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Original Article

A Clinical Study on Fronto Nasal Flap for Nasal Tip Reconstruction: A Multidisciplinary Approach

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ABSTRACT:

Reconstruction of any part of face and oral cavity is always very challenging to any concerned specialty and it should involve a team of specialists from different specialties to overcome the problems faced while doing any medical, surgical or rehabilitation to these patients. Since face is a major esthetic unit and to provide cosmetic as well as functional results, it needs management of both soft and hard tissues simultaneously which again is a big challenge during reconstruction and to provide primary reconstruction with a tissue on same complexion and area. Nasal cavity is one major pillar of face and its beauty, shape and bulk is a preference. Certain characteristics that effect surgeon's decision when choosing a reconstructive ladder are complexion, depth and size of defect, location of donor site, patients age, gender and finally cosmetic expectation of the patient. Before performing any such procedure over the face, post-operative healing of soft tissues should be the main objective to be achieved. Any kind of reconstruction over the face should provide tension free primary closure. Secondary healing is never advised and preferred. Psychiatrist plays a main role in these patients to provide them counseling and medical management to achieve the self esteem and satisfactory results in these patients.

Key words: Fronto Nasal Flap, Nasal Tip Reconstruction.

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INTROUCTION:

As Socrates said, I treat he cures. In today's era, we aim to rejuvenate, preserve and beautify what supreme designed. Esthetic reconstruction of large nasal defect at lower third of nose is a surgical challenge and demands quality skills. The most common defect of nasal tip is following excision of skin cancer like basal cell carcinoma, trauma or infection. The repair depends upon the tissues involved whether full thickness of nasal skin, underlying nasal perichondrium and tip cartilages. It is always preferable that like tissue be replaced by like tissue.[1]Certain characteristics that effect surgeon's decision when choosing a reconstructive technique are complexion, depth and size of defect, location of donor site, patients age, gender and finally cosmetic expectation of the patient. Single stage reconstruction is always a very reasonable option and highly considered than two to three staged procedure, but should provide satisfactory functional and esthetic needs.[2]

EVALUATION:

Our experience with fronto nasal flap as a mode of primary reconstruction in our surgical practice offers excellent functional as well as cosmetic results for nasal tip. Patient's skin complexion and tissue bulk is a pertinent objective to be looked while doing any reconstruction. Patients diagnosed with basal cell carcinoma which is further confirmed by histopathological examination after complete excision of the lesion, patients who had loss of tissue due to trauma and patients with infection at nasal tip region that further leads to scarring or fibrosis are provided soft tissue lining over the defect with Axial fronto nasal flap .

MATERIAL AND METHODS:

A proper informed consent was taken up from 24 patients after explaining them the surgical procedure in detail with all possible complications. All patients were evaluated and counseled by a psychiatrist. In patients with basal cell carcinoma, complete excision of the lesion was done with

surgical knife under general anesthesia with a safe skin margin of 5mm. The lesion was completely reflected from nasal perichondrium and excised. In patients with loss of tissue due to trauma, extensive debridement and mild undermining of tissue was done all over the periphery of the defect. Patients with chronic nasal tip infections had already scarred and fibrosed tissue present over the tip. This tissue was completely reflected from nasal perichondrium and excised.
Preoperative, intra-operative and postoperative photographs of one of the patient are described in sequence.

FORMULATING A PLAN:
A clearly marked fronto nasal flap of appropriate size is raised to reconstruct the defect after proper undermining and necessary releasing incisions under the flap. The flap is pedicled on a branch of angular artery and supra orbital artery at the level of left medial canthus. Our experience with use of this flap is that it can be easily rotated and provides adequate adjacent soft tissue of same color and texture through undermining to cover the adjacent defect thus offering cosmetic and physiological reconstruction. The flap after rotation is sutured to the edges of recipient site with 5-0 ethilon suture. A petrolatum gauze bolster is sutured for several days over the transposed flap which serves as a pressure dressing; helps ensure hemostasis, as well as even distribution of soft tissue lining and to a certain extent helps to granulate often with a surprisingly good cosmetic result.

Preoperative, intra-operative and postoperative photographs of one of the patient are described in sequence.

