

Temporary nasal prosthesis rehabilitation: A clinical report

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Prosthetic management of nasal defects that result from trauma or surgery has been well-documented. A definitive nasal prosthesis can reestablish esthetic form and anatomic contours for this type of midfacial defect, often more effectively than by surgical reconstruction. However, a significant period needs to elapse after surgery or traumatic injury before beginning definitive prosthetic treatment to permit adequate soft tissue healing. To provide early rehabilitation, a temporary nasal prosthesis may be considered for these patients. Such a prosthesis can be delivered as soon as 3 to 4 weeks after surgery providing the patient with an improved appearance. This can enable the patient to resume social interactions while permitting easy access to observe tissue bed changes during healing.

The purpose of this article is to present a clinical report that describes the use of a temporary nasal prosthesis and to compare the results obtained to similar reports in the literature.

CLINICAL REPORT

A 68-year-old white woman was evaluated for prosthetic evaluation at The University of Chicago, Zoller Dental Clinics after oncologic therapy. Her history was significant for a basal cell carcinoma of the nose treated through a partial rhinectomy, followed by postoperative radiotherapy (Fig. 1). The examination revealed a facial defect consistent with the above surgical history. The bridge of the nose, including the nasal bones, were not included in the resection (Fig. 2). Healing was noted to be progressing within normal limits though mild swelling and tenderness persisted preventing commencement of definitive prosthetic treatment at this time.

During the examination, the patient related dissatisfaction with her appearance. She indicated that she was especially concerned about attending an upcoming social event because of her facial disfigurement. The fabrication of a temporary nasal prosthesis for use during the remaining posttreatment healing phase was discussed with the patient in detail. The patient opted to proceed with this treatment.

A moulage of the face was made using an irreversible hydrocolloid impression material. The impression was



Fig. 1. Preprosthetic treatment of patient.

then poured with a dental stone. A model of the prosthesis was sculpted in wax on the resultant cast with the esthetic contours developed. The remaining anatomic landmarks were used as a reference augmented by a preoperative photograph supplied by the patient. The superior margin at the bridge of the nose was adapted as closely as possible to the point of contact with the eyeglass frames currently worn by the patient. It was anticipated that the eyeglasses would be used to maximize retention and to mask this margin of the prosthesis.

The temporary nasal prosthesis was processed using a medical grade silicone material (Factor II Inc, Lakeside, Ariz.) with intrinsic coloring incorporated to match the base skin tones. No extrinsic coloring or highlights were added. White surgical tape was applied to the margins to accommodate anticipated changes in adaptation during healing. Additional tape was placed to create the illusion of the patient having undergone a less invasive surgical procedure (Fig. 3). Medical grade adhesive was used for prosthesis retention, augmented

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J Prosthet Dent 1999;82:384-6.

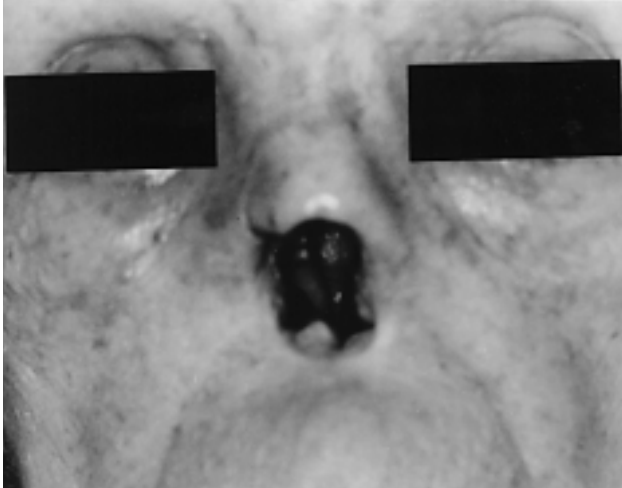


Fig. 2. Midfacial defect secondary to partial rhinectomy with retention of tissues of bridge of nose.



