Reconstruction of Total and Subtotal Nose Defects

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1. INTRODUCTION

Defects of the nose formed as a result of traumatic, tumor, or infectious etiology present a significant problem for both the patient and for surgeon. Due to its central position in the face the patient's expectations are usually high. Compromised aesthetics in terms of monstrosity to a large extent affected the patient's social life, and it is therefore necessary reconstruction of the nose (Figure 1).

Filling defect is only one component of a successful reconstruction (1). To achieve satisfactory cosmetic and functional results, it is necessary for the reconstruction of the surrounding skin to use a similar layout, which compensates its precise contours and imitate the missing part (2). Special features, such as the fine movements of individual nasal cartilage and fine motor skills of the nasal musculature cannot be reconstructed. The aim of reconstructive surgery of the nose is the preservation of nasal function, prevention of obstruction of breathing, aesthetically acceptable three-dimensional appearance.

There are nine aesthetic elements of the nose, which are probably the most important concept of reconstructive surgery: nasal dorsum, the tip of the nose, kolumela as odd, and the nasal wing side and a triangle of soft tissue as well as steam elements (Figure 1). The art reconstructive rhinoplasty originates from India about 3000 years BC. Davis (1941) in his article on the history of plastic surgery said that the transplantation of skin from Kooma implemented potter caste, as a response to criminal destruction of the nose that had been the traditional punishment for theft. They used leather grafts from gluteus region (3). Physician Sushruta in the 7th century BC first described the reconstruction of the nose using the original tissue from the forehead, which is considered the basis of the first descriptions of paramedical frontal lobe. Since then Lucas, Lisfranc, Difffenbach, Labat, Ombradanne and Gillies uses Indian method of rhinoplasty and give it many modifications (4). Options in the treatment of nasal defects can be: the primary (Figure 2 and 3) and secondary reconstructions, secondary healing, and direct suture. The reconstruction of subtotal nasal defects is respected is the order: reconstruction of mucosa with mucoperihonral slices or skin slices, cartilage reconstruction by grafts with aurikula cartilage, ribs, or remaining part of the septum, reconstruction of skin with greater slice, usually from the forehead Structural support in most cases is enabled by the cartilage grafts (1). The upper third of the defect does not require additional
structural support, except in case of lack of nasal bone. Large defects of the nose apex usually require a cartilage graft for support. Attempts of reconstruction of complete or subtotal alar defect with no structural support result in dysfunctional and non aesthetic reconstructions (5). In the case of large defects of the support structure of the nose is considered in two parts. The upper two thirds are naturally rigid and act as a support for the lower third that is more flexible. Lower third is the support of nostrils and generally it is necessary to reconstruct it as a separate entity for aesthetic and functional reasons (6). Nasal defects can be closed by local lobes from the 6 regions: 1 nose; 2 forehead; 3 glabellar region; 4 retroauricular region; 5 cheek; 6 neck. In these cases to cover the defect were used frontal and nasolabial lobes.

2. PATIENTS AND METHODS

In the period from 2007 until now 20 patients with total or subtotal defects of the nose from which 14 was due to tumor and 6 of traumatic etiology. In all cases there was a defect in full thickness, which affected nasal mucosa, nasal vestibule skin, and cartilage skeleton and outer skin of the nasal pyramid.

In 90% of tumor pathology pathohistological diagnosis showed Carcinoma baseocellulare.

In all patients there was an indication for the reconstruction by local lobes. In 12 cases are used the medial frontal lobe, in 6 cases nasolabial lobe and in 2 cases a combination of the two lobes. Listed lobes are prepared in various forms and lengths, depending on the defect. They were significantly longer than the lobe randomized, as all were axial.

Preparation of the nasolabial lobe

After precisely prepared working milieu, with a front boundary always at nasolabial furrow, dissection begins with a sharp incision of the skin, sharp or numb preparation of the fat tissue in full thickness by avoiding lesion of small blood vessels involved in irrigation of the prepared tissue. After is halfway reduced the full thickness of fatty tissue in the dorsal area of the nose and nasal vestibule. Base of the lobe always mobilizes at maximum if slice is not strictly of axial character and mobilization after being deposited in the region of nasal pyramid dorsum. If the slice is of axial character using art. infraorbitalis it covers a larger area of the skin but is significantly less mobile. Sewing of the lobe seems to be always in two layers while the skin is stitched with monofil strings of thickness 4 and 5 zero.