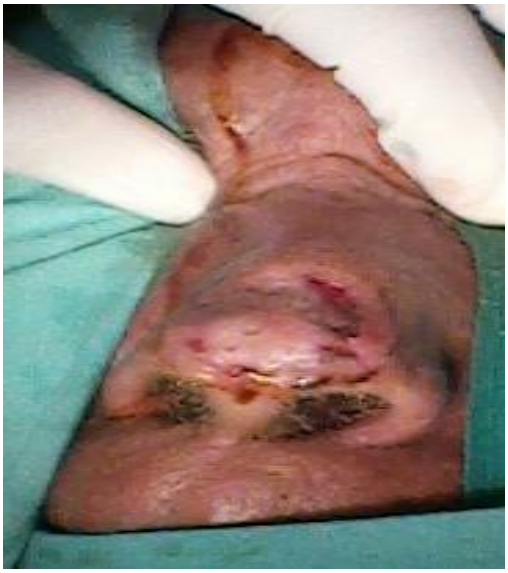

Figure 1: Patient of dark skin complexion with a non-healing ulcer present since 4 months involving nasal tip and apex centered slightly towards left side measuring 1.0 x 1.0 cm in greatest diameter.

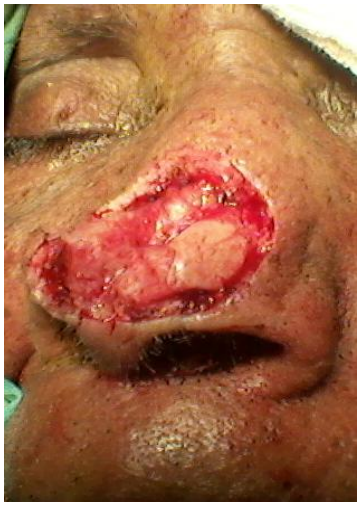

Figure 2: Complete excision of the lesion is done after reflecting from nasal perichondrium with a safe skin margin of 5mm.

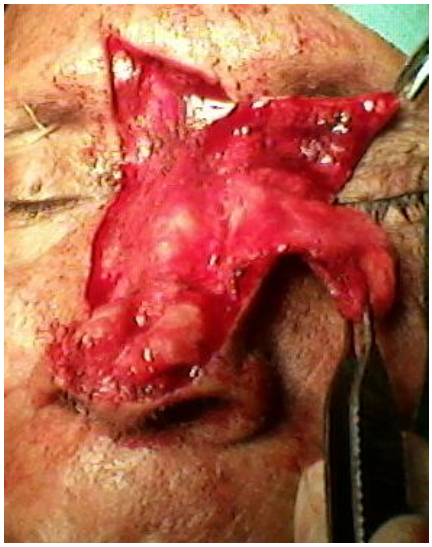

Figure 3: Axial pattern fronto nasal flap raised.

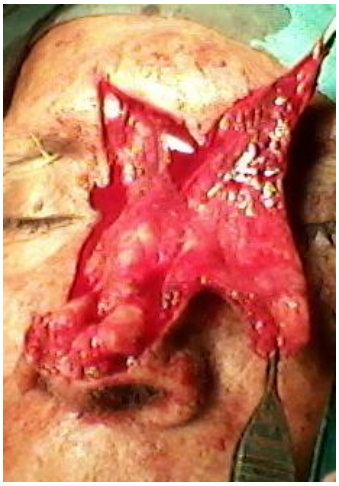

Figure 4: Recipient site defect to be covered with raised fronto nasal flap.

