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V-Y Subcutaneous Pedicle Flap: It's Usefulness in Facial Oncological Surgical Reconstruction: Clinical Case

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Abstract

Introduction: In Mexico, skin cancer is one of the most common neoplasms. An annual incidence is estimated at 13,000 per 100,000 inhabitants. The most prevalent skin neoplasms are squamous cell carcinoma and basal cell carcinoma. The estimated risk of suffering from these pathologies is 7 to 11%. Squamous cell carcinoma is a malignant neoplasm that originates from epidermal keratinocytes, including those of the oral or genital mucosa. The face and in particular the nasal pyramid due to its prominence, are the areas most affected by malignant skin tumours, due to overexposure to sunlight.

Clinical Case: 92-year-old female patient with a history of long-standing type 2 Diabetes Mellitus under treatment with Linagliptin; COPD in treatment with Tiotropium Bromide plus salbutamol; multiple surgical histories; biomass exposure > 50 years; referred by the dermatology service due to a slowly growing atrophic tumour measuring approximately 4 cm on the left cheek, excoriated, irregular, ulcerated, affecting the left nasal wing, causing itching (arrow). The biopsy of the lesion corresponded to squamous cell carcinoma.

Discussion: The island advancement flap is an option for injuries to the infraorbital area of the cheek. The defect may extend to the inferior orbital rim and medial nasolabial fold, ensuring an aesthetically acceptable scar over the subunit boundaries. The risk of ectropion with the use of the V-Y flap is lower compared to that of the cervicofacial rotation flap, also called Mustarde, because in the V-Y type the tension is distributed laterally and not vertically. Reconstruction based on the subunit principle is important as it provides a nice appearance.

Conclusion: The V-Y flap is a type of advancement flap that has been used in the reconstruction of facial defects, giving satisfactory and safe results from a functional and aesthetic point of view. This approach can be an efficient alternative in the surgical management of facial injuries, in elderly patients or with comorbidities that compromise circulation or skin quality, and that may put proper surgical healing at risk. The aesthetic effects are adequate, which increases the satisfaction and quality of life of patients.

Keywords: Squamous cell carcinoma; Surgical flaps; V-Y type advancement flap; Facial reconstruction

Introduction

In Mexico, skin cancer is one of the most common neoplasms. An annual incidence is estimated at 13,000 per 100,000 inhabitants. The most prevalent skin neoplasms are squamous cell carcinoma and basal cell carcinoma. The estimated risk of suffering from these pathologies is 7 to 11% [1]. Squamous cell carcinoma is a malignant neoplasm that originates from epidermal keratinocytes, including those of the oral or genital mucosa. The face and in particular the nasal pyramid due to its prominence, are the areas most affected by malignant skin tumours, due to overexposure to sunlight. Among the main risk factors for this cancer are age and people with white skin or Caucasians. The treatment includes the removal of the tumour, however, as the face is a very particular area due to its aesthetic value, expert plastic surgeons are generally required and the reconstructive options vary according to the location of the affected subunit, the extension and tumour classification. Skin tumours on the nasal wing generally require extensive excision that involves neighbouring areas such as the cheek, nasal tip, and nasal dorsum. For reconstruction, the nasolabial flap is the most used, but when the skin in this region has scars or previous interventions, another type of reconstruction can be used such as the forehead flap [6]. In patients with circulatory disorders or the presence of chronic degenerative diseases, it is important to consider in surgical management with hanging, maintaining a source of blood perfusion to reduce the risk of necrosis or torpid healing. The V-Y flap described by Dieffenbach in 1845 is executed by making a triangular figure adjacent to the lesion, whose base is one of its edges, the width must be equal to the defect and its length corresponds to at least double its height. At least half of the total surface area of the flap should remain attached to the subcutaneous tissue. When the edges have been incised, the flap must be released late rally in its entirety, avoiding it in depth, as there is a risk of injuring its source of irrigation [2,3].

Clinical Case

A 92-year-old female patient with a history of long-standing type 2 Diabetes Mellitus under treatment with Linagliptin; COPD in treatment with Tiotropium Bromide plus salbutamol; multiple surgical histories; biomass exposure > 50 years; referred by the dermatology service due to a slowly growing atrophic tumour measuring approximately 4 cm on the left cheek, excoriated, irregular, ulcerated, affecting the left nasal wing, causing itching (arrow). The biopsy of the lesion corresponded to squamous cell carcinoma (Figure 1). The patient was evaluated by the Plastic Surgery Service, deciding to perform resection of the tumour with free margins of the nasal wing, including the nasolabial fold. Due to her history and clinical condition, it was decided to perform resection of the tumour with reconstruction with a V-Y flap. Patient leaves the operating room without complications. The postoperative findings were an exophytic tumour measuring 4 x 3cm and the histopathological report of the surgical specimen indicated a moderately differentiated invasive squamous cell tumour. In the postoperative period, healing is adequate and 4 weeks later the aesthetic result shows skin coverage similar to that of the surrounding skin.

