

A SIMPLE TECHNIQUE TO FABRICATE IMMEDIATE OBTURATOR FOR ESTHETIC REHABILITATION

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INTRODUCTION

Defects in the maxillary jaw can be congenital, developmental, acquired, traumatic or surgical involving the oral cavity and related anatomic structure¹. Oral cancer treatment involves the surgical removal of all or part of the maxilla, leaving the patient with a defect that compromises the integrity and function of the oral cavity. Absence or loss of some or all of the soft palate and / or hard palate results in insufficient structure or altered function of the remaining tissues. Defects can cause disruption of articulation and airflow during speech production and also nasal reflux during deglutition. Patients after surgical resection have altered anatomy due to scarring, tissue contracture, lack of bony support and tissue edema.

These patients have problem of regurgitation of water and food through nose and difficulty in speech. These changes require the fabrication of prosthesis and also sometimes repeated prosthesis adjustments to confirm to the soft tissue changes. To prevent this and to help the patient in deglutition and speech defects must be restored with prosthesis.

The maxillofacial prosthodontist, as a member of the surgical team, is able to aid in the recovery and rehabilitation of the maxillectomy patient by fabricating and placing a surgical obturator. The immediate postoperative restoration of form and function shortens recovery time in the hospital and expedites the patient's return to the community as a functioning member.

The obturator supports soft tissues after surgery and minimizes scar contracture and disfigurement thereby making a positive effect on the patients' psychology. Artificial replacement of the teeth and palate aids speech, mastication, esthetics, and morale. In the dentate patient, surgical obturator designs may vary from a prosthesis using an acrylic resin record base bearing no teeth, with or without wrought-wire clasps, to a clasped acrylic resin prosthesis that restores the dental arch form. Prosthesis facilitates speech, and deglutition by replacing those tissues lost due to the disease process and can, as a result, reduce nasal regurgitation and hypernasal speech, improve esthetics, articulation, deglutition, and mastication. It is recommended that posterior occlusal contacts not be established on the resected side until the surgical wound is healed. This article describes a simple technique to fabricate a surgical obturator by restoring the patient's original dentition.

CASE REPORT

A 80 year old male named, Mr. Subramanian, reported to Department of Prosthodontics, Karpaga Vinayaga Institute of Dental Sciences, with a chief complaint of missing upper front teeth region. Pt had pain and ulcer in upper front teeth region for past two months and was asymptomatic 2 months back and developed small soft tissue growth in upper front teeth region. He had increased swelling and bleeding from ulcerated area. He had difficulty in eating. Pt had habits like alcohol consumption, tobacco smoking

for past 15 years and had quit the habits 3 months back. On intraoral examination, ulceroproliferative growth was seen extending from labial sulcus to palatal area 2 mm above the alveolus from canine to canine. He had normal mouth opening. Radiographic examinations like OPG and CT were made.

Premaxilla with upper anterior teeth were resected. Treatment plan involves fabrication of immediate obturator.

THE OBJECTIVES OF MAXILLARY OBTURATOR

- Restoration of esthetics or cosmetic appearance of the patient
- Restoration of function
- Protection of tissues
- Therapeutic or healing effect
- Psychological therapy^{2,3,4}

IDEAL REQUIREMENTS FOR MAXILLARY OBTURATOR

- Help the patient to carry out natural functions such as phonation, deglutition, and mastication.
- Should exhibit life-like appearance to aid function
- Design of the prosthesis should be such that it is easily and swiftly placed and held in position both comfortably and securely
- Prosthesis should be durable for a reasonable period of time, retain its polish and finish.
- Should be easy to clean so as to maintain hygiene.

FUNCTIONS OF OBTURATOR

1. To close the defect
2. For feeding purpose
3. To keep the wound or defective area clean, thus enhance the healing of traumatic or postsurgical defects
4. As a stent to hold dressings or packs post surgically
5. To reduce the possibility of postoperative hemorrhage
6. Help to reshape and reconstruct the palatal contour and/or soft palate
7. Improve speech or in some instances, makes

speech possible.