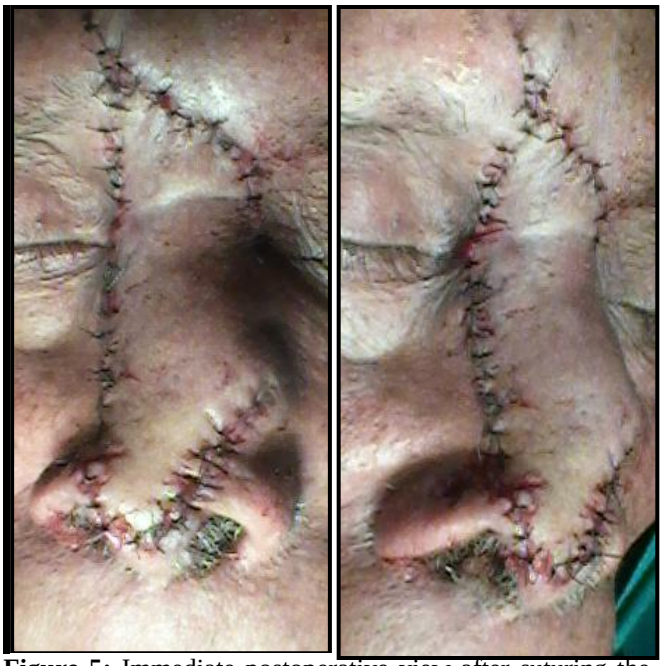

Figure 5: Immediate postoperative view after suturing the flap over the defect recipient site as well as donor site.

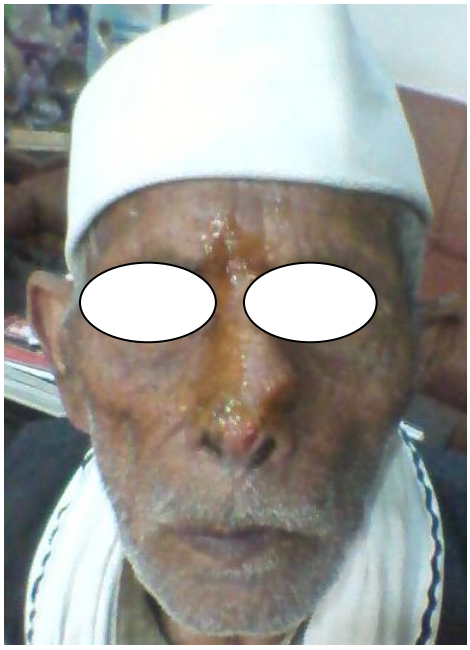

Figure 6: 1-Month post-operative view.

DISCUSSION:

Basal cell carcinoma commonly develops on sites exposed to chronic sun exposure due to effect of ultraviolet radiation and is common in lightly pigmented people occurring usually on hair bearing skin. About 80% of all basal cell carcinomas occur on the face, of this 25-30% are found on nose. The nose has 2.5 times higher risk of recurrence of basal cell carcinomas after excisional surgery.[3]

Basal cell carcinoma is a locally invasive slow growing tumor which rarely metastasizes. Histologically the tumor cells resemble the normal basal cell layer of epidermis. Morphologically these tumors are either nodular lesions or multi focal lesions. Nodular lesions grow deep into the dermis as islands of basophilic cells surrounded by fibroblasts and lymphocytes. Multifocal lesions begin in the epidermis and spread laterally over the skin surface. Invasion may occur into deeper tissues including fascia, nerve, muscle, perichondrium, cartilage, periosteium and bone.[4]

Surgery is the main mode of treatment and immediate reconstruction should be done, unless the tumor margins are questionable or if there is deep invasion of adjacent tissues by the tumor.[5] Incisions for surgical excision should include borders of adjacent sub-units of nasal skin to incorporate the entire sub-unit affected by the tumor; this provides esthetically more pleasing and acceptable reconstruction results.[6] Axial fronto nasal flap is a rotational flap from glabella region which contains loose excess skin and no hair follicles. It can easily cover mid nasal and lower nasal defects. This flap is raised in supra-perichondrial plane as it contains loose connective tissue which dissects easily and limits bleeding.[7]

CONCLUSION:

Complete psychological counseling and psychiatric management of these patients with pharmacological means was provided, since these kinds of procedures have high cosmetic expectations from patients and for esthetic reasons sometimes a patient may go into depression. So it is always emphasized that a psychiatrist should be involved in these procedures. Nasal reconstruction is a very demanding procedure and careful preoperative planning is necessary to achieve successful results to provide patient's satisfaction which is equally rewarding to the skillful surgeons. Axial fronto nasal flap is an unparalleled reconstructive mode offering cosmetic and physiological benefits.

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