

# Nasal Prosthesis Rehabilitation after Partial Rhinectomy: A Clinical Report

Aslı Seçilmiş<sup>a</sup>, DDS, PhD  
A. Nilgün Öztürk<sup>b</sup>, DDS, PhD

## ABSTRACT

Facial defects resulting from neoplasms, congenital malformations, or trauma can be restored with facial prostheses using different materials and retention methods to achieve a lifelike look and function. For the successful result, a lot of factors as harmony, texture, color matching, and blending of tissue interface of prosthesis is important. This clinical report describes treatment using a silicone prosthesis with a mechanical - retentive design for a patient who received a partial rhinectomy. Defects resulting from diseases as squamous cell carcinoma can be managed with the prosthetic rehabilitation so that the patient more comfortably and confidently resumed regular daily activity. Mechanical retention alone was sufficient to retain the prosthesis; thus, prosthetic adhesives were not necessary. (Eur J Dent 2007;2:115-118)

Key Words: Nasal prosthesis; Mechanical retention; Partial rhinectomy.

## INTRODUCTION

Squamous cell carcinoma (SCC) is an aggressive malignant neoplasm.<sup>1</sup> Malignancies of the nasal septum are considered rare, and squamous cell carcinoma (SCC) comprises about 66% of such lesions.<sup>2</sup>

The treatment of choice for SCC depends on the location, size, and depth of penetration of the tumor. Curettage and electrodesiccation are effective for small lesions that are not deeply invasive. For large neoplasms, the most commonly

used treatment modalities are primary resection, radiation therapy, and Mohs' micrographic surgery.<sup>3</sup> The prognosis for patients with this pathology depends on the size, infiltration and location of the lesion, presence or absence of metastatic spread, perineural invasion, rapid growth, history of previous treatment, to a certain degree the differentiation of the tumor, and etiologic factors such as burn scars, radiation, and chronic ulceration.<sup>2,4,5</sup>

Facial defects secondary to the treatment of neoplasms, congenital malformations, and trauma result in multiple functional and psychosocial difficulties.<sup>6</sup> Surgical reconstruction techniques, prosthetic rehabilitation or a combination of both the methods to restore these facial disfigurements may improve the level of function and self-confidence for patients.<sup>6,7</sup> The site, size, and etiology of the defect, patient's age, general medical condition and desire are used to determine the methods of reconstruction. Prosthetic rehabilitation can be

<sup>a</sup> Research Assistant, University of Selçuk, Faculty of Dentistry, Department of Prosthodontics, Konya, Türkiye.

<sup>b</sup> Associate Professor, University of Selçuk, Faculty of Dentistry, Department of Prosthodontics, Konya, Türkiye.

Corresponding Author: Dr. Aslı Seçilmiş  
Selçuk Üniversitesi, Dişhekimliği Fakültesi  
Protetik Diş Tedavisi A.D. 42075 Konya/Türkiye  
Phone: +90 332 223 11 86 Fax: +90 332 241 00 62  
E-mail: secilmisasli@hotmail.com  
acarasli@hotmail.com

preferred due to probability of recurrence, complexity of the surgical reconstruction procedure, radiation therapy, and esthetic importance.<sup>8,9</sup>

Biomaterials such as polymethyl methacrylate and silicone have been used for prosthetic rehabilitation for facial defects. Silicone materials are the most widely used for facial prostheses. Important factors to consider when choosing silicone are biocompatibility, flexibility, translucency, color stability, and durability.<sup>10</sup> Advantages of silicones include a simplified fabrication process, optimal esthetics, light weight, and the ability to use soft flexible projections that can gently engage minor tissue undercuts to enhance retention and stability.<sup>11</sup>

Retention of prosthesis in the midface region has been accomplished with anatomic undercuts, adhesives, eyeglasses and attachment to maxillary obturators,<sup>7</sup> prosthetic connections to endosseous implants.<sup>10</sup> When suitable conditions are provided, mechanical retention obtained by anatomic undercuts is the most advantageous. The advantages of this prosthesis are that the techniques is noninvasive, tissue tolerant, aesthetic, comfortable to use, and easy to fabricate and clean. Additionally, these prosthesis are often preferred by the patients because the weight and the cost of such a prosthesis are low. The presence of moisture, mobile soft tissues, or lack of stable tissue support are affect the retention, these are disadvantages of anatomic retention.<sup>10,12</sup>

This clinical report describes the prosthetic rehabilitation of a patient with SCC after a partial rhinectomy.

