Prosthetic Finger Retention: A New Approach

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INTRODUCTION

The problem of replacing external parts of the body missing from surgery or trauma often falls to the maxillofacial prosthodontist. One of the major problems associated with somatoprosthetic replacement is inadequate retention of the prosthesis. This may stem from the weight of the prosthesis, inadequate tissue support, and/or the particular area of the body to be replaced. A number of means have been employed to enhance retention. Among the more common are adhesives, adhesive tape, and attachment to eyeglasses. The purpose of this article is to describe a technique which eliminates the need for adhesive materials and which uses tissue displacement as a primary means of retention. This technique can be utilized whenever the prosthesis encompasses more than 180° of the affected area. An ideal indication is prosthetic replacement of a finger.

TECHNIQUE

1. An impression of the remainder of the finger to be replaced is made with irreversible hydrocolloid in a paper cup. The impression is immediately poured with dental stone, vacuum-spatulated to obtain a dense, bubble-free working cast.

2. With a suitable instrument such as a cleoid-discoid carver, two parallel indentations approximately .75 mm deep and 1.0 mm wide are inscribed into the working cast around its entire circumference (Figure 1.) The first indentation is placed

Fig. 1. Scribed (or beaded area) of stone cast of amputated finger.

no less the 5.0 mm from the tip of the working cast with the second indentation no closer then 3.0 mm from the first.

3. The prosthesis is now waxed to form. The nailbed is formed by using an Eylure Nail* which is removed prior to fabrication of the mold.

4. The prosthetic finger is then fabricated from MDX-4-4210 elastomer** which has been tinted prior to placement in the mold[1] (Figure 2). Processing is accomplished at 276°F for four hours.

5. The processed finger is recovered from the mold, trimmed, finished and tried on the patient to determine fit, contour and degree of retention (Figure 3). The prosthesis is then extrinsically tinted to better match the patient's skin tone.

6. The acrylic nail is trimmed to the desired shape and length and attached to the nailbed using a thin layer of Silastic 89† or Prolastic Medium #1 or 2†† diluted with a small amount of xylene.

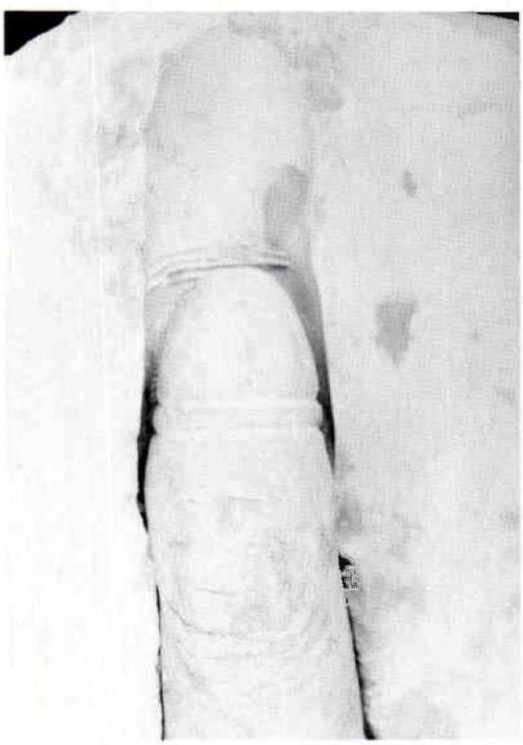

Fig. 2. Stone finger in mold ready to receive base shaded elastomer.

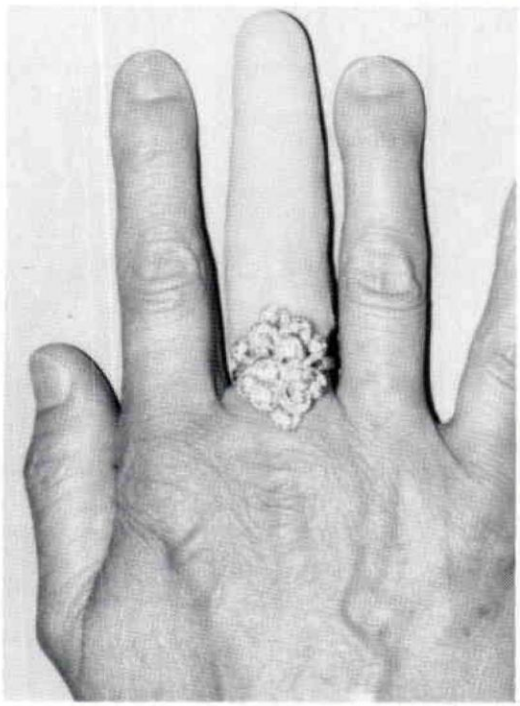

Fig. 3. Untinted finger prosthesis made from Dow Corning MDX-4-4210 elastomer.

The completed prosthesis is fitted to the patient with instruction for proper use and care, and advice on the use of makeup for the purpose of making the margin of the prosthesis less noticeable. After wearing the prosthesis from three to five days, the indentations which have been positively reproduced into the prosthesis will displace the finger tissue sufficiently to provide excellent retention without the use of adhesives and without compromising normal blood flow. The principle is similar to the function of a posterior peripheral seal or a maxillary complete denture where tissue is selectively placed to create additional retention.

In addition, the prosthesis may be so fabricated that additional retention will be gained by making the prosthesis fit the entire length of the remaining finger. A ring may then be placed over the prosthesis onto the finger rendering additional retention as well as increased cosmetic effect (Figure 3). Finally, the mold is labelled with skin tone formula information and stored for future use.

SUMMARY

A technique for providing a definitive form of retention has been described which eliminates the use of adhesives. The technique can be utilized whenever the prosthesis encompases more than 180° of the affected area.

CITATIONS

* Eylure of London, Ltd., 16E 52nd St., New York, New York 10022
** Dow Corning Corp., Midland, MI
† Dow Corning Corp., Midland, MI
†† Prolastic Co., Inc., 4 Chelmsford Road, Rochester, New York 14618

REFERENCE

[1]Duncan, J.D. and Rommerdale, E.H., *"Base Shade Determination of a New Elastomer for Maxillofacial Prosthesis" J. Prosthet Dent* 44:654–655, 1980.

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