8. Help in reducing the flow of exudates, saliva, and fluids from the mouth into the nasopharynx
9. To improve the esthetics and correct lip and cheek contour
10. To benefit the morale of the patient with maxillary defects
11. To improve function when deglutition and mastication are impaired⁵.

CLASSIFICATION OF OBTURATOR

1. ACCORDING TO ORIGIN OF THE DISCREPANCY

- a. For congenital defect
 - i. To close the opening of hard palate, a simple base plate type of palatal plate helps to correct the swallowing, feeding, and speech
 - ii. An obturator with a tail, consisting of speech appliance or speech aid prosthesis, which restores soft and hard palate defects and a velopharyngeal extensions that correct the speech
 - iii. An overlay denture or a superimposed denture.
- b. For acquired defect
 - i. Immediate temporary obturator or surgical obturator is a base plate type of prosthesis which is constructed from the preoperative active impression cast and inserted at the time of surgery, i.e. resection of the maxilla in the operating room.
 - ii. Interim obturator, temporary obturator, treatment obturator, or transitional obturator is construct from the postsurgical master cast.
 - iii. Permanent obturator or definitive obturator.

2. According to location of the defect

- a. Lateral or buccal obturator:
- b. Alveolar obturator:
- c. Hard palate obturator:
- d. Soft palate obturator:
- e. Palatal lift prosthesis or obturator
- f. Pharyngeal obturator or speech aid prosthesis:

3. According to the type of obturator attachment to the basic maxillary prosthesis

- a. Fixed: Fixed type is stationary and directed toward the Passavant's pad. It depends on the forward movement of the pharynx to effect closure.
- b. Hinged: Hinged type is connected to the main

maxillary prosthesis by means of a hinge. Its bulk is located along the cleft edges and supposedly serves an anatomic purpose.

c. Meatus: Meatus type of obturator prosthesis extends obliquely upward from the hard soft palate junction to occlude against the turbinate and superior aspect of nasal cavity up to the nasal meatus. It separates the oral and the nasal cavities. It is a speech aid prosthesis

d. Detachable obturator: The detachable type of obturator is one, in which the maxillary prosthesis and obturator parts are held together by some attachment. The patient can detach the parts for the purpose of insertion and removal, cleaning, and can unite them in the mouth. It is used in patients with restricted opening.

e. Magnetically retained obturator: Two portions are connected to each other with the magnets

f. Implant retained obturator: Implant is more commonly used in the anterior maxillary segment as the bone loss in the anterior segment is approximately threefold more than the posterior segment placement of implant at the time of surgery due to the high rate of recurrence rate and morbidity.[11]

4. According to the physiologic movement of oral, nasal, and pharyngeal tissues adjacent to or functioning against the obturator

a. Static obturator

b. Functional obturator

5. Depending on the material used

a. Metal obturator

b. Resin obturator

c. Silicon obturator.

6. Mohamed Aramany in 1978 classification of obturators

a. Class I: Resection or defect is performed along the midline of the maxilla; teeth are maintained on one side of the arch. It is the most frequent maxillary defect

b. Class II: Defect is unilateral, retaining the anterior teeth on the contralateral side

c. Class III: Palatal defect occurs in the central portion of the hard palate and may involve part of the soft palate.

d. Class IV: Defect crosses the midline and involves both sides of the maxilla. There are few teeth remaining which lie in a straight line. This may create a unique design problem similar to the unilateral design of conventional removable partial dentures

e. Class V: Surgical defect is bilateral and lies posterior to the remaining abutment teeth

g. Class VI: Defect occurs mostly in trauma and the defect lies anterior to the bilaterally standing abutments.

h. Class VII: This situation is similar to Kennedy Class II, but the defect is small unilaterally posterior to the standing abutments. This situation usually arises as a result of minor surgery for removal of pathology or can occur as sequel of multiple extractions in the posterior regions (Fig 1).

7. Depending on phases of treatment

a. Immediate surgical obturator

b. Transitional obturator

c. Definitive obturator

IMMEDIATE OBTURATOR

Surgical obturator is defined as a temporary prosthesis used to restore the continuity of the hard palate immediately after surgery or traumatic loss of a portion or all of the hard palate and/or contiguous alveolar structure - GPT.