Discussion

The face has a very important aesthetic value, which is why surgical management of the face requires a thorough study of the anatomy and requires meticulous techniques from the surgeon to achieve, in addition to the therapeutic effect, an appropriate reconstructive result. Local flaps in facial reconstruction show satisfactory results for most tissue defects in the face [4]. The concept of facial aesthetic units and subunits have been described by different authors such as Gonzalez-Ulloa in 1956, Millard in 1966 and Burget and Menick in 1985; currently allow the classification of aesthetic units, independent of each other, into: frontal, temporal, genian, nasal, periorbital and chin. Within each unit, the skin is homogeneous in terms of texture, colour, thickness and mobility. The incisions must be made at the limits of these areas, so that the scars are almost imperceptible and the aesthetic result is satisfactory, since there are no changes in the contour, thickness or colour of the skin [4,5]. Reconstructive surgery using soft tissue techniques has been a very effective solution for the management of lesions derived from skin cancers. Flaps are used for reconstructions due to cancer, also as reconstructive techniques in plastic surgery, where it is possible to combine flaps with tissue expansion, when the flap portion is not sufficient [3]. Innovative surgical techniques such as microsurgery or regional flaps are a good option in facial reconstruction, with local flaps being the most indicated for reconstructive purposes due to their cosmetic results [4]. The island advancement flap is an option for injuries to the infraorbital area of the cheek. The defect may extend to the inferior orbital rim and medial nasolabial fold, ensuring an aesthetically acceptable scar over the subunit boundaries.

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Figure 1: *Tumor measuring approximately 4 cm on the left cheek, excoriated, irregular, and ulcerated, affecting the left nasal wing, causing itching (arrow). The biopsy of the lesion corresponded to squamous cell carcinoma.*

The risk of ectropion with the use of the V-Y flap is lower compared to that of the cervicofacial rotation flap, also called Mustarde, because in the V-Y type the tension is distributed laterally and not vertically [2]. Reconstruction based on the subunit principle is important as it provides a nice appearance [5,6] (Figure 2,3). In a study by Jaramillo-Vera, he successfully used the V-Y flap for nasal reconstruction secondary to tumour excisions in 19 patients. The defects were located in the proximal and middle area of the nose, including complex entities (defined as more than one affected subunit). Along with the frontal advance, the V-Y was one of the most used techniques. Yotsuyanagi and his group described the use of the V-Y advancement flap in Asian patients, based on the principle of subunit reconstruction in small and large defects located in the nose. Therefore, this flap represents a satisfactory alternative to provide an aesthetic effect in this type of treatment [2].

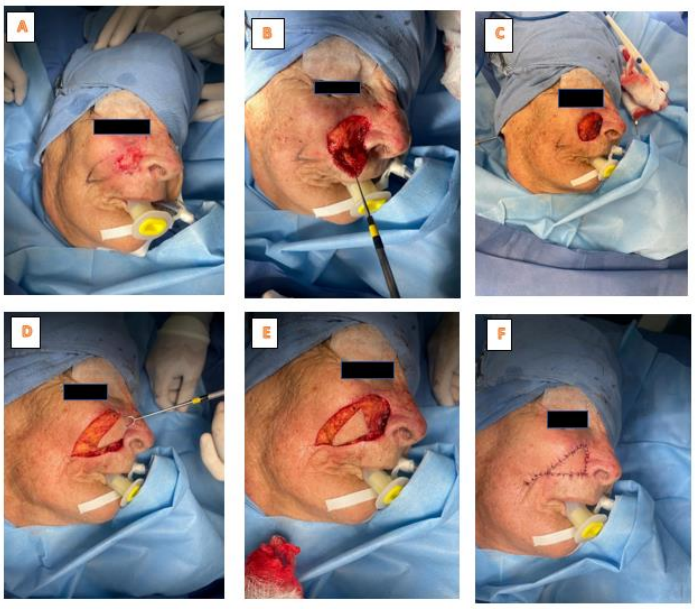

Figure 2: *Shows the V-Y flap technique, which was performed on the patient.*

A) Surgical marking giving safety margins of 0.5 cm around the entire circumference of the lesion. B) and C) Resection up to muscular fascia as the lower limit, performing adequate hemostasis. D) and E) Creation of a V-Y type advancement flap, freeing and respecting the vascular pedicle. F) Coping with 4-0 nylon and 5-0 simple stitches in addition to flap stitches on the edges, achieving adequate advancement and fixation without flap tension.

Conclusion

The V-Y flap is a type of advancement flap that has been used in the reconstruction of facial defects, giving satisfactory and safe results from a functional and aesthetic point of view [2]. This approach can be an efficient alternative in the surgical management of facial injuries, in elderly patients or with comorbidities that compromise circulation or skin quality, and that may put proper surgical healing at risk. The aesthetic effects are adequate, which increases the satisfaction and quality of life of patients.

Figure 3: *Shows the results after 4 weeks of surgery.*

Conflicts of Interests

None.

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