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The combined use of the nasal prosthesis with nasal stents

Case Report

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Abstract: Severe and composite defects of the nose due to trauma or excision of neoplasms can cause significant functional and aesthetic problems. It has been known that nasal stents have been used to maintain the nasal patency and nostril shape for a long time. Recently, nasal prosthesis was introduced as a method to solve aesthetic problems of the patients who had an amputated nose. In the present study, nasal prosthesis combined with nazal stents was used to camouflage the nasal disfigurement and to maintain the nasal patency in two adult female patients. Functional and aesthetic results was accepted as satisfactory by both the patients and the physicians.

Keywords: *Nasal prosthesis • Nasal defects • Nasal stents*

1. Introduction

The nasal pyramid plays noticeable roles in providing the balance and the harmony of the face as well as airway patency. Therefore, the composite nasal defect results in severe facial disfigurement and functional disabilities. The goal of nasal reconstruction is to create an aesthetically inconspicuous nose while preserving its functional aspect [1,2].

Reconstruction of nose defects can be accomplished either by surgery or the prosthesis. The small and medium defects are usually repaired with local and regional flaps and satisfactory results have been achieved. However, the nasal prosthesis acts as a significant alternative for the reconstruction of the wide nose defects [3].

The maintenance of the nasal airway patency and retention are main problems of nasal prosthesis [4,5]. In the present study, custom-made nasal prosthesis integrated to a nasal stent in two cases to overcome the difficulties of nasal stent usage and to improve the nasal appearance.

2. Case Reports

2.1. Case 1

A 60 year old female patient was admitted to government hospital because of a traffic accident. Physical examination revealed that 2/3 of her dorsum except the nasal bone was lost. The silicone stents were applied for keeping the airway open. A three-stage nasal reconstruction was planned in the same hospital. At the first stage, the nasal defect was reconstructed by using nasal dorsal advancement flap and labio-buccal mucosal flap combined with cartilage graft. Surgical stents were applied while in the surgery. Three months after the surgery, the patient referred to our clinic with the complaints of mobility and insufficient appearance. In her anamnestic investigation, the patient stated that her stent was moving and therefore was lost several times and she was unsatisfied with the silicone tube obtained from serum set. In the clinical investigation, the stents were found to be adequate in width, neighbouring tissues were healthy enough but their length was longer that they needed to be. After this examination, a nasal

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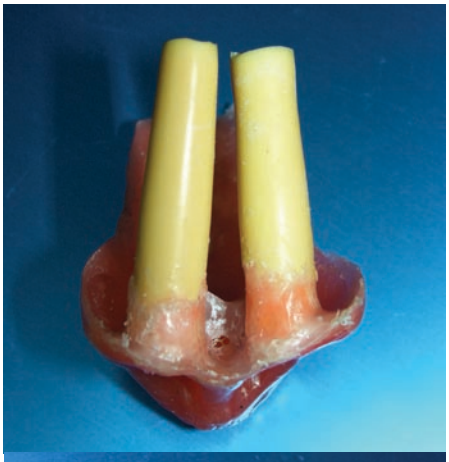
Figure 1. Appearance of nasal prosthesis with retainer; A, Back side, B, Front side.

A



B

prosthesis attached on stents was decided to fabricate. The patient was informed about the treatment plan and her approval was obtained.

Before the impression procedure, prefabricated stents were immersed in a silicone-based impression material (Speedex, Coltene Whaledent, Geneva, CH). Impressions of both nasal holes and the mid-face were taken together with stents. After the completion of the nasal wax-up, tulles were attached to the stents. At this stage, nasal prosthesis containing tulles and stents were tried to the patient. After the try-on, the embedding stage started.

Silicone material (Factor II, Inc. Lakeside, AZ, USA) which would be used in the prosthesis fabrication

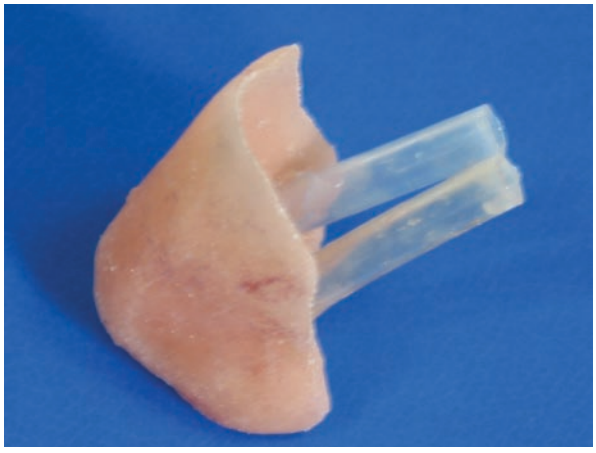
Figure 2. Case 1 before application.

