INTRODUCTION

Maxillary defects have been classified as acquired and congenital.1,2 Patients with such defects can be managed either with surgical repair or obturators.3,4 Problems related to retention, support and stability of an obturator can be minimized with accurate impression-making.5,6 However, with healing and contracture of the wound, mouth opening can be limited in such cases. On the other hand, if the defect is large, then impression making whether primary or secondary in a single piece impression is not only difficult but at times impractical leading to compromised impressions and subsequent prosthesis.7 In the impression making procedure, not only the impression tray but material loaded impression tray for a large defect poses difficulty in intra oral placement. Wide mouth opening is required for proper insertion, alignment and placement of the impression tray. As this is not possible in patients with restricted mouth opening due to scarring and wound contracture, the standard impression procedure can be modified to accomplish this fundamental step in the fabrication of a successful prosthesis.8

Many special techniques of impression making for limited mouth opening in intact maxillary arches are reported in the literature.7-10 Some authors have described such techniques for the maxillectomy patients.11-13 As the accurate impression is of vital importance so even a little distortion in impression material while inserting or removing the impression tray can result in defective final prosthesis.14 During impression making, comfort of the patient is also important.

In this paper a two-part impression technique is described for a large maxillary defect using three impression materials i.e. impression compound, tissue conditioner and alginate. By this technique both the operator and the patient can be at ease in making a best possible impression.

PROCEDURE

A required quantity of impression compound (Harvard impression compound, Harvard Dental International GmbH, Germany) was tempered in warm water and rolled in a shape of a ball resembling approximately the shape of the defect. Two silk threads of approximately 45 cm length, tied in the center and crossed over were attached with impression compound to prevent its displacement and easy retrieval after impression (Figure 1). It was then placed in the defect without loading it in the tray. The impression compound was gently pushed to fill the defect (Figure 2) and withdrawn when half set as it might be difficult to withdraw the completely set hard impression compound from the undercuts. After removal, the impression compound bulb was inserted and removed repeatedly so as to acquire the desired shape of the defect. This maneuver was repeated till impression compound was full set and not engaged in any undercut area. The impression was scraped from the defect side (upper) to make space for tissue conditioner. All the irregular surfaces were smoothened so as to place it easily into the defect.

The lower surface of the compound was made flat and a bevel shaped cross-index was made into this flat surface for a reference to the second part of the impression (Figure 3). The tissue conditioner (GC Soft Liner, GC Inc. Japan) was applied on the defect side (upper) of the
impression compound and it was again placed into the defect (Figure 4). The patient was instructed to move his head forwards and backwards, side to side for proper molding of the tissue conditioner. The tissue conditioner and compound impression remained in place and petroleum jelly was applied on the lower surface of the compound. Then alginate (Cavex CA 37, Cavex Holland BV, Netherlands) was loaded into an appropriate sized stock tray and simple impression was made while the obturating part was still in situ. After setting the alginate impression was easily removed and the obturating part removed separately (Figure 5). These two parts were then approximated outside the mouth according to the indexed cross-placed onto the lower surface of the compound (Figure 6) and model was poured gently to avoid disengagement of the two parts (Figure 7 and 8).

The obturator was fabricated following all the conventional procedures. Such obturators can be fabricated both as a single or two-part prosthesis.

**DISCUSSION**

Deogade described a novel technique for hemimaxillectomy patients in which primary impression was made with stock trays and secondary impression was made using sectional trays and custom acrylic block to make two separate impressions. These two impressions were rejoined outside the mouth with commercially available snap fit buttons.\(^{12}\)

Krishna made use of altered cast technique for the management of large maxillary defect. He made a cast metal framework from primary impression and then impression of the defect was made on this metal framework with putty consistency addition silicone. From this second impression the master cast was altered and prosthesis was fabricated on this altered cast.\(^{9}\)

Vojvodic and Kranjcic also described a two-step (altered cast) impression technique in the prosthetic rehabilitation of a patient after maxillectomy. In the first step, primary impression with irreversible hydrocolloid was made and secondary impression was made on the cast metal framework with a silicone material\(^ {16}\) in this way an altered cast was obtained just like described by Anandakrishna earlier.\(^ {15}\)
Schmarman and Carr used foam impression technique to overcome the severe trismus problem in maxillectomy patients. A foam impression material was injected through the nostrils into the nasal cavity to make the impression of the defect.\textsuperscript{11}

The technique described here also utilized similar principles for obturator fabrication in maxillectomy patients. But it differs from the above techniques as in this two impressions were made in the single visit and there was no need for a special tray fabrication. The materials used in this technique are readily available in any prosthodontics clinic.

The advantages of this technique include simplified manipulation of three separate materials and decreased patient discomfort; the ability to use a custom made primary impression with impression compound to record the entire extent of the defect; precise intra-oral positioning and stability; definitive indexing of primary impression for easy reassembly both intra-orally and extra-orally. On the contrary, in this technique effort is required to manipulate three different impression materials and correct fitting of the two pieces to produce an accurate cast.

This technique can be confidently employed in any clinical scenario with large maxillary defect and limited mouth opening, either acquired or congenital.

REFERENCES


