

Nose reconstruction with paramedian forehead flap. A case report

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Background

In México, basal cell carcinoma is the most frequent skin cancer, with great implications in the health sector. The management of choice is resection in this type of lesions, which at the same time require reconstruction of the affected area. Currently there are several techniques for this type of reconstruction. In this case, a 78-year-old male patient underwent resection of a lesion on the dorsum of the nose with reconstruction with a paramedian forehead flap, without complications.

Keywords: Basal cell carcinoma, paramedian forehead flap, nose reconstruction.

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Case Report

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In Mexico, basal cell carcinoma represents between 75 and 80% of malignant skin tumors (1). A study conducted in Mexico reported that the most affected anatomical region was the nose 36%, the cheek 19.2% and the eyelid 8%(2). For all these reasons, it is considered a public health problem and the economic cost it represents for the health services. The most common type of skin cancer is basal cell carcinoma. It is derived from epidermal cells of the skin. In Australia, Europe, and the US, it is reported the most. Usually, this type of cancer is seen in adults over the age of 50. However, it is also commonly seen in individuals younger than 50. With a male-to-female ratio of approximately 2:1, is more common in men than in women (3).

The two main risk factors that can lead to the development of this type of cancer are ultraviolet radiation (UVR) exposure (environmental/behavioral factors) and sun sensitivity (host factor). Exposure to ultraviolet radiation can increase the risk of developing this disease. In addition, studies have shown that people who get sunburns more often are more prone to developing this type of cancer (4).

The most commonly used interventions in the treatment of basal cell carcinoma are surgical excision, Mohs micrographic surgery, photodynamic therapy with methylaminolevulinic acid (MAL-PDT and ALA-PDT, respectively) and topical imiquimod (5). The paramedian forehead flap is a type of interpolated flap that is frequently employed in large soft tissue defects of the nose, full thickness defects, total nasal

reconstruction, and other complex reconstructions of the nose in the traumatic or oncologic setting. The flap survival rate of paramedian forehead flap is above 90%. However, other postoperative complications rates have been reported to be as high as 20% (6).

Case report

Male, 78 years old, no history of chronic degenerative diseases, denies medication intake, allergies denied, previous surgeries: tension-free inguinal hernia repair 10 years ago.

It began approximately 10 years ago with an ulcerated lesion on the dorsum of the nose, which had increased in size and changed morphology, presenting symptoms such as itching and occasional bleeding, so he was first sent to the dermatology service for study.

Dermatology department performs excisional biopsy, which reports infiltrating basal cell carcinoma, then referred to the department of plastic and reconstructive surgery for definitive management, the patient is found with a lesion of approximately 1.5cm x 1.5cm with perilesional erythema and scab due to previous bleeding, which is scheduled with frontal flap rotation on the dorsum of the nose (Figure 1).

Prior to the procedure, the marking of where the flap will be taken and the removal of the lesion is performed (Figure 2). The surgical procedure begins with the patient under general anesthesia, starting with the resection of the lesion with a # 15 scalpel, removing all the layers up to the septal cartilage and leaving the necessary margins, verifying hemostasis,

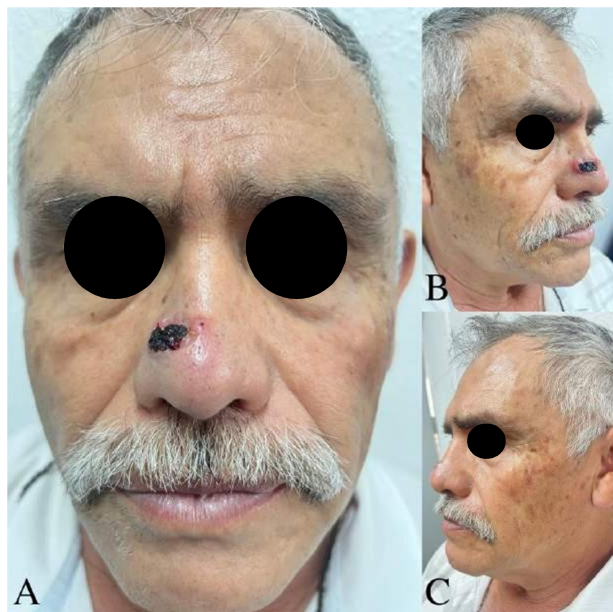


Figure 1. 1.5cm x 1.5cm lesion is observed on the dorsum of the nose. A) Frontal view B) Right view C) Left view.

leaving a defect of 2.5cm x 2.5cm, then the flap area is marked again with gentian violet (Figure 3), the flap is procured by starting an incision with a # 15 scalpel, up to the periosteum of the frontal bone, as well as with electrocautery with fine tip, preserving the



Figure 2. Pre-procedure marking



Figure 3. Post resection defect and flap marking. A) Frontal view B) Lateral view.

vascular pedicle, the flap is mobilized to the dorsum of the nose and the necessary edges are cut to adequately cover the space of the resection (Figure 4). Both sides of the flap taking site are freed from the periosteum in order to be able to face them without tension. The flap is sutured with simple stitches, as well as the flap taking site, Vaseline gauze is placed under the flap in the area that is not sutured, the wounds are covered, he was extubated and passed to the recovery area.