### CLINICAL REPORT

A 77-year-old woman with a partial rhinectomy (Figure 1) had diagnosed with SCC and undergone surgery due to the disease recurred two times. Surgical reconstruction had not recommended at the time due to the need for continued observation and patient had not worn any prosthesis after the previous surgical resections.

The defect was evaluated to identify possible restorative limitations regarding retention and esthetics. It was noted that the right and left side of the nose and part of the nasal septum were removed. Areas of limited intranasal mechanical retention were present. Varied alternatives of prosthetic rehabilitation were discussed with the



Figure 1. Patient's frontal view after a partial rhinectomy.

patient. The fabrication of a silicone nasal prosthesis was planned, and the expectation of this treatment was explained to the patient.

A cardboard matrix fitting patient's face was prepared to support the impression material. The patient was draped in the usual manner and petrolatum jelly was applied to the patient's eyebrows and eyelashes. After moist gauze was packed to prevent the flow of material into the undesired areas of the defect, an impression was taken from the defect together with the adjacent tissue, using an irreversible hydrocolloid impression material (Kromopan, Lascod SpA, Firenze, Italy). The impression was removed and poured in Type III dental stone (Giladur, BK Giulini GmbH, Ludwigshafen, Rh.). The prosthesis was sculpted with Type I plate wax over the model, taking into account the patient's general appearance and previous photographs (Figure 2). Oriented wax trial prosthesis is reviewed to assess potential areas for prosthesis retention. Tissue texture and relevant contours was evaluated on the face of the patient. This wax model was placed into a flask. The flask was kept in boiling water for 5 minutes so that the wax was eliminated. Prior to the patient's dismissal, the intrinsic coloration technique, which produces the most lifelike appearance of the prosthesis, was used to apply the various colors (I-1998 Extrinsic

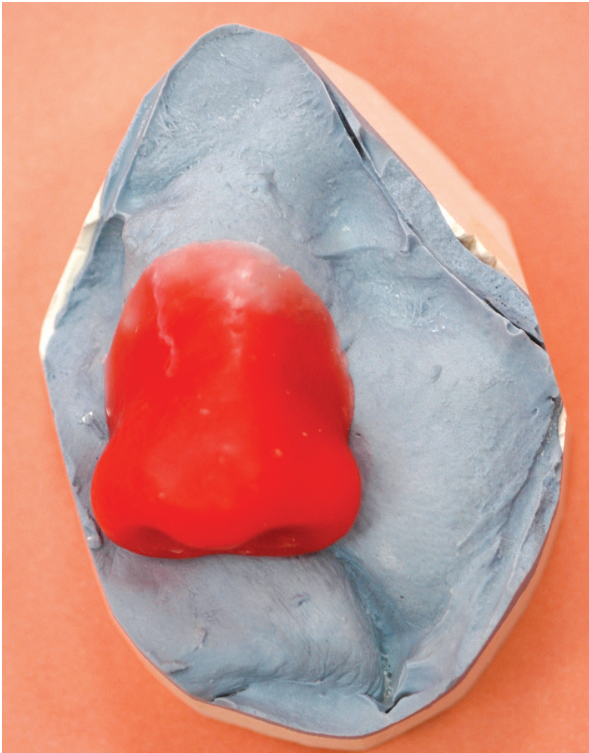


Figure 2. Wax pattern.



Figure 3. The intaglio surface view of the nasal prosthesis.



Figure 4. Finished nasal prosthesis.

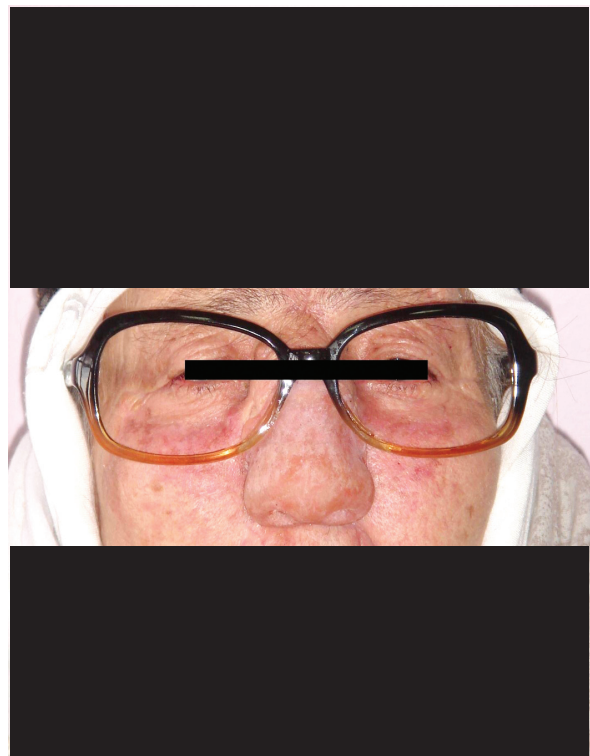


Figure 5. Nasal prosthesis with eyeglasses.

