



Case report

Reconstruction of a fistula in the anterior soft triangle of the nose after basal cells carcinoma excision: A case report

Corrado Rubino^a, Emilio Trignano^a, Claudia Trignano^b, Michela Pinna^a,
Pietro Luciano Serra^{a,c,*}

^a University of Sassari, Department of Medical, Surgical and Experimental Sciences, Sassari University Hospital Trust, Plastic Surgery Unit, Sassari, Italy

^b Department of Biomedical Sciences, University of Sassari, 7100 Sassari, Italy

^c University of Sassari, School of Specialization in Plastic, Reconstructive and Aesthetic Surgery

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ABSTRACT

Introduction and importance: Basal cell carcinomas represent the most frequent skin cancer and the nose is the most common site of presentation. This has an impact on both aesthetics and function of the nose and consequences in patients' psyche.

Case presentation: In our paper, the first case in literature of a cutaneous fistula in the nasal soft triangle, after a basal cell carcinoma excision, and its reconstruction, is reported.

Clinical discussion: One of the areas of weakness of the nose is the anterior soft triangle; here, any minimal alteration of the anatomy can potentially lead to severe impairment.

Conclusion: When the nasal soft triangle is damaged, its restoration is crucial. Our technique showed both functional and aesthetic good result.

1. Introduction

Basal cell carcinomas are the most frequent skin cancers in fair-skinned adult population over 50 years of age. Their incidence is increasing throughout the world [1].

In most of the cases, they are not a danger for life, but their radical removal very often presents both functional and aesthetic issues, especially in the face.

In particular, the reconstruction of the nose always represents a challenge for plastic surgeons because of its anatomical complexity and fundamental importance in the harmony and aesthetic of the face.

One of the most hard-testing areas of the nose is the anterior soft triangle, initially described by Converse as the area between the dome and nostril rim, consisting of two juxtaposed layers of skin separated by a layer of loose areolar tissue [2].

In our paper, a unique case in literature of a cutaneous fistula, connecting the nasal cavity with outside, localized in the soft triangle after BCC excision is reported, and its surgical treatment is discussed.

The work has been reported in line with the SCARE criteria [3].

2. Case presentation

In January 2021 a 64-years-old male patient came to our attention complaining about a cutaneous lesion between the left ala and the tip of the nose, reporting its appearance few months before. Patient was not affected by any other pathology and referred not to be taking any drug.

At clinical examination, 3 × 4 mm nodular lesion with regular margins, blurred limits, movable above the deep layers was revealed. No other comorbidities or pharmacological therapies were reported.

Under local anesthesia, an excision with 4 mm of healthy skin, down the thin subcutaneous tissue, preserving alar and lateral cartilages and the nasal lining. The defect was closed directly with 3 interrupted stitches of 5/0 nylon.

The histological examination revealed a completely excised in both the lateral and deep margins well-differentiated basal cell carcinoma.

The wound seemed to heal uneventfully at dressing changes.

In May 2021, the patient came again to our attention referring dehiscence of the wound.

At clinical examination we noticed the presence of a 3 mm completely epithelialized fistula in the left anterior soft triangle of the

* Correspondence to: Dr. Pietro Luciano Serra, University of Sassari, Department of Medical, Surgical and Experimental Sciences, Sassari University Hospital Trust, Plastic Surgery Unit, Sassari, Viale San Pietro 43, 07100 Sassari, Italy.

E-mail address: pietro_serra@hotmail.it (P.L. Serra).

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nose (see Fig. 1) connecting the nasal cavity with outside and the patient was referred to the senior author (CR).

Repair of the fistula with a combined reconstruction either of the mucosal inner layer and the skin was planned and performed by the authors (see Fig. 2).

Under local anesthesia, an external circular incision 2 mm around the border of the fistula was performed. Then, the skin of the edges was used as a turnover flap towards the inside of the nasal cavity and sutured with 5/0 Vicryl Rapid to restore the inner lining (Fig. 3). A medially based nasal tip rotation flap [4,5] was then performed to cover the defect and sutured it with 5/0 nylon single stitches.

After 7 days, the stitches were removed. After 6 months, the wound is healed with no fistula and with both functional and aesthetic good result with full satisfaction of the patient. Final result at 1 year is shown in Figs. 4 and 5.

