticed extending from 15 to 18, medially 1 cm away from mid palatine region up to buccal vestibule (Figure 2). On radiographic examination, the orthopantomogram demonstrated the extension of the lesion (Figure 3). Following biopsy the case was diagnosed to be ossifying fibroma. Further rehabilitation was planned with obturator, after discussing with oral surgeon.

Procedure:

Prosthesis was fabricated in three stages

- Surgical obturator - Immediately after surgery
- Interim obturator - after 15 days of surgery
- Definitive prosthesis - after 5 months of surgery.

After comprehensive preoperative assessment and counselling of the patient, impression was made using irreversible hydrocolloid material and poured with dental stone. A mock surgery was performed on obtained cast from which the surgical obturator was made using clear autopolymerizing acrylic resin (Dentsply). Surgical excision of the lesion was done. A surgical pack of zinc oxide iodoform paraffin paste (ZIPP) in sterile gauze was used. The surgical obturator was fitted intra-operatively and held in position using inter dental wiring. This ensured ease of changing the surgical pack (Figure 4). Patient was reviewed for every week for change of the surgical pack upto 3weeks.

After 2 weeks, petrolatum jelly gauze is used to pack the nasal portion of the defect and to block out the other under cuts, to prevent any impression material extending in to the nasal cavity, impression was made and light weight interim prosthesis was fabricated (Figure 5). The bulb portion of the obturator was adjusted accordingly.

After five months, the defect was completely healed and definitive obturator was planned. Preliminary impression was made and diagnostic cast was obtained. The cast was then surveyed, designed to receive a mesial rest on 24 with cast clasp assembly, the rest seat was extended on the cingulam of canine that is 23 to act as an indirect retainer, I bar placed on 13. Mesh work was extended from the major connector over the defect area to retain the bulb of the obturator and necessary mouth preparation was performed on the patient. Secondary impression was made with addition silicon and poured in type 5 dental stone. Design was transferred on to the obtained cast. Master cast was blocked out and duplicated to obtain a refractory cast. Frame work was waxed on to the refractory cast (Figure 6).

Wax pattern was casted in Co-Cr alloy and frame work was tried, finished and electro polished (Figure 7). Occlusal rim was fabricated and Jaw relation was recorded, and the casts were mounted on articulator. Teeth arrangement was done and tried in the patient. The definitive prostheses were processed using pink heat-cured acrylic resin (Dentsply), then finished and polished; and insertion was done (Figure 8). Patient was recalled after one month for evaluation.

Discussion:

Prosthetic rehabilitation is the treatment of choice for patients with large defects of the maxillary complex following surgical resection of tumors.[1] Prosthetic rehabilitation of patients with acquired surgical defects of the maxilla is usually done in three phases.[2] First is the surgical obturation phase, the primary objective of which is to restore and maintain oral functions at reasonable levels during the immediate postoperative period. Interim obturation is the second phase, and its objective is to provide the patient with a comfortable and functional prosthesis until healing is complete. The interim obturator is usually fabricated 2 to 6 weeks postsurgical. After the surgical site has healed well, the third phase of prosthodontic treatment is done. This involves the fabrication of a definitive obturator prosthesis and is usually undertaken 3 to 6 months after surgery.[3, 4]

In the present case there is single, unilateral defect which is located posterior to remaining teeth comes under Armany class II [5, 6] where the tripodal design was planned. Support can be achieved by

Figure 1: Frontal view showing gross asymmetry on right side of the face.

Figure 2: Intra oral view showing swelling on the right side.

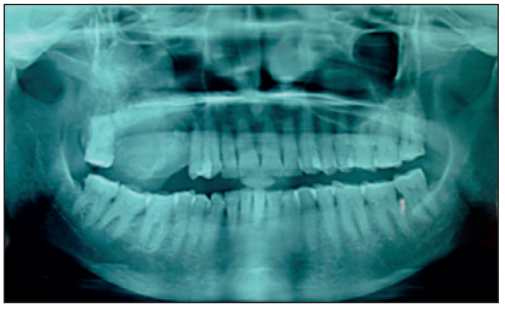

Figure 3: Orthopantomogram showing swelling extending from 15 to 18.

Figure 4: Surgical obturator in position using inter dental wiring.

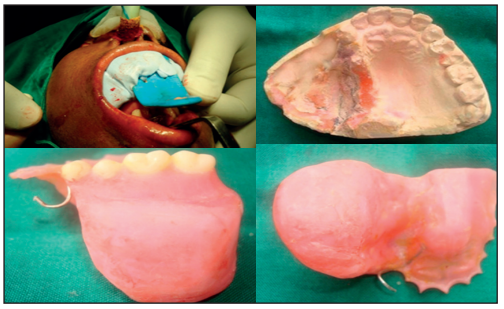

Figure 5: Interim obturator

Figure 6: Wax pattern adaptation

Figure 7: Metal try in

Figure 8: Definitive obturator insertion

providing rests. Stability and support are maximized by generating largest tripodal design possible and by ovoid palatal form. Double rests are used between posterior teeth. Retention is achieved by providing modified gingivally approaching clasp engaging the under cuts. Anteriorly, clasp on canine (13) serves as additional retentive site.

Conclusion

Definitive prosthodontic treatment is one of the final therapies which is instituted and it attempts to alleviate any anatomical and functional deficiencies. The prosthodontist plays a significant role in the rehabilitation of the palatal defect. Thorough knowledge and skill, coupled with a better understanding of the patient requirements will enhance the successful rehabilitation.

References

1. Benington IC. Post-surgical prosthodontics. Clinical notes. J Oral Rehabil 1983; **10**:31-40.
2. Adisman IK. Prosthesis serviceability for acquired jaw defects. Dent Clin North Am 1990; **34**:265-284.
3. Curtis TA, Beumer J. Restoration of acquired hard palate defects: Etiology, disability and rehabilitation. In: Beumer J III. Curtis TA. Marunick MT (eds). Maxillofacial Rehabilitation: Prosthodontic and Surgical Considerations. St Louis: Ishiyaku EuroAmerica. 1996; 225-284.
4. Desjardins RP. Early rehabilitative management of the maxillaetomy patient. J Prosthet Dent 1977; **38**:311-318.
5. Aramany MA. Basic principles of obturator design for edentulous patients: Part I: classification. J Prosthet Dent 1978; **40**:554-557.
6. Aramany MA. Basic principles of obturator design for edentulous patients: Part II: classification. J Prosthet Dent 1978; **40**:656-662.