# SOFT TISSUE RECONSTRUCTION OF NASAL DEFECTS

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Reconstruction of nasal defects is a very wide subject and each disease and each technique could provide enough material for discussion in a single paper. But when the problem is seen over a number of years in a limited number of patients with a wide variety of defects and diseases, the analysis of data indicates the necessity of knowledge of many reconstructive techniques and their applications. Such data also incidentally, provides information regarding the regional distribution of disease processes.

**Material :**

This retrospective analysis covers 39 patients operated at Medical College Patiala and Medical College Rohtak, during the last 10 years.

Table I shows the distribution of disease processes in 39 patients. Table II further analyses the causes of defects in 21 patients.

TABLE - I

NASAL RECONSTRUCTION

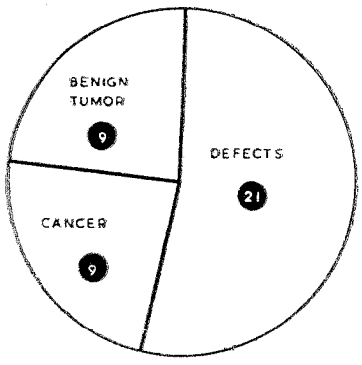
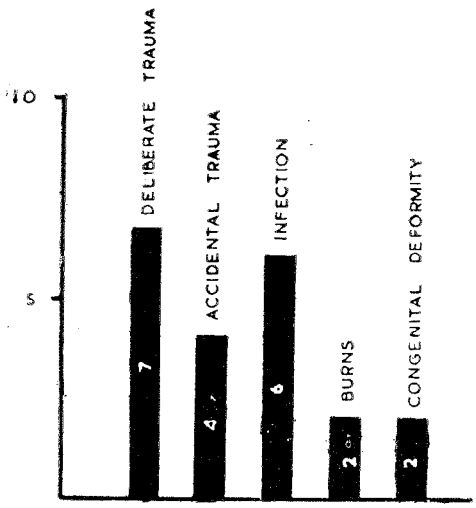



TABLE - II

NASAL DEFECTS-CAUSES




**Observations:**

Primary reconstruction was done in 18 cases following excision of tumors, both benign and malignant. Defects were reconstructed by single or multiple stage procedures as warranted by the condition. Table 3 shows the variety of procedures

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used. Two patients were omitted from this list as the operative procedures were not completed in them.

**Benign Tumors :**

Of the nine benign lesions, two were moles, three were dermoids at the root of the nose, haemangioma at glabella, one keloid at medial canthal area, one meningo-encephalocele at the root of the nose and one was a sebaceous cyst near alar margin. All nine patients were females ranging in age from 2 months to 45 yrs.

**Malignant tumors:**

All the nine malignant tumours were basal cell carcinomas with squamous cell element in a few cases. All patients were above 35 yrs of age, seven of these being male and two female.

All nine patients could be treated by excision and primary reconstruction. None have so far recurred as far as we know. This is in contrast to the known higher malignant nature of tumors in the ear.

**Defects :**

Among the twenty one defects, a) Seven were due to deliberate trauma (human and animal b) Four were due to accidental trauma c) Six were due to infection, d) two were post burn and e) two were congenital.

**Deliberate trauma :**

This was as a result of cutting of nose by an irate husband (1 case) dog bite (2 cases) human bite (2 cases) surgical trauma (2 cases) and gandasa injury (1 case).

**b) Accidental trauma :**

This was always due to fall on a stone or a rough object. Accidental trauma involved alar margin in all these cases. In one recent case of a car accident, the entire lower half of the nose was found avulsed upwards on to the pyriform opening.

**c) Infection :**

Infective ulcers occured either in the skin of the nose or its inner lining. Extensive ulceration of the inner lining (including maggots in case) was responsible for nasal fistulae in two cases. Superficial ulceration was responsible for producing pigmented scars, of tip, alae, columella etc.

TABLE - III

SOFT TISSUE DEFECTS OPERATIVE PROCEDURES

| Sr. NO | OPERATION | NO. | Sr. NO | OPERATION | NO. |
|---|---|---|---|---|---|
| 1. | EXCISION & SUTURE | 10 | 7. | ROTATION FLAP | 2 |
| 2. | Z _ PLASTY | 2 | 8 | NASOLABIAL FLAP | 2 |
| 3. | SPLIT SKIN GRAFT | 2 | 9 | SUBCUTANEOUS PEDICLE FLAP | 1 |
| 4. | WOLFE GRAFT | 2 | 10 | FORE HEAD FLAPS | 10 |
| 5 | COMPOSITE EAR | 1 | 11 | TUBE PEDICLES | 3 |
| 6 | ADVANCEMENT FLAP | 2 | | | |

**d) Burns :—**

Two patients on whom reconstruction was carried out are included in this series. There were many others who have failed to return for reconstruction.

