A surgical interim prosthesis

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Oral cancer represents approximately 3% of all cancer occurring in the US.[1] It affects about 26,000 persons each year. Frequently the presence of oral cancer necessitates surgical removal of all or part of the maxilla,[2] leaving the patient with a defect that compromises the integrity and function of the oral cavity. The functional, esthetic, and psychologic effects of this abrupt alteration in the oral physiology are enormous. Fortunately, these acquired functional losses can be largely alleviated with the maxillary obturator prosthesis.

Many articles have advocated the use of obturators for acquired maxillary defects.[3] The usual treatment sequence for a patient requiring a maxillectomy is the initial insertion of a surgical obturator at the time of surgery or soon thereafter, an interim obturator used after initial healing until the tissues are stabilized (approximately 3 months), and a definitive obturator prepared after the tissues have stabilized and will not undergo appreciable changes. Desjardins[4] clearly advocates constructing obturators for maxillectomy patients.

This article describes a simple technique for constructing a prosthesis that combines some of the usual features of an interim prosthesis with those of the surgical prosthesis.

TECHNIQUE

1. Secure presurgical casts made from irreversible hydrocolloid impressions (Fig. 1).

2. Using an arbitrary face-bow mounting, mount the dentulous casts on an articulator. Index the casts so that the maxillary cast can be removed from the articulator and later remounted in the same position.

3. Discuss the surgery with the surgeon to determine the estimated boundaries of the surgery on the cast.

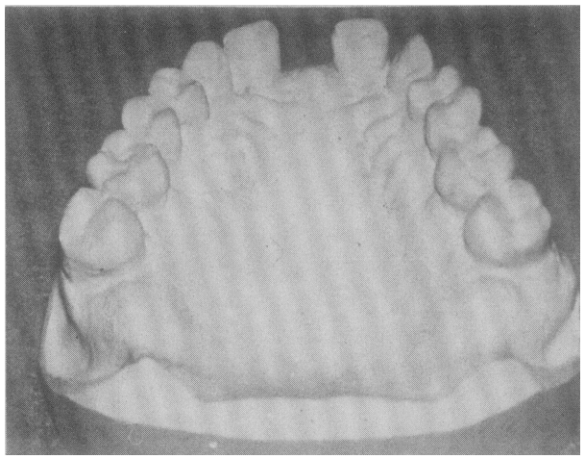

Fig. 1. Presurgical maxillary cast.

4. Determine where retention can be obtained from the remaining teeth and adapt wrought wire clasps to the appropriate teeth (Fig. 2).

5. Trim the teeth distal to the second premolar on the defect side of the cast, and trim the buccal part of the base to provide a rounded buccal flange. The flange should extend far enough apically so as to be above the junction of the skin graft and buccal mucosa (cicatricial line).

6. Sprinkle clear autopolymerizing acrylic resin on the palatal segment of the cast, extending from the gingival margins of the remaining teeth to about 1 cm short of the teeth across the palate to be surgically removed. The wrought wire clasps should be included in this segment (Fig. 2).

7. Adapt a stock tray, soak the cast in a stone-saturated water solution,[5] and make an irreversible hydrocolloid impression of the cast with the acrylic resin palatal segment[6] in place (Fig. 3).

8. Remove the cast with the acrylic resin palatal segment, and evaluate the impression.

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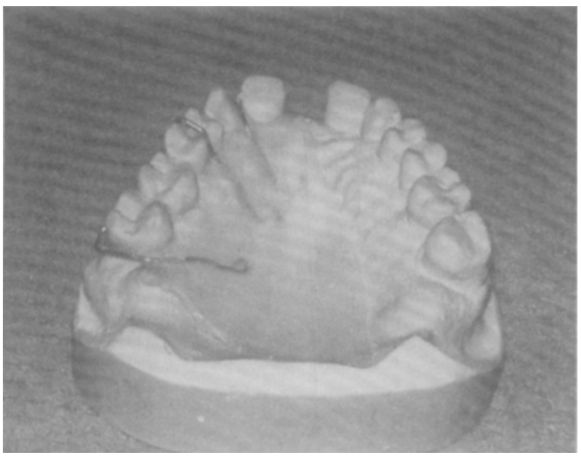

Fig. 2. Wrought wire and clear acrylic resin palatal segment adapted to the maxillary cast.