Design of the surgical obturator should be based on the understanding that it is actually a stent rather than an obturator. It should also be designed and fabricated with the understanding that it cannot be tried in and adjusted preoperatively but must

fit and function as intended without adjustment.^{6,7}

TECHNIQUE OF FABRICATION

1. The oral cancer lesion is carefully examined prior to surgery and discussed with the surgeons with regard to the proposed line of incision and amount of resection.

2. Pre-surgical and post – surgical impression of the maxillary arch with elastomeric impression material.

3. The impression is poured with type III gypsum material to obtain a working cast and outline the anticipated line of resection on the maxillary working cast.

4. The cast (in the areas of the lesion) is modified to obtain normal anatomical contours.

5. 19 gauge hard round stainless steel orthodontic wire is used to fabricate 'C clasps' that engage the labial infrabulge retentive areas of the remaining healthy teeth on the nonresected and/or resected side.

6. The plate incorporating the clasps with heat polymerizing acrylic resin is fabricated in conventional manner.

7. The palatal plate is fabricated along with anterior teeth setting.

8. Then, the plate is finished and polished in usual manner.
9. The palatal plate is seated on the maxillary cast.
10. The palatal plate from the cast is taken and transferred intraorally.

DISCUSSION

Obturator prosthesis plays a crucial role in the recovery of oral function in postsurgical maxillectomy patients. In this case we used alginate to make impression and we can also use putty material in case of severe undercut cases. Support of the prosthesis was provided by the remaining teeth, palate. Complete palate was designed to ensure maximum distribution of the functional load to the tissue. Direct retention was provided by the circumferential clasp on the right canine, and right first molar. We should achieve proper seal to enhance better comfort to patient. We done the obturator without replacing teeth because of the discomfort and soft tissue changes.

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. Retention can be achieved from the remaining teeth or ridge, lateral part of the defect, soft tissue undercut. Stabilization and indirect retention components must be positioned effectively to retard the movement of the defect extension portion away from its terminal position. The purpose of adding missing teeth (anterior or posterior) may prevent significant psychological trauma to the patient and helps to prevent scar contracture and subsequent disfigurement. The developed facial flange also helps to support the facial soft tissues which can maintain the patient's original facial esthetic appearance⁸.

Different types of retentive aids such as magnets, Snap-on (friction-type) attachments, acrylic buttons, retentive clips, and implants are used for the conventional obturator prosthesis^{9,10}. The use of implant is a new advancement in maxillofacial prosthodontics. They effectively improve the retention of prosthesis without the help of other appliance. However, cost, health of the patient, and bone qualities are some of the factors which limit the use of implants.

CONCLUSION

Thorough knowledge and skills coupled with a better understanding of the needs of the patients enable the successful rehabilitation of such patients. Immediate obturator prosthesis fabricated with maximum extension and proper design rehabilitates the patient by improving masticatory efficiency, increasing the clarity of speech and quality of life.

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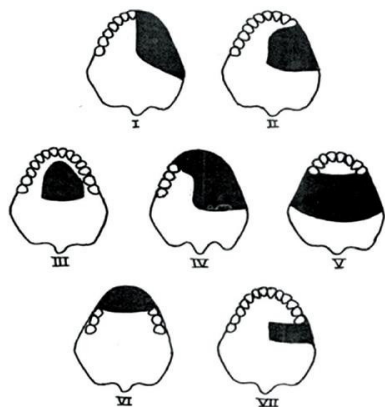


FIG 1 – ARAMONY CLASSIFICATION



FIG 2 – RESECTED PREMAXILLA
FIG 3 – PRE-OP OCCLUSAL VIEW



FIG 4 – PRE-OP OCCLUSAL VIEW



FIG 5 – ELASTOMERIC IMPRESSION



FIG 6 – IMMEDIATE OBTURATOR

6a) INTAGLIO SURFACE



6b) OCCLUSAL SURFACE



6c)FRONTAL VIEW



FIG 7 – POST – OP PROFILE