

Rehabilitation of a Patient with the Nasal Defect - A Case Report

Kuntal Shivajirao Kadam^{1*}, Mehboob Raza Khan² and Sagar Chaudhari³

¹Assistant Professor, Department of Prosthodontics, Government Dental College, Mumbai, Maharashtra, India

²Senior Resident, Department of Prosthodontics, Maulana Azad Institute of Dental Sciences, New Delhi, India

³Private Practitioner, Jalgaon, Maharashtra, India

***Corresponding Author:** Kuntal Shivajirao Kadam, Assistant Professor; Department of Prosthodontics, Government Dental College, Mumbai, Maharashtra, India.

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Abstract

Patient: A 46 years old female reported to department of prosthodontics, Government dental college and hospital, Aurangabad with the chief complaint of repeatedly fracturing and unesthetic acrylic nasal prosthesis.

Discussion: Nasal defects occur usually secondary to treatment of neoplasm and defects due to trauma. Correction and rehabilitation of such defects are always challenging. This case report describes rehabilitation of a patient with missing cartilaginous part and overlying soft tissue of the nose with a RTV silicone nasal prosthesis retained with the spectacles.

Conclusion: This clinical report describes a simple, effective method for prosthetic rehabilitation of a mid-facial region defect with a mechanical retention design using an eyeglass frame.

Keywords: Maxillofacial Defect; Nasal Prosthesis; Silicone Prosthesis

Introduction

Nose is the most important and beautiful feature of the face [1]. It is the God given right of every human being to appear human. Nasal defects occur usually secondary to treatment of neoplasm or due to trauma [2,3]. Correction and rehabilitation of such defects is always challenging.

These can be treated either by surgical reconstruction or Prosthetic rehabilitation or using both these modalities [4]. Sometimes patient's condition does not allow plastic surgery rehabilitation [5]. In these cases prosthetic rehabilitation offers good aesthetics, facilitates respiratory function and helps patient to resume normal social life [3]. This clinical report describes a rehabilitation of patient with the nasal defect using silicone prosthesis.

Case Report

A 46 years old female reported to department of prosthodontics, Government dental college and hospital, Aurangabad with the chief complaint of repeatedly fracturing and unesthetic acrylic nasal prosthesis. She gave a history of an accident 15 years ago. She had been using an acrylic nasal prosthesis. Clinical examination revealed that it was a midline midfacial defect [6]. Cartilaginous part of the nose was missing. External nares were present along with

adjacent scarred tissue. The columella was pulled upwards due to wound retraction (Figure 1).



Figure 1: Pre-treatment Frontal View.

As patient was not satisfied with the acrylic facial prosthesis, it was decided to rehabilitate the patient by facial prosthesis fabricated using maxillofacial silicone material. Silicones have many advantages over acrylic like, offering optimal aesthetics, being light in

weight, and the ability to use soft flexible projections that can gently engage minor tissue undercuts to enhance retention and stability [7-9]. It was decided to achieve a retention using spectacles which were attached to the prosthesis by means of a spectacle bridge.

Clinical procedure

Moulage impression was made using irreversible hydrocolloid impression material (Tropicalgin, Zhermack). This was reinforced with dental plaster (Kaldent, Kalbhai Karlson Pvt. Ltd., Mumbai) and medical gauze pieces (Figure 2). Using this impression working cast was fabricated by type IV dental stone (Kalrock, Kalbhai Karlson Pvt. Ltd., Mumbai). Anatomical landmarks, facial midline were transferred over the working cast. Prosthesis Pattern was sculptured and fabricated using modelling wax taking into consideration anatomical and aesthetic features of the patients face. Trial of the Prosthesis pattern was done over patient's face. Spectacle Bridge was adapted to the prosthesis pattern after determining its position (Figure 3 and 4).

Working cast was trimmed to fit in the flask. This was done to facilitate optimum adaptation of the prosthesis. Pattern was sealed to the cast. Base flasking was done using dental stone (Labstone, Kalbhai Karlson Pvt. Ltd., Mumbai). Sectional counter flasking of the pattern was carried out for ease of retrieval of prosthesis. For this, dental stone was flowed in the external nares area of the pattern and counter flasking of base of the pattern was done (Figure 5). This was followed by complete counter flasking. After complete setting of the dental stone, the flasks were opened and wax was removed (Figure 6). Two pieces of twisted orthodontic wire were incorporated between two arms of the spectacle bridge. Identification and mixing of the base colour was done using conventional trial and error method. Medical Grade RTV silicone (P&O International Inc. New Delhi) was mixed according to manufacturer's instruction and bulk packing was done.



Figure 2: Maulage impression.



Figure 3: Wax pattern trial.



Figure 4: Angled view of prosthesis pattern.



Figure 5: Sectional counter-flasking of the pattern.



Figure 6: Mould obtained after de-waxing.

Prosthesis was retrieved after 24 hours (Figure 7) and final corrections were made. Finishing the prosthesis was done using silicone finishing kit (P&O International Inc. New Delhi) (Figure 8). Prosthesis was adapted to the defect area using spectacles and was delivered to the patient (Figure 9). She was instructed about the aftercare and recalled after 7 days and every 3 months thereafter.



Figure 7: Prosthesis after retrieval.



Figure 8: Angled view of the finished prosthesis.



Figure 9: Post-treatment view.

Discussion

The face is the most sensitive part of the body and patients suffering from Facial Tissue defects can have an impaired social life due to cosmetic and aesthetic Problems [10-13]. Rehabilitation can be accomplished either surgically or prosthetically.

The method of rehabilitation depends upon the site, size, etiology, severity, age, and the patient's wishes [3]. Sometimes the results of the plastic surgery are not sufficient to restore the entire volume of the nose [14,15]. In these patients, a facial prosthesis is aesthetic and provides the respiratory function as well [3]. A definitive nasal prosthesis can reestablish esthetic form and anatomic contours for this type of midfacial defect, often more effectively than by surgical reconstruction [17]. Considering that the acrylic resin has no flexibility, we gave preference to silicone together with the patient, as the material of choice. RTV silicone was preferred over HTV silicone being a readily available and easy to use material.

Surface details and characteristics can be modified using intrinsic and extrinsic coloration. Intrinsic coloration was preferred as it was permanent and aesthetically superior. Retention is one of the most important considerations in fabricating a successful facial prosthesis. Several methods are described in order to enhance the retention of facial prostheses, including mechanical retention, the chemical retention through the use of adhesives, and the physical retention by placing anatomical indents within the defect and the use of dental implants [4,18-20].

Although osseointegrated implant may provide the most reliable prosthesis retention, additional surgeries, expenses, inadequate bone, and prior radiation to the area may contraindicate this type of treatment [21,22]. In this case mechanical retention such as eye-glasses were used that aid in better retention of the prosthe-

sis. Spectacle bridge used for retention has advantages like being inexpensive, ease of placement, ease of replacement, ability to be placed within the prosthesis and providing adequate retention.

Laser scanning, CAD/CAM, and rapid prototyping technologies simplify such procedures because the entire process of maxillofacial prosthesis construction can be automated. The disadvantage with CAD-CAM system is that the operator should have good computational skills and the system is very expensive.

Summary

This clinical report describes a simple, effective method for prosthetic rehabilitation of a mid-facial region defect with a mechanical retention design using an eyeglass frame. The advantages of this prosthesis are that the technique is non-invasive, cost-effective, tissue tolerant, aesthetic to the patient, comfortable to use, and easy to fabricate and clean.

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