

Case Report

Nasal prosthesis for a patient with mammalian bite injury

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Maxillofacial trauma refers to any injury to the face or jaw caused by physical force, the presence of foreign objects, animal or human bites or burns. Animal bites to the face are generally caused by the attacks of mammals like dogs, donkeys, bear and wolf. Since an individual's self-image and self-esteem are often derived from his or her own facial appearance, any injury affecting these features requires particular attention.

We present here a case of prosthetic rehabilitation for destructed nasal cartilage caused by a bear bite. The patient was treated with a nasal prosthesis made with acrylic resin, which provided acceptable esthetics and psychological benefit to the patient. Spectacle glasses helped to retain the prosthetic nose.

Key words: Maxillofacial prosthesis, midfacial defect, nasal prosthesis

Mammalian bite injuries to the head and neck region can result in facial disfigurement with distressing physical and psychological consequences.^[1] Mammalian bite wounds are often underestimated and undertreated. These bites can range in severity from minor scratches to major trauma that involves broken bones, joint damage, skin and deep tissue injuries.^[2,3]

Facial defects caused from such bite injuries not only create functional problems but also serious psychologic problems, which can cause the individual to avoid social contact.^[4,5] Hence, the first aim of maxillofacial rehabilitation should be solving the esthetic problems of the patient. This clinical report describes a prosthetic rehabilitation of a patient with a nasal defect resulting from a bear bite. It also signifies a simple and economical solution for maxillofacial rehabilitation.

CASE REPORT

A 32 year-old male patient was referred to the Department of Prosthodontics, SDM College of Dental Sciences, Dharwad, India. The patient presented with the destructed nasal cartilage caused by a bear bite injury [Figure 1]. Composite skin grafting was done in the forehead region and upper lip as he had sustained injuries in those regions also. Following the surgery, a temporary nasal prosthesis was made which was retained with white surgical tape [Figure 2]. The surgical tape provided was inadequate to fulfill the esthetic requirements of the patient and hampered his social activities. Hence, he desired an esthetic rehabilitation of the lost nasal part. Various prosthetic treatment modalities ranging from acrylic resin nasal prostheses to implant-retained silicon prostheses were explained and discussed with the patient. Due to economic constraints, the patient chose a nasal prosthesis made of acrylic resin. The prosthesis was to be retained by his spectacle glass frame.

PROCEDURE

The boundary for the impression was outlined on the face. Light petrolatum was applied on the eyebrows and eyelashes. Rolled modelling wax was used to confine the impression material (The Hindustan Dental Products; Hyderabad, India). Care was taken as to not distort the nasal remnants / tissues by packing the moist gauze into the defect. Facial moulage was made using an irreversible hydrocolloid material (Algitek; Dental Products of India, Mumbai) [Figure 3]. The irreversible hydrocolloid was reinforced with gauze and dental plaster (Everest Brand; Panade Industries Pvt. Ltd, Nippani, India). The impression was poured in Type-III dental stone (Kala Stone; Kala Bhai Pvt. Ltd., Mumbai, India).

The wax pattern of the nose with developed esthetic contours was sculpted on the master cast. The whole morphology of the wax prosthesis was accomplished according to visual knowledge, previous photographs of the patient and from discussions with his relatives.

The position of the wax pattern was further verified ! with a clinical try-in. After marginal adaptation and ! contours were confirmed, the wax pattern was sealed ! to place on the master cast. The molding procedures ! were carried out. Heat polymerizing clear acrylic ! resin (DPI-Heat cure; Dental Products of India Ltd.) ! was packed and processed. Intrinsic coloring was ! incorporated in the clear acrylic resin to match the ! basic skin tone, using an acrylic-based paint (Fevicryl; ! Pidilite Industries Ltd., Mumbai, India). The margins ! of the final prosthesis were finished to blend with ! the skin contours as close as possible. The eyeglass ! frame was aligned on the bridge of the nose and ! was attached to it with the help of autopolymerising ! resin. Extrinsic coloring was to be done to make it more ! esthetically acceptable. After delivering the prosthesis, ! home care instructions were given. The patient returned ! two weeks later for a follow-up evaluation. During the ! follow-up appointment, the patient had no complaints ! and was satisfied with the esthetic outcome of the ! prosthesis [Figure 4].

DISCUSSION

The face is the most noticeable of human characteristics ! and arguably, the nose is its most prominent feature. ! Hence, any defect on the nose becomes a barrier for ! the patient to return to normal daily activities. Nasal ! defects can be restored either by surgical or prosthetic ! reconstruction. A general dilemma exists for all ! patients as to whether to go for surgical techniques ! or prosthetic rehabilitation. Many surgical techniques ! have been reported in nasal reconstruction, including ! lining flaps and rotational flaps to create internal and ! external lining and cartilage grafts and autologous ! implants for the framework.^[6-8] With the advent of ! microvascular surgical techniques, the potential for !



Figure 2: Temporary nasal prosthesis with surgical tape in place immediately after surgery



Figure 3: Irreversible hydrocolloid impression



Figure 1: Patient appearance after surgery



Figure 4: Prosthesis *in situ*

more favorable surgical reconstruction of the nose is eminent. However, the prominent location of the nose and complexity of its anatomical configuration makes surgical reconstruction difficult.^[9] On the contrary, prosthetic rehabilitation of nasal defects is more viable especially when the defects are large in size.^[10] In addition; the prosthetic option is ideal if the cost factor is a matter of concern for rehabilitation. Prosthetic management of nasal defects using acrylic resin material has been well documented.^[11-13] In this case, the patient had already undergone surgery for upper lip reconstruction. He opted for a feasible, economic solution for nasal rehabilitation and expressed deep concern regarding his esthetic appearance. The Nasal prosthesis made for this patient had good esthetics and went unnoticed in public allowing him to go about life without drawing attention to his nasal defect. The prosthesis was well retained by the spectacle frame. During the try-in phase, the marginal thickness at the bridge of the nose was closely adapted to make contact with the eyeglass frame. A band was placed from one earpiece to the other for the extra support of the glasses.

Polymethyl methacrylate resin is one of the oldest materials recommended for use in maxillofacial prosthodontics.^[14] It has been suggested that the ease of marginal readaptation using chairside denture liner makes this a useful material for making a temporary prosthesis during the period of healing and wound organization.^[5] Nevertheless, apart from making temporary prostheses, acrylic resin can also be used for making definitive prostheses like the present case in this report wherein the esthetic results are satisfactory. However, the limitation of a polymethyl methacrylate resin prosthesis is that feels much less life-like and the knife-edged borders may impinge on the tissues. The advantages of this prosthesis are that the technique is noninvasive, cost-effective, tissue-tolerant, esthetic, comfortable to use and easy to clean.

In this case report, a nasal prosthesis was fabricated for a patient whose nasal area had been destructed due to bear bite. The use of the nasal prosthesis made the patient psychologically more comfortable. The prosthesis was acceptable to the patient because of its light weight and low cost.

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