NASAL PROSTHESIS FOR A PATIENT WITH BASAL CELL CARCINOMA: A CASE REPORT

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Prosthetic rehabilitation of facial defects has always been a challenge for Maxillofacial Prosthodontists. These defects not only have functional and cosmetic problems but also have crippling effect on patient's psychology. An early rehabilitation is the key to successful alleviation of these debilitating effects. This case report presents the esthetic rehabilitation of a patient of partial rhinectomy with an acrylic nasal prosthesis tinted with a commercial facial make-up.

Keywords: Basal cell carcinoma, PMMA, Nasal prosthesis, Intrinsic coloring

Face is the index of human body and any deformity of its components significantly affects the patient's self esteem.[1] Being one of the most conspicuous parts of the human face,[2] the defects of the nose produce a severe esthetic impairment. Rehabilitation of such defect can be accomplished either surgically or prosthetically.[3-7] Though a surgical reconstruction is more likely to meet the requirements of absolute function, however age, medical condition of the patient, history of radiation, chances of recurrence, patient's refusal to undergo extensive surgical procedure and implant placement may preclude this alternative.[5,7] A well- retained, friendly-user removable maxillofacial prosthesis is the key to successful prosthetic rehabilitation in such cases. It offers unique advantages of being economical, relatively quick, reversible and early detection of recurrence of growth.

Despite a rapid evolution in the number of biomaterials used for the fabrication of nasal prosthesis, none of them have been found to be ideally resemble the human skin.[8,9] Silicone is



Fig. 1: Frontal view of the face following partial rhinectomy



Fig. 2: Right lateral view of face following partial rhinectomy

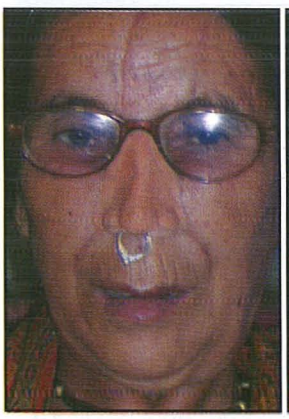


Figure 3: Fabricated prosthesis in situ (Frontal view)



Figure 4: Fabricated prosthesis in situ (Right lateral view)

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normally the material of choice because of light weight and life-like appearance,[10] but it has a limited lifespan apart from being expensive. Further it is conducive to microbial growth in presence of normal nasal secretion, difficult to polish, has low tear resistance and is less retentive with conventional adhesive.[10,11] Another popular material in vogue is the polymethyl methacrylate resin (PMMA).[12] This has a long track record because of its ease of manipulation, superior hygiene, durability, color stability and simple color matching ability to mimic the facial skin tone. This report presents an economical and non-surgical method of prosthetic rehabilitation of a nasal defect following a surgical management of basal cell carcinoma.

CASE REPORT

A 59-year-old woman had reported to the Department of Prosthodontics at All India Institute of Medical Sciences (New Delhi, INDIA) with a moderate nasal defect. The chief complaint in her words ran thus- "I have stopped going outside after nose surgery due to facial disfigurement and have to always hide my face in saree (the traditional dress of Indian women)." Her medical history was reminiscent of basal cell carcinoma of right ala of nose, for which partial rhinectomy was performed, six months back. The extra oral examination revealed a triangular shaped nasal defect (6 x 4 cm) extending till right nasal bone. The right ala, nasal tip, nasal septum and a part of the left lateral wall of the nose had been resected while the bridge of nose was spared (Figs.1 and 2). As the healing was satisfactory, the case was deemed ideal for intermediate prosthetic treatment. After a detailed discussion, a heat-polymerizing acrylic resin nasal prosthesis was planned and explained to the patient.

PROSTHESIS FABRICATION

After outlining the boundary for the external nasal impression, a light petrolatum was applied on the eye brows and eye lashes. Soften modeling plastic impression compound (Y-Dent; MDM Corporation, Delhi, India) was then adopted on the outlined part. After the material was set, multiple holes were made in it using hot instrument to help in retaining the relined impression. A plastic tube was placed in the nostrils to allow the unhampered breathing and the defect was packed with moist gauge with utmost care to prevent any distortion of the nasal remnants. A facial moulage was made using an irreversible hydrocolloid (Zelgan2002; Dentsply India Pvt Ltd, Gurgaon, India) and the impression was then poured with Type III dental stone (Orthokal; Kala Bhai Pvt Ltd., Mumbai, India).

