Complex Nasal Alar Reconstruction in a Secondary Centre; The Power of a Combined Forehead Flap and Composite Graft

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Introduction:

Reconstruction of full-thickness nasal alar defects following trauma or oncological resection remains challenging, requiring restoration of contour, structural support, and internal lining.

Technique selection depends on defect characteristics, patient factors, and availability of microsurgical resources, particularly in smaller centres.

We hypothesise that a combined regional flap and composite graft approach can achieve reliable functional and aesthetic outcomes in a secondary centre setting.

Aims

To describe the technique and outcomes of a three-stage paramedian forehead flap combined with a composite conchal cartilage graft for reconstruction of a full-thickness nasal alar defect.

Case Description:

A 57-year-old man underwent reconstruction of a full-thickness right nasal alar defect following squamous cell carcinoma resection.

At initial review, the lesion was approximately one centimetre in macroscopic diameter centred in the right nasal alar subunit. It was obstructing the nasal vestibule and therefore impacting nasal airway patency.

He has no significant medical comorbidities so was fit for a general anaesthetic.
He is a distant ex-smoker.

Methods:

The patient underwent an initial wide local excision, with frozen sections to confirm histological margin clearance, and a subsequent three stage reconstruction. All stages were completed in the operating theatre under a general anaesthetic. *Image 1* demonstrates the resultant defect.

First stage reconstruction was completed three weeks after the initial resection, having allowed the site to partially heal, and giving certainty about the true size of the remaining defect.

- It involved marking, and elevation of the paramedian forehead flap (pedicle not raised at this stage), and harvesting of the composite graft from the conchal bowl (anterior skin, and cartilage).
- The graft was then reversed and sutured to the flap to allow integration and vascularisation. The graft donor site size was reduced with non-absorbable sutures and then dressed and left to heal by secondary intention.
  The flap site was dressed with Mepitel.
- *Image 2a/b* demonstrates the marking of the forehead flap, and the securement of the graft.

The **second stage** reconstruction was performed three weeks after stage one.

- It involved freshening the edges of the nasal defect, elevating the flap and pedicle and rotating it down into the defect.
- The graft was approximated into the defect and sutured in place, with the forehead skin forming the outer nasal skin and the conchal bowl skin forming the internal nasal lining.
- The pedicle was left intact to allow time for proper local vascularisation of the flap, and the site was dressed.
- The forehead donor site was closed where able with non absorbable sutures, and the remaining section dressed and left to heal by secondary intention.
- The nasal cavity was packed with bismuth iodoform paraffin paste, and the conchal donor site dressed. *Image 3* demonstrates the flap prior to division of the pedicle.

At **stage three**, performed three weeks later, the site was well vascularised, and the forehead flap pedicle was divided.

- The forehead site closed with 5-0 nylon, and the nasal alar flap refashioned and closed with nylon. *Image 4* demonstrates the reconstruction post pedicle division.

At **three-month follow-up**, the surgical site was well-healed, with acceptable cosmesis and nasal valve functionality. *(Image 5*)

Image 1

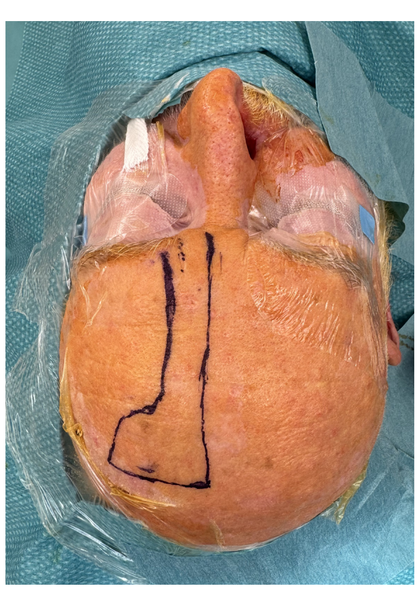

Image 2a

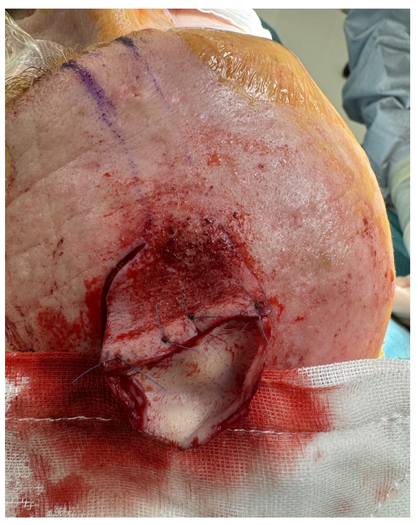

Image 2b

Image 3

Image 4

Image 5

Results

The reconstruction achieved stable vascularised soft tissue coverage with maintained structural support and satisfactory nasal contour.

At 6 months postoperatively, the patient demonstrated good aesthetic outcome and reported high satisfaction, with no requirement for further revision or cosmetic adjustment.

Conclusions

Combined regional flaps and composite grafts provide a reliable reconstructive option for complex nasal alar defects, particularly in secondary centres without microsurgical capability.

This approach can achieve satisfactory functional and cosmetic outcomes.

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