3. Discussion

The nose represents the most common site for the presentation of cutaneous cancer, especially in sun-exposed areas: ala, dorsum, and tip. In this region, even the smallest loss of substance can create aesthetic and psychosocial concerns for patients [6].

In fact, both in males and females, it represents an important landmark in the face, being an aesthetic unit, but also a fundamental organ of respiration. It is characterized by a peculiar anatomical structure, being composed by various different tissues as skin, cartilage, bones and mucosa which contribute to its complexity.

Therefore, the nose is subdivided in 9 aesthetic subunits: dorsum and paired sidewalls, nasal tip and paired alae, columella, and paired soft facets [7].

It is crucial, for a plastic surgeon, to be aware of them both in aesthetic and in reconstructive surgery.

Besides these fundamental subunits, four areas in the human nose are devoid of cartilage or bone between inner and outer surface layers. These structurally weak areas are sensitive to negative airway pressure and perioperative deformational forces [8].

The first one is the anterior soft triangle, which is the web of soft tissue between caudal borders of lateral and medial crura. The second



Fig. 2. Preoperative picture of surgical landmarks.



Fig. 3. Operative picture: the inner layer has already been restored and the local flap is incised.



Fig. 1. Preoperative picture of the 3-mm fistula in the left anterior soft-triangle of the nose.

one is the posterior caudal soft triangle, the triangular area between the posterior caudal border of the lateral crus and the alar rim. The third one is the posterior cephalic soft triangle. The fourth one is the membranous septum which is intranasal [9].

The nasal anterior soft triangle, main topic of the article, is part of the form of the nose. It has a specific texture and color, but its shape is what it makes it distinct to our eye. The shadows created by the soft triangle break up the otherwise spherical dome of the nasal tip [10]. The soft triangle is critical for the patency of the external nasal valve [5]. Moreover, it is part of the zone 3, characterized by thin, non-sebaceous skin with little subcutaneous tissue. A failure in reconstructing this area places the adjacent subunits (ala, tip and columella) at risk of distortions.

In our case, it is likely that during tumoral excision the inner lining was inadvertently damaged, and a fistula developed after few weeks.

In our opinion, it was fundamental in fistula repair first to restore the inner mucosal lining, then cover the cutaneous defect using a flap juxtaposing the two sutures and avoiding any distortion of the nose. A primary closure, after de-epithelialization, would have lifted the wing of the nose up and without reconditioning the mucosa a new fistula was likely to appear. A skin graft would not have a substrate to rest on and, besides that, color, texture and thickness mismatch would have been noticeable [4].

A local flap was the best aesthetic and functional solution but, as all the aforementioned strategies, a lining was necessary. Therefore, we



Fig. 4. Postoperative picture at 12 months follow-up.



Fig. 5. Postoperative picture at 12 months follow-up.

flipped the skin of the edges of the fistula towards the inside of the nasal cavity in order to leave inside the skin epithelium and reconstruct the mucosa. Local flaps, with or without cartilage, options included: laterally based bilobed [11,12] or trilobed flap [13,14], dorsal nasal advancement flap [15], nasal sidewall advancement/rotation flap

[16,17] or Rieger dorsal nasal flap [18]. We opted for a medially based nasal tip rotation flap described by Benoit [4], because, in a single-stage procedure, it provides optimal color, texture match and hidden scars located at the junction of cosmetic subunits without any alteration of the shape of the nose.

The formation of a fistula in the nasal soft triangle, after tumor excision, represents a unicum in literature and the way we decided to treat it could open new scenarios for this particular area of weakness both in aesthetic and reconstructive surgery.

Informed consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Provenance and peer review

Not commissioned, externally peer-reviewed.

Ethical approval

The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

The study was conducted in accordance with the Declaration of Helsinki (as revised in 2013).

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Guarantor

Prof. C. Rubino.

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None.

CRediT authorship contribution statement

Corrado Rubino: Conceptualization, Methodology, Investigation, Resources, Writing - Review & editing, Supervision, Funding acquisition

Emilio Trignano: Investigation, Funding acquisition

Claudia Trignano: Funding acquisition

Michela Pinna: Investigation

Pietro Luciano Serra: Investigation, Resources, Writing - Original draft, Writing - Review & editing, Visualization.

Declaration of competing interest

The authors declare no conflict of interest.

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