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CASE REPORT

# The contribution of a dermal substitute in the three-layers reconstruction of a nose tip avulsion

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**KEYWORDS**
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Dermal substitute;
Integra

**Summary** Through and through defects of the nasal ala still remains debated challenge in plastic reconstructive surgery. We present a 36y.o. woman who suffered by a through and through nose tip avulsion subsequently a dog bite. She refused the use of traditional auricular composite graft or the multiple stages midline forehead flap due to the secondary visible scars. We treated her with the combined use of mucoperichondrial septal flap, cartilage graft and dermal substitute Integra graft, followed by a secondary, full-thickness skin graft. We consider the Integra® as a useful option for the treatment of a complex trauma of the nose with through and through tip and alar avulsion when, due to scar or consent problem, it's not possible the use of other techniques.


## Introduction

Nasal reconstruction needs the restoring of the three primary layers: lining, skeletal support and skin cover. When planning reconstruction of oncologic or traumatic defects it is wise to remember the regional "aesthetic units" originally described by Gonzalez-Ulloa and Stevens.[1]

Full-thickness skin grafts,[2] local nasal flaps, nasolabial cheek flaps,[3] mid line forehead flaps[4] are available reconstructive options for skin surface restoring.

When through and through defects involve the nasal ala and the tip of the nose the traditional auricular composite graft for defects lesser than 1,5 cm,[5] and multiple stages midline forehead flap[6] may guarantee satisfactory recovery of nostril lining.

We present a 36y.o. woman suffered through and through nose tip avulsion subsequently a dog bite who forced us to reconstruct her nose lesion avoiding any additional secondary forehead scar. We treated her with the combined use of mucoperichondrial septal flap, cartilage graft and dermal substitute Integra graft, followed by a secondary, full-thickness skin graft.

## Materials and methods

As a consequence of a dog bite to the nose, the 36 y.o. female patient suffered a loss of skin substance of the tip,

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columella and nostril rim and exposure of the right alar cartilage with partial loss of middle and lateral crus; in addition there were multiple wounds upon the nasal bridge (Figures 1 and 2).

At the admission, the wounds were sutured and the defect was covered with acellular dermal regeneration template Integra (Integra LifeSciences Corp., Plainsboro, NJ).

Antibiotics drugs were administered and no sign of infection were visible in the post-operative care.

After 1 month the patient underwent a pedicle mucoperichondrial flap for the mucosal and nostril rim resurface (Figure 3), a conchal cartilage graft to reinforce alar skeletal support and acellular dermal regeneration template to cover the entire defect (Figure 4).

After 4 weeks the silicone layer of the dermal substitute was removed and a full-thickness skin was grafted.

The follow-up at three years reveals stable symmetry of the nostril rims, appreciable skin texture and normal functional airway (Figures. 5 and 6).