**e) Congenital :—**

Certain defects e.g. Bifid tip and bifid columella of a minor extent were seen but not treated. Two severe defects which are recorded in this series are

1. Agenesis left nose
2. Hypertelorism

Their treatment has, however, not been completed as yet.

**Discussion :**

Surface nasal lesions involving soft tissues, requiring Surgery are not as common as many other surgical diseases e.g. cleft lips, palates etc. Because of the cosmetic and functional importance of this area, the surgical considerations involve the ultimate effect of extirpation and reconstruction, on above two factors. This is specially true of malignat tumors. Among benign tumors, most of the lesions were moles and dermoids. Moles were generally small and amenable to local excision. At the nasal tip, minor adjustments were required to avoid dog ear deformities. Dermoids occured at the root of the nose and were easily excised by transverse incision with minimum scarring. This was also true for meningo-encephalocele in a 2 month old child.

Keloid at medial canthus, in a single patient, followed improper excision of lacrimal sac. Attempt at excision of keloid revealed remnant of the cyst deep to it. Excision of the cyst and keloid was followed by a good cosmetic result. Cosmetic problem arose in a patient with a sebaceous cyst about 0.5 cm in diameter near the left alar margin. This had been present for some months. During operation it was seen to have greatly compressed surrounding soft tissues. Primary suture caused lifting of the alar margin. In retrospect, it is argued that treatment by packing and dressings may have prevented the upward lift of alar margin, by allowing the compressed tissues to slowly expand and fill the dead space. Malignant tumors occured mostly in older age groups of 60-70 yrs. Duration of the disease varied from 6 months to 12 yrs. A young female of 35 yrs. presented with 1.0 cm cystic lesion of 3 yrs. duration with almost intact skin and a 45 yrs. old male came with a 0.5 cm recurrent ulcerative growth of 12 years duration. Most of the lesions were scaly and encrusted, about 2.0 cm in diameter and were generally pigmented (Black) in colour. One lesion presented as an exuberant soft growth resembling a sebaceous adenoma at the tip of the nose (Fig I). One of the patients with a large lesion presented as field-fire type appearance with islands of apparently normal skin (Fig. 2).

Local flaps were the prefered method of surgical treatment, because of the good cosmetic results thus obtained. In two patients, advancement cheek flaps were used for lesions in middle regions of the sides of the nose (Fig. 3). 10 cm wide naso-labial flap was used on the ala in a patient with good loose local skin.

Median forehead flaps were utilised for reconstruction in two patients.

Fig. 1 70 years old male with an exuberant infected growth (Basal cell carcinoma) of one yr. duration. Treated by excision and split skin graft.

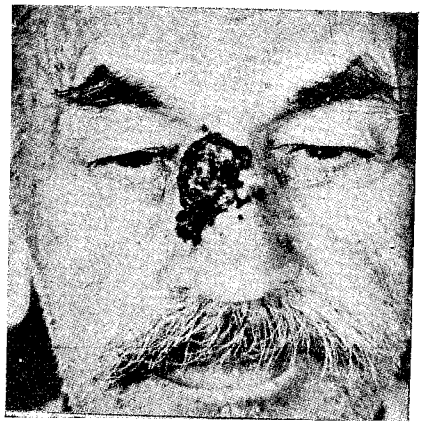

Fig. 2 50 yrs. old male with dark pigmented field fire type lesion (Rodent ulcer) of 5 yrs. duration. Treated with excision and full thickness skin graft.

i) With a deep penetrating lesion involving the bone and the mucosa, on the bridge of the nose.

ii) An extensive lesion on the tip and alae.

Wolfe graft was used in a large non-infected lesion on the cheek and nose; and split skin graft in two cases with frank infection. Simple excision and suture sufficed in one case.

It was considered mandatory to excise at least 0.5 cm margin of normal skin around the lesion for curative surgery.

