Case Report

GLOVE TYPE FINGER PROSTHESIS- A CASE REPORT

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Abstract

Alteration in hand anatomy results in diverse physical and emotional responses from the patient. Hand is a body part which is of major importance for communication, along with its basic function of grasping, holding and manipulating items. Fingers, as well as partial finger amputations are few of the most frequently encountered forms in which partial hand loss projects. Rehabilitation of an amputated finger is of utmost importance and a well fitted and colour matched finger prosthesis eliminates the constant reminder of the disability; make a patient feel like a capable person and not a handicap. Modern customised as well as properly fabricated silicone finger prosthesis are deemed to be life-like and can assist the amputee in returning to the society, socially as well as psychologically. This case report portrays a simple method to fabricate silicon finger prosthesis.

Keywords: Silicone, rehabilitation, amputated finger

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INTRODUCTION

Loss of finger can occur because of trauma, congenital disorder such as amniotic band syndrome and excision for neoplastic disorder. 1Finger absence causes loss of grasp, security and marked psychological responses from the patient. The reason for responses are varied, but aesthetic changes, loss of function and comfort are usually the major sources of concern. 2,3 Beasley noted that individuals keeping their hands inside their pockets because of embarrassment over appearance can be classified as equally
functionally disabled as a forequarter amputee. Restoring the digit with a digital prosthesis with matching form, colour, and texture will enhance patient's acceptance and confidence making him feel like a capable person and not handicap. Creating a finger prosthesis that appears to have a realistic skin surface with similarity to the surrounding tissue requires both artistic and technical expertise.

The most common methods of retaining a digital prosthesis are by vacuum effect on the stump, use of a ring at the junction of prosthesis and stump and the use of osseointegrated implants with customized attachments. This report presents a case of rehabilitation of a finger defect with silicone following amputation after a trauma.

CASE REPORT

A 62 year old male patient reported to Department of Prosthodontics and Crown & Bridge, Punjab Govt. Dental College & Hospital, Amritsar with a chief complaint of a partially missing ring finger of his right hand. During history taking, the patient revealed that he had lost part of his finger in a traumatic injury 3 years back. On examination of the hand, partial amputation was there in the ring finger in proximal phalanx part. The skin of the amputated finger was completely healed. Glove type finger prosthesis was planned to make harmony with other fingers.

Technique

1. The subject’s ring finger of both the affected and unaffected hand was lubricated with a thin layer of petroleum jelly prior to making impression with irreversible hydrocolloid to prevent it from adhering to the skin and hairs.

2. The patient was instructed to keep the hand in normal resting position, without stretching during impression making. After this, models were poured in Type III dental stone.

3. The models were retrieved after the stone was set. [Figure 2]

4. The wax pattern was fabricated on the affected model, taking help from the model of the unaffected finger. To obtain natural appearance lines were carved on the dorsal surface of the wax pattern. [Figure 3] An artificial nail was also added, following which trial of the pattern was done on the patient's hand.

5. The pattern was verified and after taking patient’s approval, pattern was flanked and dewaxing was done. [Figure 4] Shade matching for silicone was done in the presence of the patient. Intrinsic colours were mixed in the silicone to achieve the appropriate characterization for the finger.

6. The material was packed in the flask. The material was allowed to bench cure overnight for the final polymerization. Once the final prosthesis was retrieved, the excess material was cut using scissors and the final finishing was accomplished using fine sand paper. [Figure 5] Basic method of positive contact was used for retention of the prosthesis.

DISCUSSION

A successful prosthodontic treatment depends on the precise planning, impression making, model carving and choosing the material that best suits the prosthesis. Most cases involving proximal phalangeal
amputations can be restored to near normal function using appropriate prostheses.\textsuperscript{10} Prosthetic replacement of fingers can be satisfactorily achieved in patients who have at least 1.5 cm of residual stump.\textsuperscript{11}

Materials available for maxillofacial prostheses are acrylic resin, acrylic copolymers, polyvinyl chloride copolymers, chlorinated polyethylene, polyurethane elastomers etc.\textsuperscript{12-14} However, customized silicone prostheses have a wider rate of acceptance, owing to their comfort, durability, and stain resistance, which are far superior to any other available maxillofacial materials for finger prosthesis. Almost all stains can be removed easily with water and soap.\textsuperscript{15,16} The silicone gel also improves the hydration of the stratum corneum of immature hypertrophic scars.\textsuperscript{17}

There are various methods to increase the retention of the prosthesis such as the use of retentive finger rings, medical grade adhesives, implants etc along with the basic positive contact of the prosthesis with the tissues. In this case, basic method of positive contact was used to provide retention to the prosthesis.

**CONCLUSION**

It is of utmost importance to rehabilitate the patient with amputated finger to restore the form and esthetics and to eliminate the trauma generated by the dysfunction. This custom made finger prosthesis was esthetically acceptable and comfortable for use resulting in psychological improvement and personality of the patient. No doubt, an esthetic and retentive prosthesis are the
primary determinant factors in the successful prosthetic restoration of a finger.

REFERENCES

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