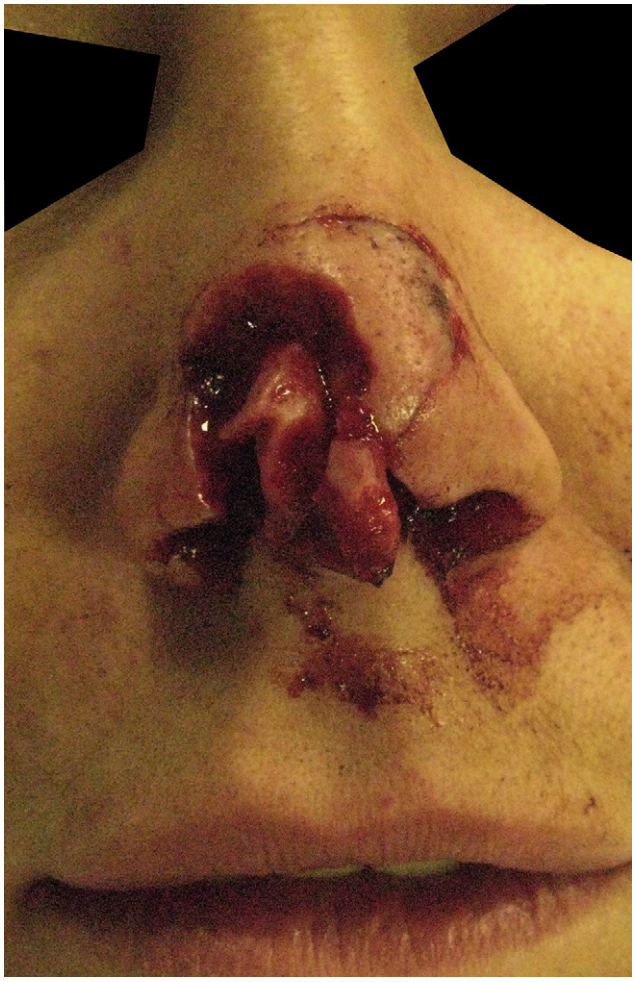

**Figure 1** As a consequence of a dog bite a patient suffered a loss of skin substance of the tip, columella and nostril rim and exposure of the right alar cartilage with partial loss of middle and lateral crura.

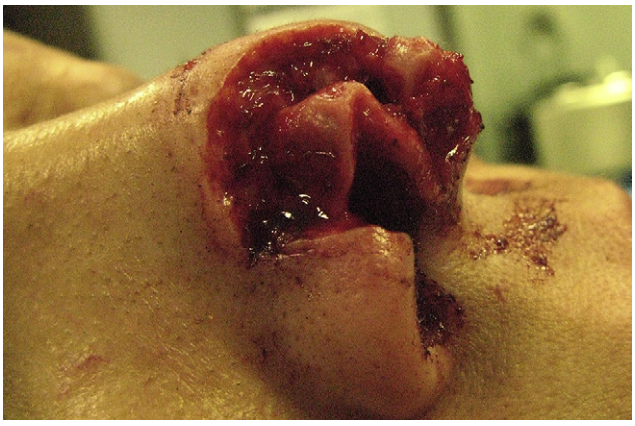

**Figure 2** As a consequence of a dog bite a patient suffered a loss of skin substance of the tip, columella and nostril rim and exposure of the right alar cartilage with partial loss of middle and lateral crura.

## Discussion

Through and through defects of nasal ala and tip bigger than 1,5 cm needs three-dimensional reconstruction that can't be managed by local flap because of lining deformation, or by traditional auricular composite graft due to its unpredictable survival. Sporadic reports on nasal alar reconstruction with an ear helix free flap are available in the literature giving to this reconstruction almost anecdotal value.[7,8] Prelaminated midline forehead flap with or without cartilage frameworks still remain the optimal solution.

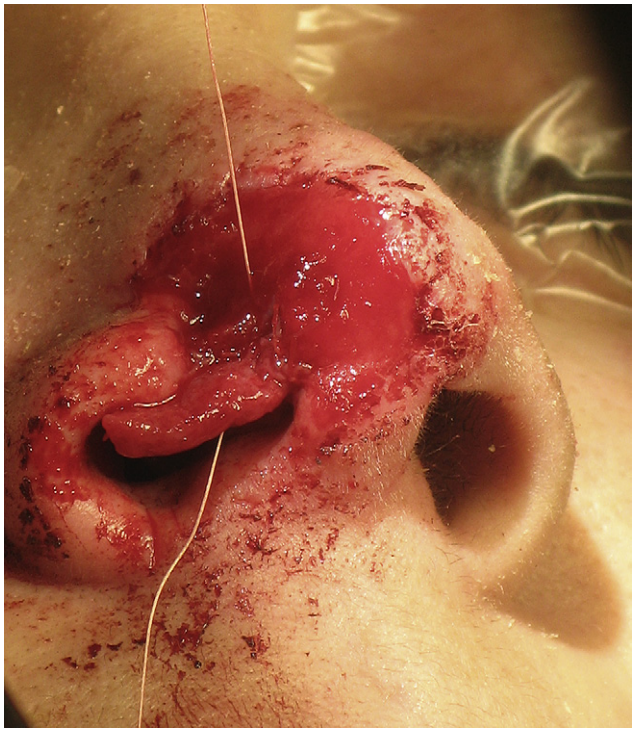

**Figure 3** Mucoperichondrial flap for the mucosal and nostril rim resurface.