A chairside technique to add customized anterior acrylic resin teeth to a surgical obturator

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Three phases of treatment are typically used for acquired surgical defects of the maxilla, each with different purposes. First, surgical obturation involves the placement of a prosthesis immediately after surgery. The main objective is to restore and maintain oral function at a reasonable level during this initial postoperative period.1 Second, interim obturation involves either fabrication of a new interim prosthesis or modification of an existing surgical obturator. The objective is to provide the patient with a comfortable and functional prosthesis until healing is complete.1 The third, definitive obturation phase is when the surgical site has healed well and is dimensionally stable, generally 3 to 6 months after surgery.1

The advantages of providing an immediate and an interim obturator in patients who have undergone a maxillectomy cannot be overemphasized. These obturators serve as a matrix to hold surgical packing in place, thus maintaining close adaptation of the graft materials and the flap. Also, providing temporary separation of the oral and nasal cavities reduces oral contamination and may decrease the incidence of local infection.2 Both immediate and definitive obturators assist speech function and deglutition,3–5 eliminating the need for or allowing for the earlier removal of alternatives to oral intake through the nasal cavity (via a nasogastric tube) or abdominal wall (via a percutaneous endoscopic gastrostomy tube), which are generally uncomfortable for patients.1 At the same time, speech is aided by reproducing normal palatal contours and by covering the defect. Covering the sudden overwhelming defect immediately with a prosthesis also lessens the psychological impact of surgery,6 making the postoperative period easier to bear, reassuring the patient that rehabilitation has begun, and enabling the patient to adapt to wearing a prosthesis. Moreover, the surgical obturator supports soft tissue after surgery and minimizes scar contracture and disfigurement, which can have a positive effect on the patient’s psyche.7 Not placing an immediate obturator may cause serious problems with facial appearance because of soft tissue contracture.8

This article describes an alternative approach to fabricating a new interim prosthesis. A step-by-step technique is used to fabricate and incorporate customized acrylic resin anterior teeth by modifying an existing acrylic resin surgical obturator into an interim prosthesis.

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in a patient who has undergone a maxillectomy (Arany Class I)\(^9\) before discharging the patient from the hospital and while waiting for complete tissue healing.

TECHNIQUE

1. Mix adequate soft silicone putty impression material (Exafine Putty Type; GC Corp) and place it on the surgical obturator (fabricated with autopolymerizing acrylic resin; Palapress Vario; Kulzer GmbH) exactly at the location where the teeth are to be added. Before the putty fully polymerizes (within 4 minutes according to the manufacturer), draw the shapes on the putty intraorally using a composite resin placement instrument to determine the positions and the sizes of the teeth corresponding to the contralateral arch and with the smile line, as shown in Figure 1.

2. Cut off excess putty before placing the silicone in an irreversible hydrocolloid impression material (Algiace Z; Dentsply Sirona) to create a mold (Fig. 2).

3. Fabricate acrylic teeth by placing autopolymerizing acrylic resin (Unifast III; GC Corp) into the irreversible hydrocolloid mold (Fig. 3) using the sprinkle-on technique,\(^10\) starting with the monomer in the mold and then adding the powder gradually.

4. Apply the same autopolymerizing acrylic resin onto the obturator by using a paint-on technique, dipping a brush into the monomer first and then into the powder before applying, to bond the teeth to the obturator. It is best to roughen the surface of the obturator first.

5. Evaluate the fit and occlusion of the modified obturator before polishing the teeth. For this patient, the final polishing was done with acrylic resin polishing burs (AcryPoint; Shofu). Polished customized teeth are shown in Figure 4. The added teeth were not placed in occlusion to minimize loading on the healing tissues. An intraoral view of the complete modified obturator is shown in Figure 5.
DISCUSSION

Depending on the patient’s condition after maxillectomy, the surgical obturator often needs to be modified before fabricating the definitive obturator or before the next step of treatment. For the present patient, adding the anterior teeth was essential before her discharge from the hospital to make the prosthesis more socially acceptable by improving esthetics and speech. This is consistent with the findings that both immediate and definitive obturators are effective in improving speech impairment among patients with Aramany Class II maxillectomies.11 The described chairside technique allows modification of the existing surgical obturator in 1 visit, and is thus helpful when it is not convenient for the patient to attend multiple appointments for modification after hospital discharge. The patient was satisfied with the modified surgical obturator, and hopefully this increased her self-esteem and motivation to adapt to the new definitive prosthesis later.

SUMMARY

A new interim obturator prosthesis requires multiple follow-up visits for its fabrication. Modifying an existing surgical obturator into an interim prosthesis can simplify the process and reduce the number of necessary visits. This modification technique can be performed in a single visit when an interim prosthesis is urgently needed. In patients who need more teeth to be replaced, multiple visits or the fabrication of a new interim prosthesis might be inevitable.

REFERENCES


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