Figure 3. After application.

was stained intrinsically and vulcanized according to producer's instructions. Excess parts of prosthesis were cut and trimmed and the prosthesis was ready to try on (Figure 1, 1-A, 1-B).

A prepared nasal stent and nasal prosthesis combination was applied to the patient. Criteria like adaptation, retention, aesthetic appearance, adequate airway width and comfort of breathing were evaluated. Proper positioning of the prosthesis was taught and information in regards to cleaning procedures were given to the patient **(**Figure 2-4).

Figure 4. Appearance of nasal prosthesis with retainer from lateral side.



2.2. Case 2

A 58-year-old woman was diagnosed with squamous cell carcinoma of the nasal dorsum with invasion of the upper lateral cartilage and nasal septum three years ago in a government hospital. She underwent near-total rhinectomy with resection of the dorsal and lateral sidewall subunits, nasal tip, alar subunits, and septum in first stage in the same hospital. Two silicone stents were placed in order to provide the airway opening. She underwent the median forehead flap for reconstruction of the defect area in the second stage. Four months after the surgery, the patient was admitted to our clinic with similar complaints with the first case related to mobility and an unaesthetic appearance. In the clinical investigation the width of the stents was adequate however, they were not stable in their place. The tissues surrounding the defect was healthy. Finally, a similar nasal prosthesis attached on the stents was planned. The patient was informed and consent was obtained. The nasal prosthesis was fabricated and applied as described earlier in this report. Since the patient consented to additional nasal reconstructive attempts, nostril splints with a nasal prosthesis were applied. A custom-made nasal stent integrated to a nasal prosthesis was placed instead of nasal stents. (Figure 5, 6).

3. Clinical Application

The combined use of the nasal prosthesis with nasal stents is aesthetically more acceptable with correcting general appearance of patient. In addition it has a higher retention rate. Thus, nasal prosthesis is considered as an auxiliary apparatus in succession of a nasal stent. The patients presented here used this prosthesis for 6 months long and did not have any complications.

Figure 5. Case 2 before application.

Figure 6. After application.

4. Discussion

Reconstruction of wide nasal defects is more challenging procedure for surgeons because of its complex anatomy. In certain patients, surgical reconstruction is not considered as an ideal option for coverage of these defects. In addition to this, some patients don't accept the surgical procedures due to their possible donor site morbidity In these patients, prosthetic rehabilitation can become an important alternative method for reconstruction. Furthermore, it has considerable advantages; such as allow for observing new recurrence of cancer, technical simplicity and inexpensive maintenance.

To maintenance of the nasal airway patency is important problem of the nasal reconstruction. For this

purpose, the nasal stents are used as auxiliary apparatus to prevent nasal airway obstruction. They play important roles in guiding the construction of desired nostril form, widening and keeping the airway patency. However, their main drawback is requiring for at least 6 months long usage [4]. The aesthetic appearence of the nasal stent is not so good and deteriorates the patient's psychology. Hence, it does not well-tolerated for a long time.

The retention of the nasal prostesis is also important problem . To overcome this difficuty, it has been used with eye glasses and osseointegrated implants. But, to achieve satisfactory results is also difficult in these methods [5,6].

The combined use of nasal prosthesis with nasal stents provides camouflage of the nasal stent and gives more of an acceptable aesthetic appearance. In the method presented here, there was a significant improvement in the quality of life in our patients. With this method, their defects are less noticeable. Thus, their ability to adapt in society with self-confidence is easier than before.

5. Conclusion

The nasal prosthesis improved to use of nasal stents. Meanwhile, nasal stents enhanced the retention of nasal prosthesis. It can be used easly for the patients with severe and composite nasal defects as an alternative to surgical intervention.

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