

**NASAL PROSTHESIS- CASE REPORT.****Dr. Gaurav Gupta¹, Dr. Sajjy Upinder², Dr. Sipika Jindal³.**

¹Professor and Head, Department of prosthodontics and Crown & Bridge. Guru Nanak Dev Dental College and Research Institute, Sunam, Punjab, India.

²Reader, Department of prosthodontics and Crown & Bridge. Guru Nanak Dev Dental College and Research Institute, Sunam, Punjab, India.

³Post- Graduate student, Department of prosthodontics and Crown & Bridge. Guru Nanak Dev Dental College and Research Institute, Sunam, Punjab, India.

Corresponding author

Dr. Gaurav Gupta, Professor and Head, Department of prosthodontics and Crown & Bridge. Guru Nanak Dev Dental College and Research Institute, Sunam, Punjab, India.

ABSTRACT

The face is the most sensitive region of the body, and many individuals suffer with facial tissue defects. These patients have their social and psychological life impaired due to functional and aesthetic problems. Rehabilitating these patients with craniofacial deformities, whether congenital or acquired, has been a challenge for multidisciplinary teams. Facial defects can result from trauma, surgical resections, congenital anomalies, acquired infections like leishmaniasis and burns. The most commonly used materials for extraoral prosthesis include acrylic, vinyl, and polyurethane resins and silicone elastomers. This clinical report describes an oncological nasal defect which was rehabilitated with custom-made sculpted polymethyl methacrylate (PMMA) resin prosthesis which was retained by spectacles.

Key words: Nasal Prosthesis, Polymethyl methacrylate

INTRODUCTION

The face is the most sensitive region of the body, and many individuals suffer with facial tissue defects. These patients have their social and psychological life impaired due to functional and aesthetic problems. Rehabilitating these patients with craniofacial deformities, whether congenital or acquired, has been a challenge for multidisciplinary teams. Facial defects can result from trauma, surgical resections, congenital anomalies, acquired infections like leishmaniasis and burns. The majority of nasal defects are secondary to treatment of neoplasm and defects due to trauma.

Surgical reconstruction of any nasal defect still represents the gold approach. However, nasal surgical reconstruction could be challenging to be conducted due to the size and the location of the defective site and the surgeon's skill. Restoration of large facial defects is a challenge both for the maxillofacial plastic surgeons and maxillofacial prosthodontists. Prosthetic restoration of facial defect is a treatment of choice where surgical reconstruction is not possible. Nasal prosthesis after rhinectomy, on the other hand, might improve the patient's quality of life. The patient's desire is to appear in public without fear or concern of being noticed with unusual figures.

Factors that affect the prognosis for successful, conventional prosthetic management of facial defect are the presence of remaining supporting area, and defect characteristics such as size, location, contour, and available undercuts. Obtaining adequate prosthesis retention, needs some mechanical assistance, it may be necessary to engage available retentive area, or the use of eye glasses to aid in retention of nasal prosthesis.

The long- term success of facial restoration mainly depends on retention. Retention of the facial prosthesis depends on providing better marginal integrity and maintaining the position of the prosthesis. The retention can be obtained by anatomic retention such as anatomic undercuts or secondary mechanical factors such as implants, magnets, or with mini titanium screws.

The most commonly used materials for extraoral prosthesis include acrylic, vinyl, and polyurethane resins and silicone elastomers. This clinical report describes an oncological nasal defect which was rehabilitated with custom-made sculpted polymethyl methacrylate (PMMA) resin prosthesis which was retained by spectacles.

CASE REPORT- A 60 years old man was referred to the Department of Prosthodontics. Patient was known case of Squamous cell carcinoma involving the naso-labial region and the philtrum. Patient was operated for the same. Operatively, the nasal alar cartilages along with pre- maxilla were removed.

Extra-oral examination of the patient revealed healthy boundaries of the defect with entire nasal septum and alar missing and only minimal nasal bridge was present. There was considerable asymmetry of the face with depressed right malar region. (fig. 1) This patient presented a serious functional as well as aesthetic dilemma. He used to cover his face with a piece of cloth all the time to hide the big nasal defect. His phonetics were severely compromised and his speech was totally incomprehensible. He was unable to eat and drink properly because of nasal regurgitation.

During the examination, the patient expressed various aesthetic concerns and a desire to improve his facial appearance. Various prosthetic treatment modalities ranging from acrylic resin nasal prosthesis to implant retained silicone prosthesis were explained and discussed with the patient. Due to economic constraints, the patient chose a nasal prosthesis made of acrylic resin. The fabrication of a Polymethylmethacrylate (PMMA) resin nasal prosthesis was planned, and the outcome of this treatment was explained to the patient. It was decided to use a spectacle glass frame for retaining the prosthesis.

Patient was covered with drape and petroleum jelly was applied to the patient's eyebrows, eyelashes, and nasal defect site. The nasal defect was packed with moist gauze to prevent impression material entering into the undesired defect areas of the nasal cavity. (fig. 2) The patient was informed to breathe through his mouth. The impression of the nasal defect was made with irreversible hydrocolloid impression material. (fig. 3) The impression was poured into a die stone. (fig. 4).