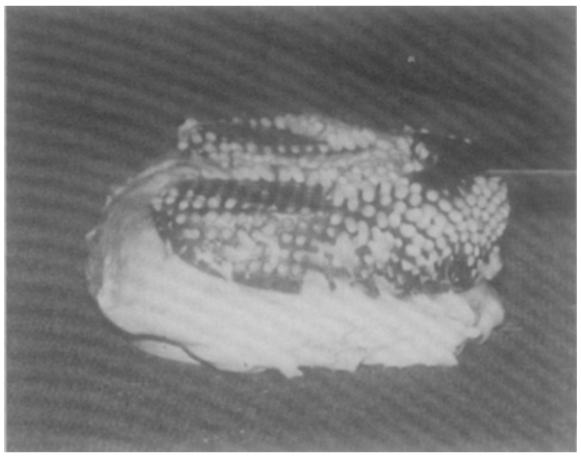

Fig. 3. Irreversible hydrocolloid impression of Fig. 2.

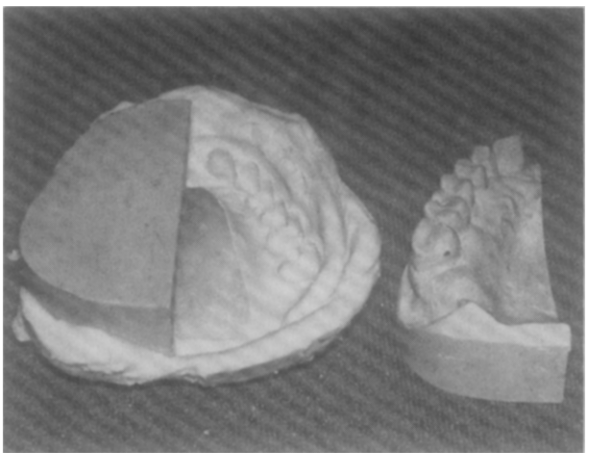

Fig. 4. Internal aspect of irreversible hydrocolloid impression after replacement of the sectioned maxillary cast and the maxillary acrylic resin segment

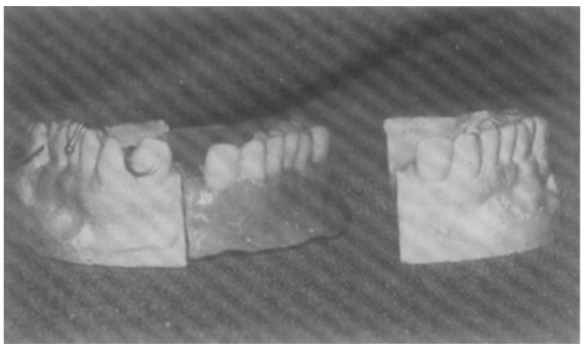

Fig. 5. Anterior view of surgical prosthesis adapted to the segment of the cast removed from the irreversible hydrocolloid impression. (Note how the anatomy of the teeth and the gingival tissues were duplicated.)

9. Remove the acrylic resin palatal segment with the wrought wire clasps. Trim the cast to the predetermined surgical boundary on a cast trimmer.

10. Return the acrylic resin palatal segment to the cast, and insert both the cast and palatal segment into the irreversible hydrocolloid impression, making sure they are completely seated (Fig. 4). It may be necessary to apply petroleum jelly to the cast to facilitate its replacement into the impression.

11. Fill the exposed impressions of the teeth to be removed at surgery with tooth-colored, autopolymerizing acrylic resin.

12. Sprinkle clear autopolymerizing acrylic resin on the partial palatal section to join it with the previously poured teeth.

13. Extend the buccolabial gingival flange with pink autopolymerizing acrylic resin. Make this flange 3 to 4 mm thick to allow for future trimming as postsurgical tissue changes occur.

14. Place the impression with the cast and resin in a pressure pot for final curing.

15. Remove the cast segment and prosthesis from the impression (Fig. 5).

16. Remount the prosthesis on the articulator and refine the occlusion.

17. Separate the prosthesis from the cast.

18. Trim and polish the prosthesis.

SUMMARY

This technique for making a surgical interim obturator allows for immediate replacement of the anterior teeth and maxillary arch form, greatly alleviating the physiologic and psychologic shock of

a maxillectomy to the patient (Fig. 5). The technique also reduces the number of visits normally required to provide separate surgical and interim obturators. The tongue and lips can maintain a near normal anatomic relationship with the teeth and palate facilitating the return of normal eating, swallowing, and speaking.

The initial prosthesis can be used until the patient is ready for his definitive prosthesis. As tissues change, the prosthesis can be modified, eliminating the need for a separate interim prosthesis, which reduces treatment time and cost.

A second interim prosthesis can be made, if necessary, but the esthetic requirements will be easily attained since the patient's natural dental and gingival shape, position, and contour have been preserved. The palatal portion is made of clear acrylic resin, which allows the surgical margins and pressure areas to be observed.

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