Fig. 3. Adaptation of white surgical tape to prosthesis to assist in masking margins and create illusion of less invasive surgical treatment result.

by the fit of the eyeglass frames to the prosthesis margin at the bridge of the nose. The prosthesis was then delivered, at which time detailed instructions regarding care and use were provided to the patient (Fig. 4). The patient returned 4 weeks later for a follow-up evaluation.

At the follow-up appointment, the prosthesis appeared to be functioning within normal limits. The patient indicated that she was satisfied with the results of treatment and felt comfortable in attending the social event while wearing the prosthesis. The patient currently remains under follow-up supervision while awaiting fabrication of the definitive nasal prosthesis.



Fig. 4. Temporary nasal prosthesis in place adapted to eyeglass frames.

DISCUSSION

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.^{1,2} This delay in rehabilitation can be a hardship for the patient and result in adverse psychologic consequences. Early rehabilitation through the use of a temporary nasal prosthesis offers a means of overcoming these difficulties. In this clinical report, a custom sculpted prosthesis combined with masking agents such as eyeglasses and surgical tape created an illusion of a much less severe defect. This was cosmetically more acceptable, and it permitted the patient to comfortably interact with others in social situations.

It has been reported previously that the nasal bones should be included in a surgical resection of the nose even when they are disease-free.¹ In our clinical report, the nasal bones and associated soft tissues were intentionally left intact. This was done to improve the support of the eyeglasses at the bridge of the nose and to increase skin surface contact to enhance adhesive retention for the prosthesis. During the try-on phase of nasal prosthesis fabrication, the marginal thickness at the bridge of the nose was closely adapted to contact the eyeglass frames. Good esthetics was established at this

margin without compromise, resulting from the presence of the nasal bones.

PMMA resin has been recommended as one possible material for use in fabricating a temporary nasal prosthesis.¹ It has been suggested that the ease of marginal readaptation using chairside denture liner makes this a useful material during the period of posthealing scar contracture and wound organization. However, PMMA resin results in a prosthesis that feels much less life-like. In the clinical report, the temporary nasal prosthesis was fabricated using a medical grade silicone material. Marginal deficiencies were managed through the use of white surgical tape attached to the prosthesis using medical grade adhesives. Anticipated postsurgical soft tissue changes could then be managed by the application of new tape to the margins as needed, eliminating the need for relining the prosthesis. In this manner, effective early rehabilitation could be achieved and effi-

ciently maintained throughout the healing period, resulting in a high level of patient satisfaction.

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0022-3913/99/\$8.00 + 0. 10/1/101566

Noteworthy Abstracts of the Current Literature

Bone classification: Clinical—histomorphometric comparison

Trisi P, Rao W. *Clin Oral Implants Res* 1999;10:1-7.

Purpose. Studies have related endosseous implant success rates to the density of the bone into which the implant is placed. Objective methods for determination of bone density have been proposed but have not been validated. One subjective method of bone density analysis is the use of tactile perception at the time of implant placement. This study compared the tactile assessment of bone density to histomorphometric appearance of bone harvested from osteotomy sites.

Material and methods. Bone biopsies were harvested from 56 patients during implant placement surgery. These bone specimens were subjected to histomorphometric analysis. Surgeons scored the bone density at time of implant site preparation (levels D1-4) on the basis of tactile perception of drilling resistance. Standardized drilling speed and new drills were used for each patient.

Results. Histomorphometric analysis represented the percentage of bone trabeculae over a total biopsy area. Correlation with tactile bone density measurements showed that sites scored as D1 had $76.54\% \pm 16.19\%$, D2 had $66.78\% \pm 15.82\%$, D3 had $59.61\% \pm 19.55\%$ and D4 had $28.28\% \pm 12.02\%$ trabeculae as a percentage of total area. Interclass correlation analysis revealed significant differences between subjective classifications D1 and D4. No significant differences were seen among the bone trabeculae percentages as a portion of the total field for any of the other subjective classifications.

Conclusion. This study demonstrated that tactile classification of types D1 and D4 bone were correlated with histologically confirmed differences in bone density but that intermediate subjective differences were not histologically different. 23 References. —SE Eckert