

Transfixing alar defect repaired with a chondro-cutaneous composite auricular graft

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Abstract

Repairing alar transfixing defects of traumatic or surgical origin is a real challenge. Techniques differ depending on the size and the location of the defect. We report the case of a patient with a nostril defect of less than 1 cm secondary to surgical excision of a carcinoma. The nasal site, the size less than 1 cm, and the scar ransom of loco-regional flaps (PERS, or frontal) made us lean toward a composite auricular graft. We made sure to prepare the ground by explaining to M. AH that stopping smoking, and correcting his anemia was imperative to the grafting attempt. The repair was then performed and follow up was satisfactory, to both the patient and the medical team. The chondro-cutaneous composite graft, although of a simplistic concept, remains to this day the gold standard for repairing alar defects of less than 1 cm, offering the best aesthetic and functional results.

Keywords

alar defect; nasal repair; composite graft; auricular donor site.

Introduction/background

Repairing alar transfixing defects of traumatic or surgical origin is a real challenge. Techniques differ depending on the size and the location of the defect. We are interested in nostril defects of less than 1 cm, where the composite auricular composite graft finds its indication, allowing to repair the three planes with a lesser scar ransom. We report the case of a patient with a nostril defect of less than 1 cm secondary to surgical excision of a carcinoma.

Case Report

M. AH, 65 years old, chronic smoker, presenting a nostril defect of less than 1 cm, dating back to 1 year. The defect is secondary to surgical excision of a basall cell carcinoma, which microscopic resection margins were satisfactory. This defect is located in the medial aspect of the nostril did not cause a functional

problem by collapse of the external nasal valve. A blood count performed as part of the preoperative screening revealed anemia, which was supplemented prior to the surgery. M. AH's therapeutic project began with choosing of the repair technique. The nasal site, the size less than 1 cm, and the scar ransom of loco-regional flaps (PERS, or frontal) made us lean toward a composite auricular graft. We made sure to prepare the ground by explaining to M. AH that stopping smoking, and correcting his anemia was imperative to the grafting attempt.



Figure 1: Preoperative aspect of the alar defect (left) and the auricular donor site (right).

Three months after complete smoking cessation, hemoglobin at 14, and a motivated patient, the transplant was performed. First, we performed an infraorbital nerve block which allowed us to obtain complete anesthesia of the nostril without perilesional infiltration which would have been fatal to the cicatrization process. Subsequently we proceeded to revive the edges. A pattern of the defect was drawn and related to the helix of the ipsilateral ear. Once the donor area has been delimited, an infiltration with 2% xylocaine around the outline of the drawing was carried out, taking care not to infiltrate the graft, which would achieve a hydro-dissection which will detach the skin from the underlining cartilage and compromise any chance of survival. The chondro-cutaneous composite graft is thus lifted with a cold blade No. 15. It is subsequently immersed in heparinized serum. We start the suture of the graft by the mucous side with VICRYL 4-0, the skin side is sutured with NYLON 5-0. The donor area is closed in two skin planes with NYLON 5-0. A packing of the right nostril is carried out and a dressing is applied to the graft. On D1 Post-operative, the packing is replaced by a nasal shaper; the start of a venous skin ischemia is noted. On D3 Postoperative skin necrosis is installed and trimming is done immediately.



Figure 2: Skin necrosis occurring 3 days after the graft.



Figure 3: Final nostril aspect 6 months after the repair.

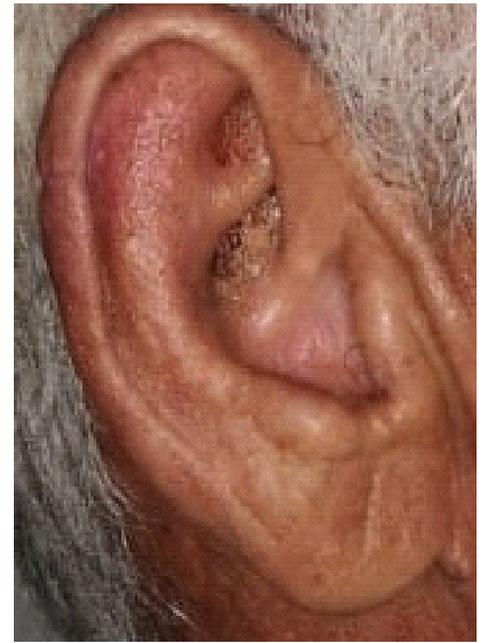


Figure 4: Final auricular donor site aspect 6 months after the graft.

The patient is kept in controlled healing and on preventive antibiotic therapy. The stitches are removed on D8. At the control of M. AH 6 months later, the graft is well integrated, the epidermis is complete, and the scar in the donor area is almost invisible. M. AH is very satisfied with the result, the operator being moderately satisfied due to the patch effect of the graft. M. AH subsequently refuses a second intervention to refine the result by lipofilling or dermal fillers.

Discussion

According to the concepts of nasal reconstruction by contour subunits, the presence of delicate cartilage and thin skin enables consideration of the ala of the nose as the first choice as a donor area for nasal alar reconstructions. The anti-helix and the auricular upper pole are the most suited and similarly composed regions used in that purpose. They are usually used for repairing small defects ranging from one to one and half centimeters [1,2].

The ear and the nose are highly vascularized tissues; as such, they present a dense endothelial network. Compared to other features, this vascular richness perfectly handles the graft's blood supply awaiting a neoangiogenesis to occur, and thus the survival of the graft. Usually the graft's life evolves in two stages the first 24 hours. The first stage is an ischemic pale appearance which turns to a reddish-purple one which reflects the erythrocyte invasion. Then the grafts turn cyanotic (due to venous congestion) before turning pink by the end of the first week. Reese et al. reported that 94% of composite grafts succeeded if a relative hypothermia (5 to 10 Celsius degrees) was respected the first three days. This is explained by a lower metabolism and energetic needs [3,4].

Roughly the fifth of composite grafts show central or superficial necrosis, this requires a further reconstruction by another graft 3 months later. On the long-term, the shape of the auricular cartilage shows neither distortions nor excessive absorption. This makes the auricular cartilage far more effective than the costal one or bone grafts (that are less commonly used in rhinoplasties) [5].

Conclusion

The chondro-cutaneous composite graft, although of a simplistic concept, remains to this day the gold standard for repairing alar defects of less than 1 cm, offering the best aesthetic and functional results. Advances in tissue engineering could present in the future an attractive and superior alternative to this ancestral technique which has proven itself through better integration and zero aesthetic ransom.

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