Defects of the nose presented primarily as a problem for reconstruction. Interesting causative factors were encountered while analysing the aetiology of these defects and these have been broadly presented in observations. In the sub groups of deliberate trauma only one case of injury to the nose by husband is encountered and appears to be less common in this part of the country. Age group of these patients was between 16 and 45 yrs. of age. Injury was confined to the tip and alae of the nose in all these patients.

Reconstruction was carried out mainly by forehead flaps (5 cases) (Fig.4), nasolabial flap in one case and tube pedicle in one patient. Tube pedicle was used in a

Fig 3 40 yrs. old male with an dark encrusted Rodent ulcer. Treated by excision and rotation flap.

Fig 4 16 yrs old female with Iatrogenic defect following excision of lesion (probably hemangioma) during infancy. Treated by Median forehead Pedicle Flap.

patient with deliberate injury by husband. The entire lower half of the nose was missing and it was thought preferable to replace the entire nose by tube pedicle.

In the sub group of accidental trauma, out of four patients, 3 were females. All patients were in the age group of 15-32 yrs. As mentioned earlier, the aetiology of trauma was a fall on some rough or sharp objects e.g glass, stone etc. In two patients, this left a linear scar causing a pull on the alar margin. This was easily corrected by revision and Z plasty. In two patients, there was tissue loss, in addition to skin scar. This was repaired by median forehead flap in one (Fig. 5) and composite ear graft in another patient. Composite graft was about 2.5 mm in thickness and extended on to the dorsum of the ala as Wolfe graft for another 6-7 mm for replacement of skin scar (Fig.6).

Fig. 5 32 yrs. female. Injury due to a fall on a sharp stone. Treated by median forehead flap.

Fig. 6 15 yrs. old female with a defect and scar on left ala due to a glass cut in young childhood. Repaired by Composite graft.

Among the six cases of infection, the extent of defects have been quite severe. In two patients, perforation of the nose occured due to severe nasal infection with maggots. Ulcers on the tip, and columella resulted in extensive loss of tissues.

Fig. 7 41 yrs. old female with a perforation nose following an infective lesion of 20 yrs. duration. Reparation by advancement of cheek flap.

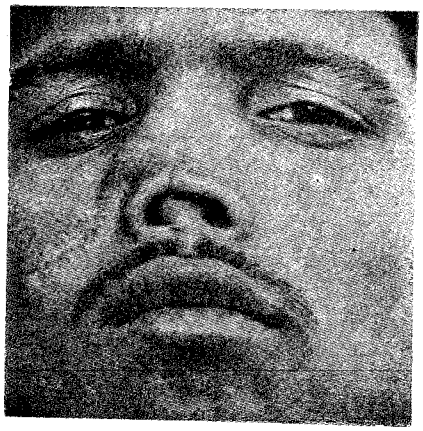

Fig 8 15 yrs. old boy in whom repair of columella has been done by subcutaneous pedicle flap from right nasolabial area.

In one patients, this was associated with loss of lip, alveolus and floor of the nose. Two patients with performation were treated i) with advancement flap from the cheek to cover perforation in the left nasal bridge area (Fig. 7) ii) With Median forehead flap to cover a large hole in the centre of dorsum of nose. These patients with perforation wanted closure of nasal fistulae only as they were greatly troubled by flies getting into the nasal cavities.

Subcutaneous pedicle was used for total loss of columella. This was obtained

Fig. 9 Cancrum oris in a young female of 17 yrs. duration. Repaired in 8 operations from a single Acromio-Thoracic tube pedicle.

from naso-labial area of the cheek, based on angular vessels and tunnelled through the side and dorsum of the nose. (Fig. 8)

In one young patient with extensive loss of nose, lip and alveolus, reconstruction was carried out in 8 operations with a single acromio thoracic tube pedicle over a period of $1\frac{1}{2}$ yrs. (Fig. 9). One forehead flap was used for loss of tip, alae and columella.

Among the post burn defects of the nose, one had a total scarred nose with loss of lower half, along with severe scarring of the face. This was treated by T-tube pedicle flap. Upper horizontal part of the T was used for lining the forehead and the vertical part for reconstruction of the entire nose. Second patient had severe scarring of the right nasal and cheek skin with a down ward pull on the medial canthus. This was treated by repair of the canthus and a full thickness skin graft.

There were also two congenital lesions i) Hypertelorism ii) Agenesis of left nose. Their treatment was started but has not been completed so far.

**Summary :**

A large variety of soft tissue lesions of the nose are presented. The different operative procedures used are discussed, and preference for a surgical procedure in a particular situation is indicated.