

Management of Post Surgical Defect in the Mandible with an Interim Obturator: A Case Report

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ABSTRACT

Management of post surgical defect following surgical removal of odontogenic keratocyst in the mandible with an interim obturator. An interim obturator is a maxillofacial prosthesis which is made following completion of initial healing after surgical resection of a portion or one side or both side maxillae; majority of times few or all teeth in the defect area are removed during surgical procedure. This type of prosthesis is provided after few weeks of healing period. Generally, an interim obturator is made to facilitate closure of the resultant defect after initial healing has been completed. A 14 year female patient reported with a post surgical defect in the mandible anterior region following the surgical removal of odontogenic keratocyst. The surgery resulted in a defect extending from 36 to 44. The post surgical defect had an intra oral opening in the mandibular labial sulcus of dimensions of 10 mm length and 5mm breadth. An acrylic interim obturator was fabricated to facilitate closure of the defect and protect it from fluid contamination. The patient was recalled after every 10 days. As the defect healed the floor of the defect pushed the obturator outwards. The obturator was then trimmed in the subsequent visit to allow further healing of the defect. Effective obturation of a surgical defect is possible only with the recording of the surrounding soft and hard tissue structures. Multidisciplinary treatment planning is essential to achieve adequate retention and function for the interim obturator prosthesis. Post insertion follow up of the patient plays an important role in the success of an interim obturator for proper healing of surgical defect. An interim obturator can be used to protect a post surgical defect from fluid contamination and resultant infection till complete closure of the defect occurs.

KEYWORDS: Interim Obturator, Maxillofacial, Prosthesis, Odontogenic Keratocyst

INTRODUCTION

Any intra-oral defect including post-surgical defects can result in multiple problems such as difficulty in swallowing, deglutition, impaired speech, and facial disfigurement. The prosthodontist plays an important role in the rehabilitation of such defects. Obturator prosthesis with different designs can be fabricated to seal and correct congenital or acquired defects. The design of the prosthesis may vary in shape and size, depending on the extent of the post surgical defect.

According to Glossary of Prosthodontic terms, an obturator is a prosthesis which is fabricated so as to cover or maintain the integrity of the intra oral structures which may have been lost as a result of a congenital, acquired or developmental disease process.¹ Obturators for post surgical defects have been described to be of three types, i.e., (1) surgical obturator, (2) interim obturator and (3) definitive obturator.² A surgical obturator is a temporary

prosthesis inserted following a surgical resection of a portion or all of one or both maxillary bones and contiguous alveolar bone.¹ Surgical obturator requires frequent recalls during the ensuing healing phase for approximately six months. Sometimes, fabrication of new surgical obturator may be required in cases which require further surgical correction following a final pathology report indicating presence of remnants of tumor at the margins of post surgical defect.

An interim obturator is a maxillofacial prosthesis which is made following completion of initial healing after surgical resection of a portion or one side or both side maxillae; majority of times some or all teeth in the region of the surgical defect are removed during surgical procedure.¹ It is provided after few weeks of the healing period. It aids in initial closure of the surgical defect following initial healing. The interim obturator is a provisional prosthesis which is made when a clearly well

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defined surgical defect margin exists and no further surgical procedures are planned.^{2,3}

A definitive obturator is a maxillofacial prosthesis that replaces part or all of the maxilla and associated lost teeth due to surgery or trauma¹. A definitive obturator is fabricated only after it has been confirmed that there will not be any further tissue changes occurring or that the chances recurrence of tumor are unlikely, which allows for a permanent prosthetic rehabilitation.

The mandible acts as the peripheral boundaries for the floor of the tongue⁴. As a result, the discontinuity, occurring following partial mandibulectomy, may cause deficits in facial form and difficulty in maintenance of oral hygiene in area of the post surgical defect. Also, partial mandibulectomy procedure results in loss of muscle attachment on the defect side and preservation of muscle attachment on the contralateral unaffected side which may affect the mandibular movement⁵.

This article discusses the management of a case with an acquired mandibular defect following an enucleation surgery of odontogenic keratocyst with an interim obturator in the region of 36 to 44.

