

## Abstract

**Objectives:** Trauma and advanced cutaneous malignancy of the nose often leave the reconstructive surgeon with complex, through and through defects to repair. The reconstructive surgeon must be mindful when constructing the internal nasal lining, structure, and covering of the nose in an effort to achieve the maximal functional and aesthetic outcome for these full thickness nasal defects. Anecdotally, there has been a shift toward patients opting to avoid multi-staged procedures, even when counseled that such procedures would provide the best long-term outcome. We describe a single-staged surgical technique based upon the alaeque nasi muscle to provide the internal lining, structure, and outer covering of full thickness defects of the nose.

**Study Design:** Cadaver study and case review of selected patients undergoing alaeque nasi myocutaneous flap reconstruction of the nose .

**Methods:** The harvest technique of the alaeque nasi myocutaneous flap, a transpositional, myocutaneous flap utilizing the epidermis, dermis, subcutaneous tissue, and a portion of the alaeque nasi muscle is demonstrated in cadavers. Patient cases where the alaeque nasi myocutaneous flap was employed to reconstruct through and through defects of the nose were assessed for form and function.

**Results:** The alaeque nasi myocutaneous flap harvest technique is demonstrated to be straight forward. Patients who have undergone nasal defect reconstructions utilizing the alaeque nasi myocutaneous flap achieved satisfactory outcomes with respect to form and function.

**Conclusions:** Based on our experience, the alaeque nasi myocutaneous flap is an acceptable alternative for complex, full-thickness nasal defects, particularly in those patients opting for single-staged reconstructions

## Introduction

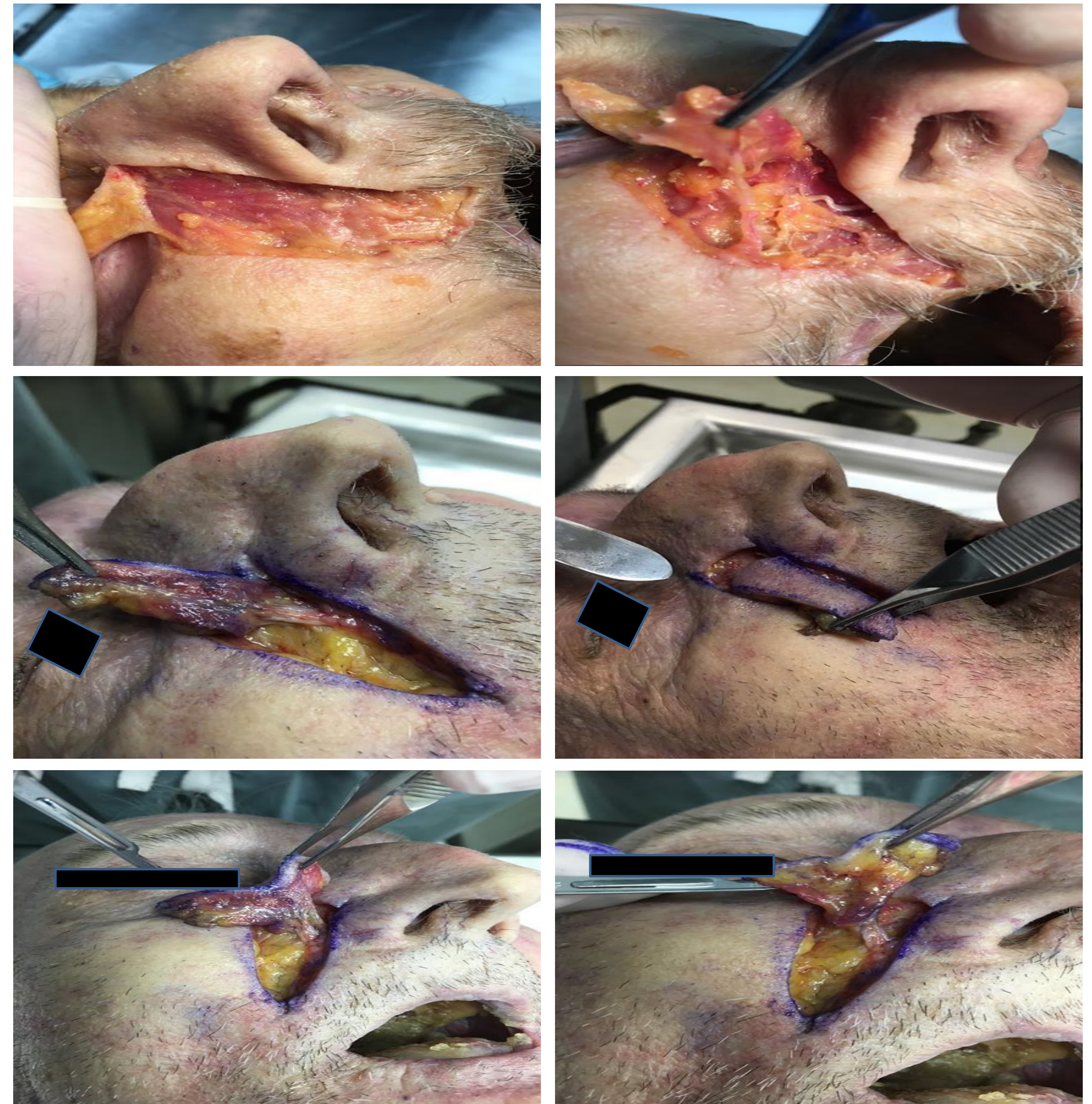
- Reconstructive surgeons are often faced with complex, through and through defects of the nose
- Due to skin match properties, robust blood supply, and ability to thin and contour the flap to match the surrounding anatomy the paramedian forehead flap is commonly considered the best option for repair of large defects of the nose
- The forehead flap requires two, if not three, staged procedures potentially increasing the patient's psychosocial and economic stress during the interim between procedures
- Anecdotally, at our institution it is common to find that patients opt for a single staged reconstruction when presented with the options for repair
- We describe a single-staged surgical technique based upon the alaeque nasi muscle to provide the internal lining, structure, and outer covering of full thickness defects of the nose
- The levator labii superioris alaeque nasi originates from the upper part of the frontal process of the maxilla and has two slips of insertion on the lower lateral cartilage of the nose and the upper lip
- It is innervated by the buccal branches of the facial nerve and receives its blood supply from the facial artery
- Its function is to dilate the nostril and elevate and evert the upper lip