Coloring Kit, Factor II, Inc., Lakeside, AZ, USA) in multiple layers onto the textured surface of the mold.<sup>13</sup> The platinum silicone elastomer (A-RTV-30 V50011 A&B KIT, Factor II, Inc.) mixed with intrinsic colors (Intrinsic II, Factor II Inc.) on a ceramic

slab compared to the patient's skin color tone. The mold was packed with the prepared material and processed according to manufacturer instructions. The prosthesis was removed from the mold and rinsed with water to eliminate the residues

(Figure 3). Finally, the prosthesis was evaluated on the patient and some extrinsic water-resistant coloration was applied (KT-199 - Extrinsic Coloration System, Factor II, Inc.) (Figure 4).

Nasal prosthesis must gain adhesive retention from a wide extension of the prosthesis beyond the defect, which may negatively influence the cosmetic result. Mechanical retention by extension into the defect or through contact with eyeglass may augment adhesive retention.<sup>14</sup> In this case, the retention was highest without eyeglass, but the esthetic appearance of the prosthesis was enhanced by using an eyeglass, the skin adhesive was not used (Figure 5).

The placement of the prosthesis was demonstrated to patient. The patient was scheduled for the first post-insertion adjustment one day after the insertion to ensure health of the tissues, to relieve the prosthesis for pressure areas on the tissues. Follow-up evaluation was carried out once in 3 months recall for evaluation and observation of any recurrence.

## ACKNOWLEDGMENTS

The authors thank Dr. Aslihan Usumez for her valuable contributions.

## REFERENCES

1. Abou-Elhamd KE, Habib TN. The flow cytometric analysis of premalignant and malignant lesions in head and neck squamous cell carcinoma. *Oral Oncology* 2006 Aug 21. [Epub ahead of print].
2. DiLeo MD, Miller RH, Rice JC, Butcher RB. Nasal septal squamous cell carcinoma: a chart review and meta-analysis. *Laryngoscope* 1996;106:1218-1222.
3. Fleming ID, Amonette R, Monaghan T, Fleming MD. Principles of management of basal and squamous cell carcinoma of the skin. *Cancer* 1995;75(2 Suppl):699-704.
4. Atkin NB, Kay R. Prognostic significance of modal DNA value and other factors in malignant tumors based on 1465 cases. *Br J Cancer* 1979;40:210-221.
5. Rowe DE, Carroll RJ, Day CL Jr. Prognostic factors for local recurrence, metastasis, and survival rates in squamous cell carcinoma of the skin, ear, and lip. Implications for treatment modality selection. *J Am Acad Dermatol* 1992;26:976-990.
6. Roumanas ED, Freymiller EG, Chang TL, Aghaloo T, Beumer J 3rd. Implant-retained prostheses for facial defects: an up to 14-year follow-up report on the survival rates of implants at UCLA. *Int J Prosthodont* 2002;15:325-332.
7. Guttal SS, Patil NP, Shetye AD. Prosthetic rehabilitation of a midfacial defect resulting from lethal midline granuloma - a clinical report. *J Oral Rehabil* 2006;33:863-867.
8. Thawley SE, Batsakis JG, Lindberg RD, Panje WR, Donley S. Comprehensive management of head and neck tumors. St. Louis:Elsevier, 1998:526-527.
9. Harrison DF. Total rhinectomy-a worthwhile operation? *J Laryngol Otol* 1982;96:1113-1123.
10. Brånemark PI, Tolman DE. Osseointegration in craniofacial reconstruction. Carol Stream, Illinois: Quintessence Publishing Co, Inc., 1998;93:208.
11. Zemnick C, Asher ES, Wood N, Piro JD. Immediate nasal prosthetic rehabilitation following cytomegalovirus erosion: A clinical report. *J Prosthet Dent* 2006;95:349-353.
12. Gurbuz A, Kalkan M, Ozturk AN, Eskitascioglu G. Nasal prosthesis rehabilitation: a case report. *Quintessence Int* 2004;35:655-656.
13. McKinstry RE. Fundamentals of facial prosthetics. Arlington, Virginia: ABI Professional Publications, 1995:161.
14. Parel SM. Diminishing dependence on adhesives for retention on facial prostheses. *J Prosthet Dent* 1980;43:552.