The Rieger-Marchac flap in reconstruction of nose defects: The experience of our department

M.Nasr*, A.Khairi*, Z.Berjaou*, J.Hafidi*, S.Mazouz*, N.Gharib* and A.Abbassi*.

*Department of plastic and aesthetic surgery, University Hospital Center Ibn Sina, Rabat, Morocco.

ABSTRACT The middle and distal part of the nose has multiple well-defined cosmetic units with a distinct outline, color, consistency, sebaceous content, texture and function. Crossing these units with surgical incisions can lead to a more visible scar. Here we will deal with the case of an 84-year-old patient with basal cell carcinoma of the junction between the dorsum and the alar of the nose and the management of the resulting loss of surgical substance with the Marchac flap. This frontal flap described by Marchac is an axial flap based on a vascular pedicle emerging near the inner palpebral ligament, allowing coverage of the loss of substance while respecting the nasal subunits and less thickness difference is present.

KEYWORDS Rieger-Marchac flap, lateral nose tip defect, reconstruction surgery

Introduction

The reconstruction of the soft tissues of the middle and distal thirds of the nose presents notable features and unique challenges due to the complex topography and anatomy of this region. The skin of the distal nasal end is often sebaceous, inelastic and thick. The middle and distal part of the nose has multiple well defined cosmetic units with a distinct outline, color, consistency, sebaceous content, texture and function. Crossing these units with surgical incisions can lead to a more visible scar.

Case report

The case is about an 84-year-old patient, in his antecedents, he has operated 37 years ago for intestinal obstruction and four years ago for inguinal hernia, non-diabetic, non-smoking, with basal cell carcinoma at the dorsum junction and right alar of the nose evolving for five years. The patient underwent surgical excision with a margin of 0.5 cm at the periphery and respecting the cartilage in depth. The resulting loss of substance is reconstructed with a Rieger-Marchac flap. This frontonasal flap described by Marchac is an axial flap based on a vascular pedicle emerging near the inner palpebral ligament (this pedicle is a branch of the angular artery, joining the supraorbital arteries). [1-2] The pedicle is placed on the side opposite the lesion. It is a flap indicated for losses of lateronasal substance whose diameter is less than 2 cm, and it is used for defects of the distal third of the nose which are at least 5 mm from the alar edge. The design of the flap begins above the internal canthus and extends into glabellar frown lines, but should avoid extending over the medial forehead (Fig 1). The skin of the dorsum is mined in a submuscular plane with Kaye scissors before the incision of the flap. The skin-muscle flap is incised; however, in the glabellar region, only the skin is raised with the flap. Meticulous hemostasis is obtained by bipolar cauterization. The lateral incision should be placed at the nasofacial junction. The glabellar donor site is closed in a V-Y way. All incisions are closed in 2 layers.

Results

The loss of substance is completely covered without defect elsewhere (Fig 2). The operating suites are simple. The sutures are removed on the 7th post-operative day.

Discussion

The nose is an aesthetic unit of the face [3], and topographic subunits of the nose have been defined: these are the back, the point, the wings, the flanks and the soft triangles. The subunit
approach to nasal reconstruction allows scars correctly located around the flaps to mimic normal shaded valleys and lighted ridges on the nasal surface. These scars will be less visible than scars crossing a smooth surface of the nose. Many local flaps do not respect the principle of subunit [4-9]. The original design of the axial frontonasal flap by Marchac [1-2] for a lateral extremity defect creates a scar crossing the back of the nose. In our design, this principle of the subunit is respected. Besides, as indicated by Marchac [1-2], visible scars appear where there is a difference in skin thickness between the flap and the skin. Glabellar distortion is minimal since the glabellar advancement of the flap can easily be closed in a VY way without the need for a Z-plasty as proposed by Rieger [10]. Reconstruction of nasal discharge should use the remaining nasal skin as much as possible to preserve the unique color and texture of the nose.

**Conclusion**

With the Marchac flap, the scars are better placed according to the principle of the subunit, and less difference in skin thickness is present. These factors contribute to less visible scars and a better aesthetic result.

**Conflict of interest**

The authors have no conflicts to disclose.

**Funding**

This case report did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

**References**

1. Marchac D, Alkhatib B. Les resultats a distance du lambeau frontonasal. Ann Chir Plast 1974; 19: 335-8.
2. Marchac D, Toth B. The axial frontonasal flap revisited. Plast Reconstr Surg 1985; 76: 686-94.
3. Gonzalez-Ulloa M, Castillo A, Stevens E, Alvarez Fuertes G, Leonelli F, Ubaldo F. Preliminary study of the total restoration of the facial skin. Plast Reconstr Surg 1954; 13: 151-61.
4. McGregor JC, Soutar DS. A critical assessment of the bilobed flap. Br J Plast Sure 1981; 34: 197-205.
5. Reynaud JP. Le lambeau en hachette dans la reparation des exces cutanees de la pyramide nasale. Ann Chir Plast Esthft 1983; 28: 369-75.
6. Hallock GG, Dreyer TM. The stair-step flap for nasal reconstruction. Ann Plast Surg 1987; 18: 34-6.
7. Doermann A, Hauter D, Zook EG, Russel RC. VY advancement flaps for closure of nasal defects. Plast Reconstr Surg 1989; 84: 91620.
8. Hauben DJ. Subcutaneous V-Y advancement flap for closure of nasal tip defect. Ann Plast Surg 1989; 23: 23944.
9. Borges AF. W-plastic rotation flap to cover nasal defect. Ann Plast Surg 1990; 25: 303-5.
10. Rieger RA. A local flap for repair of the nasal tip. Plast Reconstr Surg 1967; 40: 147-9.