

# SILICONE NOSE PROSTHESIS – A CASE REPORT

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## Abstract:

*The quality of life after rhinectomy is severely compromised if an efficient surgical reconstruction or a prosthetic device is not provided. Sometimes the results of the plastic surgery are not sufficient to restore the entire volume of the nose. In these patients, a facial prosthesis is aesthetic and provides the respiratory function. Introduction of new material which gives life-like appearance to such prosthetic restorations e.g. silicone and poly ether rubbers have given a new dimension to rehabilitation of such patients. This report presents a case of prosthetic rehabilitation of the nasal component of the face secondary to partial rhinectomy for squamous cell carcinoma. Rehabilitation of patient was done by mechanically supported prosthesis using spectacles. Patient's aesthetics and respiratory function has been significantly improved following prosthetic rehabilitation.*

**Key words:** nasal prosthesis, silicone, spectacles.

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## Introduction

Facial defects resulting from neoplasm, congenital malformation or trauma can be restored with facial prosthesis to achieve life-like appearance and function. Facial prosthesis demands a seamless harmony of art and science for accomplishing perfection. The texture, form and color of the prosthesis should closely resemble the patients missing facial structure so as to make it extremely difficult for a spectator to discriminate between the two. The quest for identifying the best means to achieve such resemblance has made maxillofacial prosthetists to try a vast array of materials and techniques for the fabrication of facial prosthesis.

Facial defects secondary to treatment of neoplasms result in multiple functional and psychosocial difficulties requiring surgical reconstruction techniques, prosthetic rehabilitation or a combination of both these methods to restore the associated facial disfigurements. This helps to improve the level of function and self-confidence of patients.<sup>1</sup>

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A nasal prosthesis can bring back esthetic form and anatomic contour for mid-facial defects, often more efficiently than surgical reconstruction since the nose is a relatively immobile structure. For successful camouflage of the defect, lot of factors such as harmony, texture, color matching and merging of the prosthesis with tissue interface are important. The aim of the presented case report is to describe the non-surgical rehabilitation, with silicone nasal prosthesis for a patient who had undergone partial rhinectomy as part of the treatment for squamous cell carcinoma of nose.

## Case Report

A 77 year old male reported to the Department of Prosthodontics, GDC, Kottayam for replacement of

nose which was surgically excised for treatment of squamous cell carcinoma. He had undergone partial rhinectomy and radiotherapy as part of the treatment regime and a post radiation vitiligo had developed around the nose. The defect was found to involve the entire right side of the dorsum of nose extending from lower one third of nasal bone including lateral nasal cartilage and alar cartilage and extending up to anterior nasal spine of maxilla. Left half of the nose was also deformed. (fig 1) On examination, the patient expressed dissatisfaction with his appearance and was especially concerned about the facial disfigurement. Various prosthetic treatment modalities ranging from acrylic resin nasal prosthesis to implant retained silicone prosthesis were explained and discussed with the patient.



Fig: 1 ;Pre treatment view



Fig:2 ; Patient preparation for impression making



Fig: 3 ; Impression of the defect



Fig: 4 Working Cast



Fig: 5 Wax pattern try in



Fig: 6 a ; Three piece mould assembly

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Considering all the factors, fabrication of silicone nasal prosthesis was planned, and the outcome of this treatment was explained to the patient. It was decided to utilize anatomic undercuts and a spectacle glass frame for retaining the prosthesis.

1. Patient was draped and petroleum jelly was applied to face including eyebrows and eyelashes. A wax frame was fabricated to limit the flow of the impression material and a wide bore syringe is placed in the patients mouth to facilitate breathing during impression procedure. Moist gauze was packed to prevent the flow of material into the undesired areas of the defect, an impression was made of the defect along with the adjacent tissues using an irreversible hydrocolloid impression

material in a semi-upright position in order to minimize tissue bed distortion (fig 2 & 3).

2. Irreversible hydrocolloid Impression of the patients son's nose was also made and utilized as a guide for preparation of the wax model.

3. The impressions were then poured with type III dental stone (Kala Stone; Kala Bhai Pvt Ltd., Mumbai, India) to obtain a cast. (fig 4) A model of prosthesis was sculpted on the facial cast with No. 2 dental modelling wax (MDM Corporation; Delhi, India). Taking into account the patient's general appearance and previous photographs, the esthetic contours were developed. In order to obtain replicas of the undercut areas, they were filled with wax and undesirable undercuts were



Fig: 6 b ; Three piece mould



Fig :7 Prosthesis try in



Fig : 8 a ; Post treatment view



Fig :8 b Post treatment view

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filled with plaster of paris

4. The adaptation of wax pattern on the patient's face was checked with special care to the border areas. Tissue texture and relevant contours were also evaluated utilizing the remaining anatomic landmarks as a reference. (fig 5)

5. A three piece mould was prepared in order to ensure easy dewaxing and deflasking procedures. (fig 6)

6. After the complete elimination of wax, the intrinsically colour matched silicone material was then bulkfilled. The material was processed according to manufacturer's directions.

7. After processing, prosthesis was removed from the mold and the final corrections were made. The silicon prosthesis was then adapted to the defect area using spectacles.

8. Prosthesis was evaluated for adaptation, color and texture on the patient face.(fig 7 ) Extrinsic coloration was done to precisely match the prosthesis with the skin tone of the patient.

9. After the final contouring and matching, the superior margin at the bridge of the nose was adapted as closely as possible to the point of contact with spectacles. This helped to maximize retention and to mask the margins of the prosthesis. Glassframe was modified in the bridge area for adhesion to the prosthesis using cyanoacrylate. The use of spectacles enhanced both retention and appearance.

10. Placement of the prosthesis was demonstrated to patient, and was delivered. (fig 8) Detailed instructions regarding care and use were provided to the patient. The patient indicated that he was satisfied with the results of treatment and felt comfortable attending a social event while wearing the prosthesis.

11. Patient was then asked to come for recall visit once in every 3 months for evaluation of prosthesis

and observation of any recurrence.

## DISCUSSION

Squamous cell carcinoma is an aggressive malignant neoplasm. The quality of life after rhinectomy is severely compromised if an efficient surgical reconstruction or a prosthesis is not provided.<sup>2</sup> Prosthetic management of nasal defects that result from trauma or surgery has been well-documented. The literature indicates that 3 to 5 months of post operative healing may be required to allow for contraction and organization of the tissue bed before commencing fabrication of a definitive nasal prosthesis.<sup>3</sup> The advantages of nasal prosthesis are that it is inexpensive, easy to fabricate, esthetically good, can be given in healing phase and most importantly recurrence can be observed easily after the malignant tumor resections.<sup>4</sup> Anatomic undercuts, secondary mechanical factors, skin adhesives, and implants (Magnets or Osteointegrated implant retained titanium screws) are reported to provide sufficient retention.<sup>5,6</sup>

The current prosthesis was made to restore the esthetic appearance of the patient which utilized anatomic undercuts for retention with an additional mechanical retention utilizing a spectacle glass frame without inserting craniofacial implants.

## Conclusion

In this case report, anatomic undercuts and spectacles were used for retention and silicon material was used for the fabrication of nose prosthesis as it seemed to be adequate to maintain both the texture and the appearance of natural tissues.<sup>7,8</sup> Surface details and characteristics can be modified using intrinsic and extrinsic coloration. In this case, both intrinsic and extrinsic coloration was preferred as it was permanent and esthetically superior. The patient's esthetics, confidence and satisfaction were tremendously improved by such nasal prosthesis.



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