The donor method was carried out in this patient for the fabrication of nasal prosthesis with the help of his son's nose to mimic the natural appearance of the face such that it improves self-esteem and quality of life. (fig. 5). Impression was made with Alginate from the patient's son nose (fig. 6) and impression was poured in die stone. (fig. 7) Wax pattern was fabricated and wax try-in was done in nasal defect site. (fig. 8).

The wax pattern was then tried on to the patient's face, it was checked especially in the border areas and the pattern was reviewed to assess the potential areas for prosthesis retention. (fig. 9). Tissue texture and relevant contours were evaluated on the face of the patient.

Eyeglasses are a good means of providing retention since they additionally serve to conceal the borders of the prosthesis and also improves the aesthetic appearance. (fig. 10).

The wax model was placed into a flask. (fig. 11) After dewaxing, the nasal prosthesis was processed using a clear PMMA resin material. Intrinsic colouring was done using an acrylic based paint to match the basic skin tones. The finished prosthesis was trimmed, and spectacles were used for additional retention and to mask the margins of the prosthesis. The prosthesis was delivered to the patient after demonstration of placement of the prosthesis. (fig. 12).

DISCUSSION - Plastic and reconstructive surgery is definitely a treatment of choice for patients with facial defects, but for larger defects with extensive anatomical loss, a more suitable alternative is prosthetic rehabilitation.

This article described the process for fabrication and construction of large nasal prosthesis, by the use of simple available materials. This was fabricated and delivered to the patients within a week to achieve the objectives outlined.

It has been reported previously that the nasal bones should be included in a surgical resection of the nose even when they are disease free, but in our case report, the nasal bones and the associated soft tissues were intentionally left intact. This was done to improve the support of the eyeglasses at the bridge of the nose and to increase skin surface contact to enhance adhesive retention of the prosthesis.

Patient education is perhaps, the first step in the rehabilitation. Prior to surgery, it is important to familiarize the patient with the functional and cosmetic expectations and limitations of the maxillofacial prosthesis.

Providing adequate retention and airway in nasal prostheses should be considered as it can improve the patients function and comfort. The prosthesis should be lightweight.

Defects resulting from diseases like squamous cell carcinoma can be rehabilitated using prosthetic rehabilitation so that the patient more comfortably and confidently resumes the regular daily activity. In developing countries like India, where cost of the treatment is still a primary concern for the patient, PMMA resin can be used as a material even for definitive prosthesis.

REFERENCES-

1. Jain, S., Maru, K., Shukla, J., Vyas, A., Pillai, R. and Jain, P., 2011. Nasal prosthesis rehabilitation: A case report. *The Journal of Indian Prosthodontic Society*, 11, pp.265-269.
2. Becker, C., Becker, A.M., Dahlem, K.K.K., Offergeld, C. and Pfeiffer, J., 2017. Aesthetic and functional outcomes in patients with a nasal prosthesis. *International Journal of Oral and Maxillofacial Surgery*, 46(11), pp.1446-1450.

3. Goiato, M.C., Mancuso, D.N., Zuccolotti, B.C.R., Murakawa, A.C., Lima, D.C.D., Santos, D.M.D. and Andreotti, A.M., 2012. Retention and processing methods of nasal prosthesis. *J Coll Physicians Surg Pak*, 22(11), pp.716-719.
4. Gurbuz, A., Kalkan, M., Ozturk, A.N. and Eskitascioglu, G., 2004. Nasal prosthesis rehabilitation: a case report. *Quintessence international*, 35(8).
5. Seçilmiş, A. and Öztürk, A.N., 2007. Nasal prosthesis rehabilitation after partial rhinectomy: a clinical report. *European Journal of Dentistry*, 1(02), pp.115-118.
6. Hutcheson, P.E. and Udagama, A., 1980. Surgical nasal prosthesis. *The Journal of Prosthetic Dentistry*, 43(1), pp.78-81.
7. Malard, O., Lanhouet, J., Michel, G., Dreno, B., Espitalier, F. and Rio, E., 2015. Full-thickness nasal defect: Place of prosthetic reconstruction. *European Annals of Otorhinolaryngology, Head and Neck Diseases*, 132(2), pp.85-89.
8. Rosen, E.B., Golden, M. and Huryn, J.M., 2014. Fabrication of a provisional nasal prosthesis. *The Journal of Prosthetic Dentistry*, 112(5), pp.1308-1310.
9. Blind, A., Hulterström, A. and Berggren, D., 2009. Treatment of nasal septal perforations with a custom-made prosthesis. *European Archives of Oto-Rhino-Laryngology*, 266, pp.65-69.
10. Gupta, S., Gupta, B. and Motwani, B.K., 2020. Nasal prosthesis after partial rhinectomy. A case report. *Clinics and Practice*, 10(1), p.1200.



FIGURE. 1



FIGURE. 2



FIGURE. 3



FIGURE. 4



FIGURE. 5



FIGURE. 6



FIGURE. 7



FIGURE. 8



FIGURE. 9



FIGURE 10



FIGURE 11



FIGURE 12