CASE REPORT

A 14-year female patient reported to the Department of Oral Diagnosis with a complaint of swelling in the lower left cheek. Dental history revealed that the patient was relatively alright 9 months back, when she noticed swelling in the lower region of the left cheek. The swelling gradually increased over the period of time. After history taking, clinical examination and investigation like OPG and CT Scan, the case was diagnosed with odontogenic keratocyst in the region of 36 to 44 region (Figure 1 & 2). Afterward, the case was operated in Department of Oral and Maxillofacial Surgery as a complete enucleation with marsupialization was done in the region of 36 to 44 region. The surgery resulted in a defect extending from 36 to 44. The post surgical defect had an intra-oral opening in the mandibular labial sulcus of dimensions of 10 mm length and 5mm breadth.

As per the dimensions of the surgical defect (10mm in length, 5mm in width and 20mm in depth), acrylic prosthesis/obturator (Figure 3) was fabricated with heat-



Fig.1 Orthopantomograph showing radiolucent defect extending from apical of 36 to apical of 44



Fig.2: Intraoral view showing the opening of post surgical defect, Fig.3: Acrylic prosthesis (obturator) placed over the defect area

cure acrylic resin and positioned over the defect. Later outer extension was recorded with impression compound so as to have sealed borders of acrylic obturator around the defect (Figure 4 & 5). Then it was poured with Type III Gypsum material (Dental Stone).



Fig.4: Impression compound applied around the acrylic obturator to record anatomy of hard and soft tissue



Fig.5: Heat cure acrylic obturator along with impression of hard and soft tissue with impression compound, Fig.6: Completed Interim Obturator

After making the master cast, compound part of acrylic prosthesis (obturator) was replaced with clear auto polymerizing resin (Figure 6). Completed obturator was then tried in patient's mouth, and adjustments were made for proper extension and comfort of the patient. Later, adjusted heat cure acrylic prosthesis (obturator) was

finished and polished and delivered to the patient with instructions regarding its use and maintenance of hygiene.(Figure 7)

The patient was recalled after every 10 days. As the defect healed, the floor of the defect pushed the obturator outwards. The obturator was then trimmed in the subsequent visit to allow further healing of the defect (Figure 8). After the complete closure of the defect, an OPG was taken. The OPG showed new bone formation in the region of the defect. (Figure 9)



Fig. 7: Interim obturator after in position over defect



Fig. 8: Patient recall visit showing complete closure of the post surgical defect



Fig. 9: Orthopantomograph after complete closure of the defect, showing new bone formation in the region of the defect.

DISCUSSION

The rehabilitation of a large defect with a small opening poses a serious challenge for proper obturation, especially in the mandible. As the growth phase of the girl was not completed, providing a definitive obturator was not a feasible during treatment option. Also, it is to be noted that during the enucleation surgery the periosteal lining of

the mandible was preserved. This improved the chances of the surgical defect to close completely with the formation of new bone. So the main objective of the interim obturator was to close the opening of the defect and allow the formation of new bone.¹

For this, it was important that the impression was recorded carefully for close adaptation of the obturator to maintain proper obturation of opening of the defect and to prevent entry of food and foreign body inside the defect area.² For recording the impression the acrylic prosthesis was placed in contact with the deepest portion of the floor of the defect to stabilize the impression compound while making the impression of the surrounding hard and soft tissue structure. Also, the vertical extension of the obturator was touching the deepest part of the floor of defect which helped to stabilize the prosthesis in subsequent visits.

CONCLUSION

Effective obturation of a surgical defect can only be achieved with the recording of the surrounding soft and hard tissue structures. For an interim obturator to have adequate retention and function it is important to plan the treatment after consultation with the concerned oral surgeon. Post insertion follow-up of the patient plays an important role in the success of an interim obturator for proper healing of surgical defect.

CLINICAL SIGNIFICANCE

An interim obturator can be used to protect a post-surgical defect from fluid contamination and resultant infection till complete closure of the defect occurs.

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