Preparation of frontal lobe

The reconstruction of total and subtotal defects of the nose usually frontal lobe should always be of the axial type. So always can be dissected in sufficient length to reconstruct the missing skin and nasal vestibule. Preparation is similar as for the nasolabial lobe, with the adipose tissue in general is missing or at least indicated, so that skin is raised in loose connective tissue of the pericranium. Cut in principle is always done in the sagittal projection of a lateral incision width corresponding to that of skin defect of the nose is always taking care not to affect vascular pedicle flap. Always is applied the lobe side to contra lateral side of the defect of the nose. In this way, avoiding the creation of a “dog ear” and is usually secondary correction of the same is not required. Sewing is exactly like in case of nasolabial lobe.

In over 50% of cases were used combined lobes usually at subtotal defects of the nose, which indicates the gravity and seriousness of the reconstruction.

Satisfactory fullness of the lobe, and therefore the reconstructed shape of the nose are achieved thanks to the rich fat especially in nasolabial lobe.

3. RESULTS

In all 20 patients achieved are good or satisfactory results except in one case of degraded speech functions (Table 3). The function of the nose remained preserved with orderly progression of the nostrils. Reconstructed three-dimensional appearance of the nose with acceptable aesthetic results. Top of the nose was accentuated (good forms and shapes) especially in those cases that were behind one or half of the alar cartilage. Top of the nose was also an emphasis on those patients where we have made a complete reduction of fat in that part of the flap and thereby made by adapted lobe. Dorsal part of the nose in all 20 patients was upgraded to an optimal thickness of the skin with its resistance and color. In patients with complete bone-cartilage defects of the nose “fat pad” is the wealth of tissue appeared in the area and so completely

**Figure 2.** Primary reconstruction after explosive injury

**Figure 3.** Profile photos showing the pronounced peak of the nasal pyramid

**Figure 4.** Ca baseocellulare

**Figure 5.** Suspension of the skin and cartilage
get practically the same color, skin, without cilia, which has the same resistance as normal skin of the nasal pyramid. Rib cartilage and ear shells emulated well enough lost proximal part of the cartilage and nasal cartilage apical parts of the wings as at a number of cases gave a good form of the lost alapical part of the nose. From the statistical analysis we see that there are significant levels of significance in the postoperative results of aesthetic appearance and function, postoperative speech and breathing, when used are first or second lobe. Therefore, the selection and use of cloves as well as postoperative results depend on the quality of the skin of the forehead furrows or nasolabial that can be filled with tumor mass or damaged caused by defects of the nasal pyramid. Both options provide full flap reconstruction of the nose, and even can be said that the two “ideal” local flap useful in this operational procedure, and all other local facial lobes move to another plan.

4. DISCUSSION

Reconstruction defects of the nose are very demanding with regard to the expectations of patients. Its position, the nose is exposed to direct view of the other person, and any unsoundness in his outer appearance of a significant effect on psycho-social status of the patient. Because of this, reconstruction of the damaged nose is imperative for the complete rehabilitation of the patient.

In choosing a local lobe to cover the defect leads to the similar account of the appearance of the skin in donor region. Nasolabial lobes and medial frontolobe due to its good vascularisation are mostly used in the reconstruction of nasal defects. Their lack is reflected in aesthetics, in terms of being overweight. Although good vascularized frontolobe is the roads of blood vessels raises the forehead with frontal muscles to vascularisation was safer. This makes it much thicker than the surrounding skin. Also, nasolabial lobes are, if not the only option, reserved for female as transposition of the skin and hair follicles are transferred from the cheek area. Frontal lobe is the lobe of choice for reconstruction of large defects of the nose (7). Free micro vascular lobes independently applied to facial reconstruction do not give satisfactory aesthetic results (8).

5. CONCLUSION

From the entire palette of local lobe for the reconstruction of subtotal defects of the nose, usually applied are the medial frontal and nasolabial lobes due to their good vascularisation, which provides greater security for success, and also gives satisfactory cosmetic and functional results, regardless of these shortcomings. Lobe selection, quality, function and aesthetic appearance after surgery only depend on the surgeon, his experience and virtual power. Accurate and thorough work with a good measure, as the defect size and usable skin, may give satisfactory results. Generally, the use of free skin graft is now generally not used in the reconstruction of facial skin defects, except those which by their dimensions are not significant, and reconstruction has been reduced only to the local lobe and full thickness skin transplantation.

REFERENCES