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Aesthetic reconstruction in subtotal nasal defect following excision of basal cell carcinoma with bilateral nasolabial flaps: A case report

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Abstract
The use of nasolabial flap to reconstruct nasal soft tissue defects is one of the ancient methods for reconstruction in the medical literature. Over time different modifications have been introduced to expand its usage. Here, we present a case of basal cell carcinoma of the nose for which wide local excision and reconstruction of the subunit was done using bilateral nasolabial flaps.

Keywords: Basal cell carcinoma, nasal, nasolabial flaps, wide local excision

Introduction
Nasal reconstruction is a challenging task as it is the most prominent and aesthetic concern of the face [1]. Defects of the soft tissues of the nose result from trauma, infections and after tumor excision. Defects following tumor excision are usually difficult to restore, especially of the nasal ala which present challenge to the plastic surgeon [2]. Different reconstructive methods include skin grafts, local flaps, distant flaps and free flaps [2, 3]. Attempts at nasal restoration were made thousands of years ago by Indian and Egyptian surgeons who tried to reconstruct the cut part or the entire nose with distant flaps. Those ancient surgeons made use of either soft tissue from the forearm or forehead to reconstruct the amputated nose [4]. Full thickness skin grafts are usually used for superficial defects, the advantage being the ease of application and better graft take. However the graft hypertrophy, contracture and color mismatch are certain associated disadvantages [4]. The forehead flap is usually the mainstay in reconstruction of full thickness defects, but it often leads to a bulky repair of the ala [5]. Various flaps like free style facial arteryperforator flap, lateral nasal artery pedicle flap, microvascular reconstruction of nasal ala by using a reversed superficial temporal artery auricular flap, cheek to nose interpolation flap, and frontonasal flap are all have been described with optimal results, however these flaps require expert hands for execution [6-10]. Taking into consideration the nasal subunit principle, local flaps with adequate donor site has become a well-accepted option in the reconstruction of nose [10]. The nasolabial flap is a work horse flap for reconstructing moderate facial defects [11-13]. The flap is based on the angular branch of facial artery, the infraorbital artery and the transverse facial artey [9]. The flap can be superiorly based to reconstruct defects on the cheek, nasal sidewall or dorsum, ala, columella and the lower eyelid. Inferiorly based flaps can be used to reconstruct defects in the upper lip, anterior floor of the mouth and the lower lip [2]. The nasolabial flaps are robust hairless flaps, easy to dissect, elevate and inset and is a single stage procedure and its proximity to the nose provides a good color and texture match [2]. The nasolabial flap withstands radiotherapy due to its excellent vascularity and the procedure can be performed under local anesthesia.

Case report
A 75 year old elderly female, farmer by occupation presented to us with an ulcerated lesion on the right side of the nose for abour 8 years duration. The ulcer was associated with pain, purulent discharge and occasional bleeding.

There was no nasal block or disturbance in perception of smell. On examination, a 2.5 x 3 cm ulcero-proliferative lesion with irregular margin was present involving the lower half of dorsum, lateral wall, ala, soft triangle and part of cheek on the right side and crossing the midline above the tip. The nasal cavity was narrowed with extension to mucosal aspect.(Fig. 1)

Fig 1: Frontal & lateral photographs showing the ulcero-proliferative growth

The edge biopsy proved to be basal cell carcinoma. We planned for wide local excision with 5 mm clearance margins and reconstructive options were bilateral nasolabial flaps for lining and cover, nasolabial flap for lining and forehead flap for cover or scalping flap for lining and cover. We proceeded with wide local excision and the defect was a full thickness loss measuring 2.5 x 2 cm for lining and 3.5 x 3 cm for cover. (Fig. 2)

Fig 2: Defect after

We proceeded with bilateral nasolabial flaps for lining and cover. Histopathology confirmed the diagnosis and margins were free of tumour. The patient was discharged on the 10th post-operative day after suture removal. A second surgery was done for flap division and inset at end of 3 weeks. (Fig. 3) After 2 months, flap thinning was done.(Fig. 4)

Fig 3: Photograph after flap division and inset (frontal & worm's eye view)

Fig 4: Late post-operative picture after 3 months

Discussion

The anatomy of the nasolabial region is complex. Nasolabial crease runs obliquely from approximately 1 cm superior to the lateral alar rim to approximately 1 cm lateral to the corner of the mouth. Four muscles of expression present in this region are part of levator labi superioris, levator labi superioris alaque nasi, zygomatic major and minor muscles. Extensive subdermal vascular plexus is present supplied from four arteries; facial, angular, infraorbital and transverse facial [14]. This flap can be used unilaterally or bilaterally in the form of superiorly, inferiorly or centrally based pedicle flap [13]. In the superiorly based nasolabial flap, the base of the flap is near the ala and the apex is in line with the oral commissure [15]. Sometimes when an extra length of about 10–12 cm is needed, it can be extended to the skin over the mandibular border. This variant of the superiorly based nasolabial flap is called extended nasolabial flap [16]. In the inferiorly based nasolabial flap the apex of the flap is 5–7 mm lateral to the medial canthus [17]. At times, the nasolabial flap is designed medial to the nasolabial fold. This has two indications, one when the nasolabial flap is used for reconstruction of the upper lip (lateral subunit) and lateral limit of the resected skin falls medial to the nasolabial fold and the other when it is used for nasal floor reconstruction in cleft patients [18, 19]. The majority of the nasolabial flaps are random pattern, but can be designed to have an axial pattern blood supply from the inferiorly based axial nasolabial flap that is nourished by facial artery and the superiorly based reverse flow nasolabial flap containing angular artery [20]. The other name for this axial pattern flap is retroangular flap [21-23]. The orbitonasolabial flap is a superiorly based, reverse flow flap based on the angular artery and the boundaries of this flap crosses the skin overlying the nasolabial region up to the medial canthus [24]. The composite nasolabial flap is prelaminated with skin and is supported by cartilage [25]. Applications for this variant of nasolabial flap is exclusively

limited to the nasal reconstruction. Nasolabial gate flap is special inferiorly based musculocutaneous transposition flap that can be used for functional reconstruction of the lower lip [26]. Nasolabial flaps can be used in the form of the advancement, rotation or transposition flaps. Periosteal suspension sutures and minimal eversion of the skin during closure of donor site is advised to prevent flat cheek formation [27].

Conclusion

The nasolabial flap is a very reliable flap for the soft tissue coverage of nasal defects. The flap gives an excellent texture and color match. The flap donor site lies in the same operating field and can be closed primarily. The least donor site morbidity and a lesser conspicuous scar have made it the preferred choice for nasal ala reconstruction, especially in elderly patients.

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