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Case Report

Rehabilitation of a case of partial rhinectomy with silicone nasal prosthesis

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and post surgical deformity make them social outcasts and also there is a risk of frequent infections. Complications of surgical reconstruction of the nose include constriction of the tissues inward, contraction of the tissues upward and collapse of the tissues leading to an unfavourable aesthetic result. Moreover, the constriction and collapse of the involved tissues may lead to a loss of internal airway space, hindering respiratory function. Prosthetic rehabilitation of such cases with skin colored silicone prostheses is a most viable mode. This clinical report describes a simple and economical method for prosthetic rehabilitation of a case of partial rhinectomy with silicone nasal prosthesis.

Introduction

A considerable number of people each year acquire facial defects as a result of malignant disease, trauma and congenital deformity. Malignancies of the nasal vestibule are rare and account for only 9% of all cancers of the nasal cavity and among the malignancies, the most common is squamous cell carcinoma.^{1,2} These neoplasms are usually fatal and require an early intervention.

Management of malignant lesions often involves surgical excision to achieve healthy residual tissue. Tumours affecting the nose may necessitate a total or near-total rhinectomy, thereby creating a prominent midfacial defect. Surgical or prosthetic reconstruction is usually required. However, due to the prominent location and complexity of the anatomical configuration, surgery is not always feasible. This situation is further complicated by the esthetic and functional demands in this site. Psychological trauma due to their primary disease

Case report

A 68-year-old male was referred from Department of Onco-surgery, Command Hospital, Pune, to our department for prosthetic rehabilitation following partial rhinectomy of the right side of nose. The rhinectomy was done for the surgical management of squamous cell carcinoma. The examination revealed oval shaped facial defect with the superior margin 01 cm below the right medial canthus of eye and extending inferiorly corresponding to the lower margin of right ala of nose. Mediolaterally the defect encircled 4 cm lateral to medial septum of nose consistent with the above surgical history (Fig. 1). The bridge of the nose including the nasal bones, were not included in the resection. During the examination, it was revealed that the patient was concerned about his appearance and reported inhalation of dust particles through the open defect. A spectacle frame supported silicone

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Fig. 1 – Pre-operative view.

Fig. 3 – Wax pattern trial.

nasal prosthesis was fabricated after obtaining informed consent from the patient.

A mouldage of the face was made using an irreversible hydrocolloid impression material (Fig. 2) and the impression was poured with dental stone. After application of separating media (Silicone Spray; Dentsply Caulk, USA) to the cast, baseplate wax (DPI, India) was sculpted on the working cast. The pre-operative photograph was used as a guide for developing the contours. On completion of the waxing, trial of the wax pattern (Fig. 3) was carried out. After necessary modifications, laboratory procedures were carried out following manufacturer's recommendations. For flasking, conventional dental flask with clamp was used with three pour technique.

Fig. 2 – Impression making.

Fig. 4 – Post-operative.

After the dewaxing, Room Temperature Vulcanizing (RTV) silicone (Series M511, Cosmesil, UK) was catalyzed and painted into the mold, layer by layer, to create a multilayered intrinsically colored prosthesis. The mold was filled with the silicone, closed under pressure, and allowed to polymerize at 40 °C in a dry heat oven overnight. The prosthesis was recovered after polymerization and minimally trimmed. Limited flash was maintained around the periphery of the nasal prosthesis to help transition the borders to the surrounding tissue. Minimal modifications were made and finer adjustments of shade were carried out with the help of extrinsic colors. Spectacle frame was used to retain the prosthesis. Detailed instructions regarding care and use were provided to the patient after the insertion of prosthesis. At the follow-up appointment, the prosthesis appeared to fulfill the patient's aesthetic expectations and he was very comfortable (Fig. 4).

Discussion

Facial disfigurement may occur due to congenital or acquired causes. Treatment options for nasal vestibule carcinoma are surgery, radiation therapy, and chemotherapy. Rehabilitation can be accomplished either surgically or prosthetically.³ Even though surgery is considered as the prime modality of treatment, various factors may contraindicate surgical reconstruction such as advanced age, general medical condition of the patient, anatomic complexity and the patient's refusal to undergo further surgery.⁴

Rehabilitation by means of artificial prosthesis using synthetic materials is often a predictable, economical and aesthetic option in such cases. For several decades, a number of biomaterials such as Poly Vinyl Chloride (PVC), Latexes, Polyurethane, Poly methacrylate and Silicones have been used in the fabrication of nasal prostheses.⁵ Silicone was selected for this case considering advantages like simplified fabrication

process, optimal aesthetics and light weight.⁶ Mechanical retention alone would not be sufficient to retain the prosthesis and hence silicone adhesives were also used. Various authors suggested different mechanisms to ensure support of the nasal prosthesis such as adhesives, implants, magnets and spectacle frames.⁷ Considering the recent history of surgical procedures and advanced age, implants were ruled out and retention using spectacle frame support was preferred. In this case a custom sculpted nasal prosthesis using silicone combined with spectacle produced excellent aesthetic results.

Conflicts of interest

All authors have none to declare.

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