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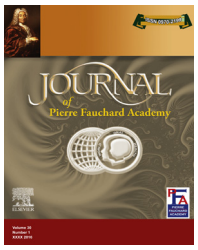

Rehabilitation of maxillary defect by three different types of obturators – A case series

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ABSTRACT

Surgical removal of hard and soft palate has a great impact on psychological, functional, and social well-being of a patient. Normal functions such as speaking and swallowing become difficult owing to absence of palatal roof. Because of these adverse effects, immediate and continual rehabilitation of patient with maxillary defect with obturator is essential. This article discusses about the management of three patients in different phases of disease-healing process, treated with different types of obturators.

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1. Introduction

Because of the advancement in dental and medical treatment modalities, patients suffering from carcinoma of oral and maxillofacial regions are treated successfully by radiotherapy, chemotherapy or by surgery. This places a high demand on the prosthodontist for successful rehabilitation of those patients with surgical defect using obturator or other prosthesis. Obturator is defined as prosthesis used to close a congenital or acquired tissue opening, primarily of the hard palate and/or contiguous alveolar structures.[1] There are three different types of obturators viz., immediate surgical obturator, interim obturator, and definitive obturator.[2]

Immediate surgical obturator is fabricated from the impression made before the surgical excision of the lesion and inserted immediately after the surgery. It is usually made of heat activated clear acrylic resin to reduce the amount of residual monomer content which may pose possible irritation to the surgical wound. Immediate surgical obturator has the main advantage of restoring patient's speech and assisting in swallowing. It also serves as a matrix for the surgical dressing and provides psychological support for the patient. Retention of the prosthesis may be achieved by wrought-wire clasps or wire ligatures placed around the remaining teeth. In case, very few or no teeth remains obturator is wired to the zygomatic arches or other bony or soft tissue. No prosthetic teeth are attached to the immediate surgical obturator to avoid occlusal load transferring to surgical site.[3]

Oral soft tissues experience significant alteration in shape and size during first 3 weeks after surgery. This reduces the retention and stability of immediate surgical obturator which is already compromised. This necessitates fabrication of new surgical obturator 3–4 weeks after the surgery which is known as interim surgical obturator. It is fabricated either from a new impression made from patient or by adjusting the immediate surgical obturator by soft relining material. Full extension of the obturator prosthesis is not advisable because of its

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potential interference with healing. Prosthetic teeth limiting to the anterior segment may be added to enhance in esthetics.[3,4]

Definitive obturator is fabricated 6 months after surgery, once complete healing of the oral tissues is ensured. Heat activated acrylic resin or Co-Cr alloy is used as permanent denture base. Recently, titanium alloys are also used to reduce the weight of the prosthesis. Partially edentulous arch necessitates the fabrication of cast partial denture. Aramany has proposed following design principles for the fabrication of cast partial denture prosthesis; Class I – Linear; Class II – Tripodal; Class III – Quadrilateral; Class IV – Linear; Class V – Tripodal; Class VI – Quadrilateral.[5]

This article discusses about three patients with maxillary defect at various stages of healing rehabilitated with immediate, interim, and definitive surgical obturators, respectively.

2. Case reports

2.1. *Case I: Immediate surgical obturator*

A 52-year-old female patient reported with the chief complaint of soft tissue growth in oral cavity. Intra oral examination reveals the presence of ulcero proliferative growth involving right side of the hard palate crossing the midline (Fig. 1). Histopathologic examination confirms the diagnosis of squamous carcinoma of hard palate. On the basis of the clinical and histological findings, treatment plan of fabrication of immediate surgical obturator followed by surgical resection of entire right side of hard palate and premaxilla on contra lateral side was decided.

2.1.1. *Treatment procedure*

Impression of maxillary and mandibular arch was made using irreversible hydrocolloid (Zelgan) impression material (Fig. 2) and cast poured with type III gypsum product. Tentative extension of the surgical border was marked on the cast after discussing with surgeon (Fig. 3). Teeth and alveolar process with in the tentative surgical border was trimmed off from the cast (Fig. 4). Two layers of modeling wax was adopted to cover the entire palate till buccal and labial vestibule (Fig. 5). Processing was done with heat activated clear acrylic resin (Acrylin H) using compression molding technique. Small holes were made in the prosthesis near the interdental region of unaffected side (Fig. 6). Retention was obtained by wiring the prostheses to existing teeth using ligature wire passing through the holes (Fig. 7).

Fig. 1 – Intra oral preoperative photograph showing ulcero-proliferative lesion in right side of hard palate.

Fig. 2 – Primary impression made using irreversible hydrocolloid impression material.

Fig. 3 – Primary cast with tentative surgical out line marked.

2.2. *Case II: Interim surgical obturator*

A 29-year-old male patient reported with a chief complaint of difficulty in swallowing and speaking following surgery in the oral cavity. On eliciting dental history, it was found that patient had undergone surgical resection of premaxilla three weeks back due to mucoepidermoid carcinoma. Intraoral examination reveals resection of premaxilla along with center part of hard palate which is of Aramany class VI type (Fig. 8). Clinical finding shows inadequate healing for the fabrication of definitive prosthesis. Thus fabrication of interim obturator with heat activated acrylic resin was decided (Fig. 9).

2.2.1. *Treatment procedure*

Primary impression was made using irreversible hydrocolloid impression material (Zelgan) and cast poured using dental stone. Undercuts in the surgical site were blocked, and wax pattern for interim obturator was made. Adams clasps in 16, 26 and C-clasp in 17,27 were incorporated to enhance retention.

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