## Methods and Materials

•The harvest technique of the alaeque nasi myocutaneous flap is demonstrated in cadavers. Patient cases where the alaeque nasi myocutaneous flap was employed to reconstruct through and through defects of the nose were assessed for form and function.

## Results

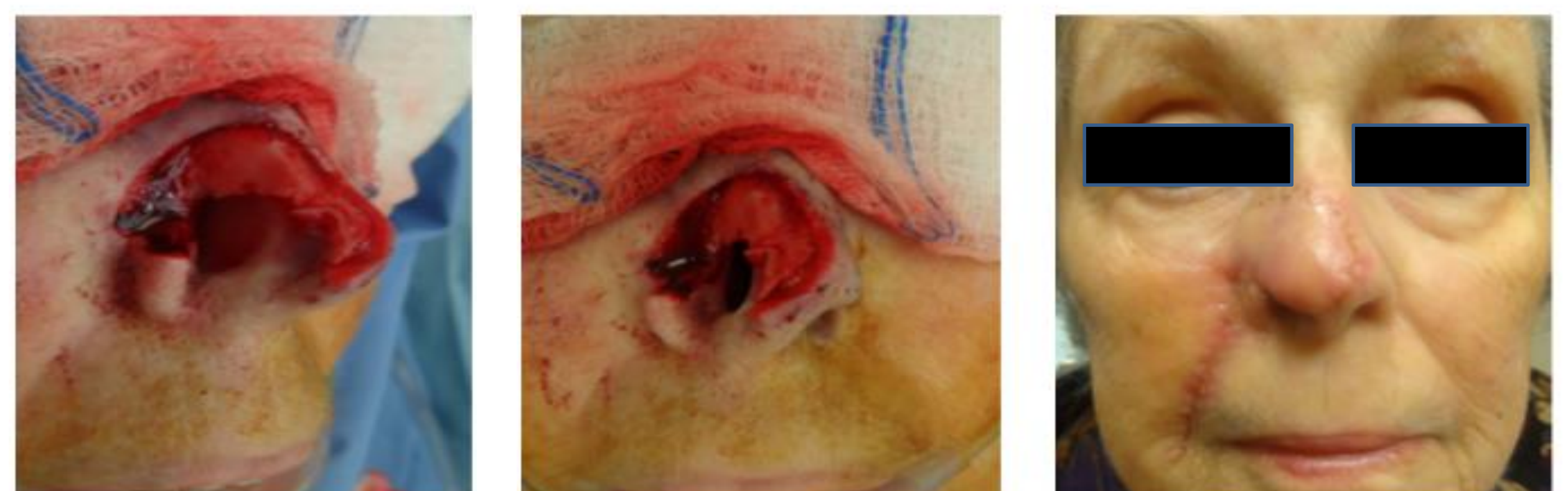
- Distance from lateral boarder of sill/nare inferiorly to pedicle: 2.76 mm (-7 to 10)
- Distance from lateral boarder of sill/nare laterally to pedicle: 5.94 mm (0 to 10)
- Pedicle length from superior labial artery: 37.7 mm (29 to 55)



**Series 1.** Flap harvest with preservation of the vascular pedicle and division of the medial and lateral portion of the muscle



**Series 2** (a) Defect of nasal sidewall and tip involving cartilage and mucosa inferiorly (b) A bipedicle mucosal flap was created and advanced inferiorly prior to flap placement (c) 3 wks post op



**Series 3.** (a-b) Defect involving the upper lateral and lower lateral cartilages (c) 1 mo post op

## Discussion

- The use of cartilage and multiple cutaneous and/or mucosal flaps are often used to address the external covering, structural support, and internal lining of the nose
- While this can provide excellent cosmetic and functional results, it usually requires staged procedures which can deter the patient from pursuing treatment
- In the alaeque nasi flap the muscular layer and vascular pedicle are included to provide nasal structural support for function and preserve the blood supply necessary for mucosalization of the internal lining

## Conclusion

- The alaeque nasi myocutaneous flap has proven to be an acceptable alternative for reconstruction of complex, full-thickness nasal defects, particularly in those patients opting for single-staged repair

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