

Total rhinectomy and prosthesis for nasal carcinoma

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Abstract

Squamous cell carcinoma is one of the most common head and neck types of skin cancer. This main objective of this paper is to present a case of a patient who had a moderately differentiated squamous cell carcinoma of the nose and whose tumor had an aggressive growth.

Case report:

Total rhinectomy with prosthesis placement as a treatment for moderately differentiated squamous cell carcinoma of the nose

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Conflict of interests

The authors of this manuscript certify that they have NO affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

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Introduction

The nose is a typical subsite of head and neck skin cancers, being the squamous cell carcinoma one of the most common histological subtypes^{1,2,3}. This type of tumor shows a locally aggressive growth and tends to invade cartilage and deeper structures requiring a subtotal or total rhinectomy when they are larger than 1 cm^{1,2}. Compared to primary radiation approaches and to subtotal rhinectomy with skin flap reconstruction, which can lead to a malignant lesion recurrence after 3 years post intervention, total rhinectomy with prosthesis placement has shown excellent outcomes and better tumor growth control rates, as well as a decrease in mortality rates^{1,2,3}.

Although total rhinectomy leads to excellent tumor control, it alters the patient's appearance and disturbs facial harmony. On one hand most of these patients require radiotherapy which can affect the quality of the bone and tissue. In these cases it is difficult to reconstruct the nose aesthetically and functionally with skin flaps¹. For this reason, an excellent alternative is a nasal prosthesis which is safe and implies better oncological control and limits tumor recurrences. This device also mimics the original appearance and function of the nose prior to surgery, thereby improving the patient's quality of life².

The main objective of this manuscript is to present a case of a patient with moderately differentiated squamous cell carcinoma of the nose, who underwent total rhinectomy and posterior reconstruction with nasal self- retained prosthesis.

Case Report

An 88-year-old patient with a history of epidermoid carcinoma on the left cheek skin resected 12 years ago. He had a lesion in the right nasal wing with full-thickness perforation and the presence of an obstructing tumor in the entire right nostril, invading the septum for the last 2 years. (Fig. 1, Fig. 2.)

The CT reported tumor invasion of the nasal wing, septum, right nasal dorsum, right inferior turbinate in its frontal area; it did not involve nasal floor, maxilla or paranasal sinuses. It was staged as T3N0M0 according to AJCC eighth edition of primary cutaneous carcinoma. A biopsy was taken with histopathological results of moderately differentiated squamous cell carcinoma.

Total rhinectomy was scheduled, which was performed without complications, obtaining a pathology result that confirmed moderately differentiated, invasive and ulcerated squamous cell carcinoma of 3.3 x 2.3 cm deep that invaded the nasal mucosa up to the elastic cartilage of the nasal septum and negative skin edges for neoplasia (T3N0M0). (Fig. 3). The patient received adjuvant radiotherapy (45 Gy in 15 sessions) with no complications nor recurrence due to clinical manifestations or PET-CT during 1 year follow-up.

4.5 months after the rhinectomy, the patient showed healing of the skin and mucosa of the nasal defect. Therefore the reconstructive surgery department evaluated a nasal prosthesis placement. Maxillofacial department was in charge of the prosthesis impression. The implant- retained prosthesis was made out of silicone, mimicked the natural skin of the patient and was chemically attached. (Fig.4)

Discussion

In this case, the patient underwent a total rhinectomy which was preferred based on the histological type and the rapid growth, which led to better tumor control. No immediate adverse effects were present during the rhinectomy procedure nor the prosthesis placement. Nevertheless a long term tumor recurrency should be followed.

Although rhinectomy promises a lower risk of recurrence and good tumor control, it is important to mention the adverse effects, which can be either local symptoms such as numbness, swelling and tightness of the face as well as generalized symptoms such as headache, lightheaded and burning sensation, which did not occur in this patient.^{2,4}

Tissue invasion by this tumor required surgery which causes severe facial deformity and decreased nasal function. Unlike nasal reconstructions with autologous flaps, the type of prosthesis used does not require subsequent surgical approaches and is not affected by bone and tissue damage after adjuvant radiotherapy.⁴

In addition, it improves the quality of life as it gives a good functional and aesthetic result. By having a self-retained prosthesis with similarity to the natural nose prior to surgery, it increases the patient's self-esteem and social activity. It is important for the patient to go to therapy or get used to the prosthesis because functionality might get altered. Although it is recovered, it can cause difficulty in communication, breathing, swallowing, eating and drinking.²

Conclusion

Squamous cell carcinoma is one of the most frequent histological subtypes of tumors of the head and neck. The patient presented a moderately differentiated squamous cell carcinoma of the nose which invaded the nasal wing, septum, right nasal dorsum and right inferior turbinate in its frontal area. Therefore requiring a total rhinectomy and adjuvant radiotherapy as treatment, no complications were reported.

Total rhinectomy not only involves facial deformity, functional and psychological impairment are also seen. Adjuvant radiotherapy causes bone and tissue damage, which is why chemically self-retained nasal prosthesis is the treatment of choice, as it decreases tumor recurrence, does not require subsequent surgical approaches and improves both nasal function and facial aesthetics by matching the shape and nasal skin of the patient prior to the condition.

References

1. Javanmard A, Mohammadi F, Mojtahedi H. Reconstruction of a total rhinectomy defect by implant-retained nasal prosthesis: A clinical report. *Oral Maxillofac Surg Cases*. 2020;6(1):100141. doi:10.1016/j.omsc.2020.100141
2. D'heygere V, Mattheis S, Stähr K et al. Epithetic nasal reconstruction after total rhinectomy: Oncologic outcomes, immediate and long-term adverse effects, and quality of life. *Journal of Plastic, Reconstructive & Aesthetic Surgery*. 2021;74(3):625-631. doi:10.1016/j.bjps.2020.10.013
3. Girardi F, Hauth L, Abentroth A. Total rhinectomy for nasal carcinomas. *Braz J Otorhinolaryngol*. 2020;86(6):763-766. doi:10.1016/j.bjorl.2019.06.002
4. Ethunandan, M., Downie, I. and Flood, T., 2010. Implant-retained nasal prosthesis for reconstruction of large rhinectomy defects: the Salisbury experience. *International Journal of Oral and Maxillofacial Surgery*, 39(4), pp.343-349.

Figures:

Fig. 1. Patient with nasal tumor.

Fig.2. Patient with nasal tumor.

Fig.3. Patient with nasal defect after total rhinectomy.

Fig. 4. Patient with the nasal prosthesis insertion.







