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Reconstruction of Nasal Defects in Patients with Skin Cancers

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Abstract

Most of malign tumors of head and neck region often occur at the nose. Surgical methods like primary closure, skin grafts, local flaps and free tissue transfer are often used for reconstruction of those defects. Nasal dorsum, nasal tip, sidewalls, alar regions, columella and soft triangles are described as nine subunits of the nose and various reconstruction methods are described for every subunit. Local flaps are often advanced on the pivot point by rotating or advancing. The most commonly used local flaps in nasal reconstruction; bilobed, rhomboid, advancement, dorsal nasal and transposition flaps. Nasal dorsum skin is thin and mobile. Dorsal nasal flap, glabellar flap, forehead and full thickness skin could also be preferred for reconstruction of this region. Nasolabial flaps are the foremost preferred method for reconstruction of the nasal sidewall. Bilobed flap, dorsal nasal flap and forehead flap are the foremost preferred flap techniques within the nasal tip. Bilobed flap, nasolabial flap, paramedian forehead flap and Millard's "gull-wing" flap are the well-liked methods to form reconstruction of alar region. The dimensions of the defect, its relation with neighboring structures, comorbid diseases of the patient, smoking and alcohol use are other important factors.

Keywords: Nasal Reconstruction, Skin Cancer, Flap, Graft

Introduction

Most of malign tumors of head and neck region often occur at the nose. These tumors leave large defects after resection. Surgical methods like primary closure, skin grafts, local flaps and free tissue transfer are often used for reconstruction of those defects. The history of nasal reconstructions dates back to Susruta Samhita in 600 BC. Different surgical techniques are defined over the past century. In researches that made, it had been seen that defect size, location, depth and sort of defective tissue were important variables in reconstruction. Additionally, three dimensional reconstruction of the nose has own unique features due to the apparent anatomic structure within the center of the face. Gonzalez and Ulloa have divided the whole face region into aesthetic sub-units. Burget and Menick published the primary series of nasal reconstruction using subunits in 1985. Nose ridge (dorsum), nose tip, sidewalls, alar regions, columella and soft triangles are described as 9 subunits of the nose and various reconstruction methods are described for every subunit. Another important consideration within the nasal reconstruction is; to supply an aesthetically acceptable view by using tissue within the color and thickness closest to the nose skin, to make a support frame, to avoid distortion in neighboring tissues and to get a functional repair without obstructing the respiration. During this article, reconstruction techniques and our experience are going to be discussed within the context of the literature in non-melanom malign skin cancers resection defects.

Secondary Healing and Primary Repair

The best results in nasal reconstruction; cases where the lesion is removed in accordance with the nasal subunits and by following the tension lines

described by Langer. Again, according to Burget and Menick; if the defect formed after operation is more than 50% of the subunit than it is more suitable to reconstruct defect by increase the defect to the entire subunit.Secondary healing, which is the first step in reconstruction, is not a preferred method for nasal reconstruction. However, Zitellive have reported satisfactory results in superficial and small-diameter lesions on the concave surfaces of the nose. Our clinical experiences also confirm these studies. Secondary healing of wounds with a diameter of about 0.5 cm was preferred on concave surfaces such as nasal and nasolabial grooves and good results were obtained. However, scarring can be seen in deepseated lesions. It is also important that the patient be informed that exposure to extreme sunlight may cause discoloration during the healing period. There are conditions where we prefer primary repair for reconstruction in cases where the post-surgical defect is close to 1.5 cm. However, they are preferably lesions located in the nasal dorsum and side walls. Alar region, alar notch, nasal tip is not preferred for primary closure because it can cause nasal tip deformations. In other regions, primary closure can be fixed to the cartilaginous tissue in underneath and cause distortion so that why not suitable.

Reconstruction Techniques according to Nasal Subunits

Surgical flaps must preserve vascularization to form tissue transfer from one region to a different defect region. Flaps may contain skin and subcutaneous tissue, also as any tissue. Local flaps are often advanced on the pivot point by rotating or advancing. The foremost commonly used local flaps in nasal reconstruction; bilobed, rhomboid, advancement, dorsal nasal and transposition flaps. The most important advantage of local flaps is that they're often in appropriate color and structure, as they're close to the defect site. The disadvantages are that they cause an additional scar within the defect area. The foremost common nasal reconstruction methods applied in our clinic are local flaps.

Nasal Dorsum Reconstruction Techniques

Nasal dorsum is that the commonest site of malignant skin tumors of the nose. Nasal dorsum skin is thin and mobile. Dorsal nasal flap, glabellar flap, forehead and full thickness skin could also be preferred for reconstruction of this region. Dorsal nasal flap, glabellar flap, forehead and full thickness skin could also be preferred for reconstruction of this region. The dorsal nasal flap (Reiger-flap) began to be applied by Reiger in 1967 is that the rotation and advancement of the skin. In defects requiring reconstruction within the nasal bones, iliac crest grafts are often taken. In our clinic, small and medium sized (< 2 cm) bone grafts are preferred for defects within the middle and distal third of the nose. The glabellar flap was more acceptable for lesions within the proximal third of the nasal dorsum. The glabellar flap is described by Gillies and modified by Reiger. For reconstruction of the lesions covering close to whole nasal dorsum, the forehead flap and full thickness skin grafts are preferred. In flap techniques of nasal dorsum reconstruction, consistent with the technique; Vertical incisions are made extending from both eyebrows to the scalp hairline. Vertical hypertrophic scars can develop during the healing period due to these incisions. The foremost important factor here is that the tension of the suture line. Hypertrophic scar development due to excessive tension is more frequent in flaps harvested wider than 3 cm.