Figure 4. The flap already released.



Figure 5. Follow-up appointments. A) 1 week B) 5 weeks.

The patient was discharged the day after the procedure without any complications, with follow-up appointments at 3 days and at 1, 2, 4, 6 and 8 weeks after the procedure. With favorable evolution (Figure 5).

At the eighth week appointment, the second surgical time is performed, after infiltration of local anesthetic begins with the release of the flap, as well as the closure of the site of taking the flap, verifying hemostasis, fatty tissue is removed to thin the flap without devascularization it, it is faced with stitches without tension and the procedure is terminated. As a last indication, laser hair removal is recommended to the patient in the area of the flap (Figure 6).

Discussion

Different hypotheses have been formulated on the cell of origin of basal cell carcinoma. Basal cell carcinoma accounts for 75% of all skin cancers and is the most common malignant tumour in white populations (3). Any history of sunburn increases basal cell carcinoma risk, regardless of which stage of life it is experienced (4). The natural history of a basal cell carcinoma is usually that of a slow growing skin cancer starting from a tiny, hardly visible papule, growing usually for years without any aggressiveness into a nodule or a plaque, sometimes ulcerated, leaving time to be diagnosed and managed correctly (3).

The pooled sensitivity and specificity of dermatoscopy for the diagnosis of basal cell carcinoma were 91.2% and 95%, respectively. The sensitivity and specificity of dermatoscopy were higher for pigmented than non-pigmented basal cell carcinoma. Diagnosis by clinical examination confirmed on dermatoscopy without histopathological examination is acceptable



Figure 6. Figure 6. Final result. A) Lateral view B) Frontal view C) Upper view.

for the small nodular subtype on typical locations such as the head/neck or trunk, and for the superficial subtype located on the trunk and extremities (3).

Histopathological examination is always mandatory in the case of ambiguous lesions and in any ulcerated or large tumour for which the diagnosis is uncertain. A prior incisional biopsy can be regarded an option before proceeding with complex surgery or systemic treatment in high-risk basal cell carcinoma and is indicated to confirm recurrences after surgery or destructive or topical treatments in low-risk subtypes (3).

Conventional surgical excision remains the most effective therapy for the treatment of basal cell carcinomas (at least those of low histological risk and located in low-risk areas) (5). Since face plays a major role in an individual's appearance, a satisfactory cosmetic result is highly desirable in addition to closing the facial defects. During the reconstruction of facial defects, the natural skin color and a harmonic relationship between different aesthetic subunits must be maintained after surgery (7).

Surgical excision is a very effective treatment for primary basal cell carcinoma treatment, with recurrence rates varying from less than 2%-8% at 5 years after surgery. Scalpel excision is performed using either a standard (2D) excision with safety margins or a microscopically controlled stepwise procedure (3D excision). Standard removal of basal cell carcinoma therefore includes the circumferential excision of all visible tumour borders together with an adequate adjacent safety margin of clinically uninvolved tissue. Current guidelines suggest a range of peripheral margins between 2 mm and 5 mm in

low-risk tumours and between 5 mm and 15 mm in high-risk lesions (3).

There are various options available for cutaneous reconstruction of the central subunit of face after cancer resection and among them paramedian forehead flap is very useful. It has the advantage of being simple, quick and reliable and has minimal morbidity. The design of this flap was modified and popularized by Labat, Millard and most recently by Burget and Menick. Later described the method, of extending the incision below the orbital rim to add length to this flap, which is used commonly nowadays. This flap is raised in the axial plane of its blood supply from the supratrochlear artery that runs vertically up from orbital rim to hairline, 1.7–2.2 cm lateral to the midline at the level of the superior orbital rim. Later it can be trimmed of extra tissue to provide pliable skin. The pedicle is generally divided 3 weeks later under local anaesthesia, once the flap has gained a local blood supply from the recipient site (8).

Prior studies have shown the most common postoperative complication of paramedian forehead flap is infection, followed by bleeding. Preoperative albumin and hematocrit have been associated with increased postoperative surgical site complication (6).

Alternatively, surgical removal by destructive (blind) treatments and non-surgical modalities including topical treatments or photodynamic therapy, either alone or combined, may be used for low-risk basal cell carcinomas when surgery is contraindicated or impractical (3).

Conclusion

Basal cell carcinoma is one of the most frequent cancers, so it is a relevant entity in our environment, currently there are several studies that show us the risk factors, which can be modifiable, such as sun exposure, or how to prevent them.

In spite of having several treatment options for basal cell carcinoma, currently the preferred management continues to be surgical excision, with subsequent reconstruction of the affected area. It has been demonstrated that the paramedian frontal flap continues to be the flap of choice because of its easy replication and few complications, in addition to the amount of tissue it offers for reconstruction. It has also been demonstrated the aesthetic results that this type of flap offers. For all these reasons it was decided to give this management to our patient.

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Conflicts of interest

None disclosed

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