A model of the trial prosthesis with the esthetic contour was sculpted in wax (Modeling wax; Dental Products of India Ltd, Mumbai, India) on the master cast. Additional assistance was drawn from the pre-operative photographs supplied by the patient and a wax model of the nose of the patient's relative obtained from his facial impression. Prior to commencement of the carving, the margins of the intended prosthesis were identified by generating the orofacial functions like chewing, smile etc. The margins of the carving were finished in the nasofacial creases. Holes were made through the anterior nares to allow respiration through the nasal cavity.

Following this a spectacle frame that would further mask the margins of the prosthesis was carefully selected and was integrated to the model. On completion, the wax prosthesis along with the eye glass frame was verified with a clinical try-in. After consent of satisfaction from the patient, the molding procedures were initiated. Heat polymerizing clear acrylic resin (DPI-Heatcure; Dental Products of India Ltd, Mumbai, India) was packed and processed in a water bath at 74 °C for 8 hours.[13] Prior to this, intrinsic coloring was incorporated in the clear acrylic resin to match the basic skin color tone, using a commercial facial make-up (Lakme; Hindustan Lever Ltd, Mumbai, India), an acrylic-based paint (Fevicryl, Pidilite Industries Ltd, Mumbai, India) and small amount of veined pink acrylic. This coloring was done in a definite sequence in which Lakme foundation lotion (selected according to patient's facial skin color from varieties of shades) was added gradually to the clear PMMA polymer-monomer mixture initially, till the basic skin shade was obtained.

Subsequently other intrinsic color pigments were added to improve shade matching, well within the working time of PMMA resin mixture. After retrieval of polymerized prosthesis, its margins were finished with a carbide bur to conform to the contour of adjacent facial tissues.

The prosthesis was evaluated on the patient face along with the eye glass frame[14] which was subsequently attached to it using small size screws. Patient was greatly satisfied with the prosthesis as it almost resembled the color and texture of her skin. To break the monochromatic appearance and enhance the esthetic of the prosthesis, some extrinsic water resistant color was used. A thin layer of auto polymerizing acrylic resin (DPI-RR; Dental Products of India Ltd, Mumbai, India) was applied to create a matte finish of the surface and further simulation of the surface texture of skin was done by external characterization using a round bur. To simulate the natural pre-surgical appearance of the nose, a piece of jewelry (similar to one previously used by the patient) was attached to septum.

PROSTHESIS INSERTION AND FOLLOW-UP

The most gratifying moment was the insertion of prosthesis into the defect (Figures 3 and 4). The satisfaction in the patient's eyes justified the worth of these tedious and time-consuming procedures. The patient was adequately instructed about the use and maintenance of the prosthesis.[15] At the follow up appointments, the prosthesis appeared to be functioning satisfactorily.

DISCUSSION

Post surgical defect of the nose poses a significant challenge to rehabilitation as it generally remains unmasked by attire. A decision on the way to go - surgical or prosthetic rehabilitation depends on several factors.[16] Surgical reconstruction involve numerous procedures ranging from flap, cartilaginous graft to micro vascular surgery that may span several appointments.[17-19] The complex anatomical configuration may also cause difficulty in surgical rehabilitation.[20] On the contrary, prosthetic rehabilitation of nasal defect is more viable particularly when the defect is moderate to large in size.[21]

Advancements in dental technology, have made definitive prosthesis retained by osseointegrated implants more popular.[22] Even though these are very convenient, patients do not always have the liberty to opt for these owing to the financial constraints. Certain important clinical situations including history of radiation therapy, chances of recurrence of the disease, the time elapsed since surgical resection etc limits their use. The literature suggests that a period of 3 to 5 months is crucial for the contraction and organization of tissue bed in order to create an acceptable long-term fit of prosthesis.[12,23]

In this report, the patient opted for a feasible low cost solution without any additional surgical burden and expressed deep concern regarding her appearance. Hence, she was given a custom-sculpted acrylic facial prosthesis which was well retained in place by the spectacle frame and the later derived necessary support from intact bridge of the nose.

Shade matching of clear PMMA resin to patient's basic skin tone was achieved by mixing oil based paints and intrinsic stains. In this case the basic skin color tone was easily achieved by mixing the clear acrylic resin with a commercial facial make-up lotion (Lakme; Hindustan Lever Ltd, Mumbai, India). This was later modified by adding yellow, black, brick-red color pigments and veined acrylic resin to give a more natural appearance. Interestingly it was observed that the post-polymerized shade was not significantly different from earlier one. In this manner, effectively early rehabilitation could be achieved within a very short span of time and efficiently maintained with a high level of patient satisfaction.

SUMMARY

This clinical report describes a simple procedure of fabricating an eyeglass frame-retained acrylic nasal prosthesis. It is cost-effective, easy to fabricate, esthetic, comfortable to use and clean. On follow up visits, patient expressed her satisfaction and maintained normal social life.

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