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Reconstruction of Small to Moderate Eyelid–Cheek Junction Defects

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ABSTRACT:

Introduction: Reconstruction of eyelid-cheek junction Defects after tumor excision is challenging because to its close proximity to the lower eyelid and the possibility of ectropion.

There are several reconstructive options available for small-to-moderate eyelid-cheek junction defects.

Methods and patients:A retrospective review of 25 patients presenting to the Department of Plastic Surgery at IBN SINA University Hospital from February 2021 to October 2023 for reconstructive surgery was performed. All patients who Has small or moderate defects located across the lower lid and cheek junction were included in the study.four operative techniques were used for the reconstruction: Skin grafting, The VY lateral flap, the VY vertical flap and Mustardé flap.

Results:25 patients underwent reconstruction of eyelid-cheek junction.The eyelid-cheek junction defects were the result of skin tumor excision including basal cell carcinoma, Melanoma and squamous cell carcinoma.The recontrustruction was done by: full skin grafting, a lateral V-Y flap, a vertical V-Y flap, a rotation- advancement flap and association of frontal flap and Rotation-Advancement Flap. one tumor recurrence was noted.

Conclusion: Small to moderate eyelid-cheek junction has a variety of defects. the main purpose is to restore the aesthetic appearance while avoiding the risk of ectropion.

I. INTRODUCTION:

the eyelid-cheek junction is exposed to the sun which explains the frequency of occurrence of skin tumors in this zone(1). The proximity to the lower eyelid and the risk of ectropion make reconstruction of eyelid–cheek junction defects following tumor removal a challenge.

Multiple reconstruction options for small-moderate defects in the eyelid-cheek junction have been reported(2).

Methods and patients:

Study design

A retrospective review of patients presenting to the Department of Plastic Surgery at IBN SINA University Hospital after pandemic COVID from February 2021 to October 2023 for reconstructive surgery was performed. During this period, 25 patients with an eyelid–cheek junction defectlowerthan 8 cm^2 were candidates for reconstruction surgery. All patients who Has defects located across the lower lid and cheek junction were included in the study.

Age, sex, body mass index, cardiovascular function, metabolism, and chemical laboratory tests were among the preoperative evaluations and data collected. The patients gave written informed consent for their participation in the study and for the reproduction of the photographs.

Operatives techniques

1) Skin grafting:Figure 1

Full-thickness skin grafting is preferable in the eyelid-cheek junction because of its low retraction.

When it comes to matching color, character, and texture, full-thickness skin grafts taken from the supraclavicular, preauricular, and postauricular regions yield the greatest outcomes(3).

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Figure 1:Reconstruction with skin grafting

2) The V-Y lateral flap:

Following meticulous preoperative planning, which includes marking the nasofacial sulcus, melolabial folds, and cheek–eyelid junction, the design and marking of the two limbs of the V-Y flap are performed.

To broaden the base of the pedicle, the flap is incised and subsequently undermined at the subcutaneous level by a 45-degree outward beveling. Usually, this undermining is done around the recipient site, lateral to the flap, and posterior to it. Carefully undermining the flap's base can provide extra mobility if it's necessary.There shouldn't be any ectropion, eversion, or vertical pull on the eyelid level. Creating a flap that is long enough and making sure it is released and mobilized enough to prevent strain on the lower eyelid are crucial to achieving this.

Figure 2: Reconstruction with lateral VY flap

3) The V-Y vertical:Figure 3

The V-Y advancing flap has a simple design(4)The flap's leading edge is formed by the defect's inferior margin. The medial limb of the V is depicted with its limbs aligned parallel to and immediately next to the nasolabial fold.

The skin is sliced, and the superficial musculoaponeurotic system is dissected after passing through the subcutaneous tissue. It is highly advised to slightly bevel the subcutaneous dissection at a 30-degree angle in order to catch as many direct cutaneous perforators to the flap as possible.

During inset, the flap is "pushed" in a vertical direction. To do this, first close the donor site's inferior section, which forms the Y's base.

Next, deep dermal suturing is done in a stair step manner along the flap's two limbs. the distribution of the tension on the side banks of the flap reduces the tension on the top edge and avoids the risk ofEctropion.

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Figure 3: Reconstruction with vertical VY flap

4) The Rotation-Advancement Flap:Figure 4

The incision begins at the superolateral margin of the defect and extends slightly beyond the lateral canthus before continuing superiorly into the temporal region above the zygomatic arch, as Mustardé initially described(5,6). It then moves through the preauricular crease, down the earlobe's caudal border. If needed, a gentle arc into the mastoid area and curve anteriorly and inferiorly into the neck, dissection is continued with the subcutaneous plane. The flap at the arcus marginalis can be supported with the help of suture anchors. This will stop potential eyelid malpositioning and long-term flap ptosis.

The aim is to provide sufficient rotation-advancement for a tension-free closure along the defect's free margin.

Figure 4: Reconstruction par avancement-rotation flap

II. RESULTS:

From February 2021 to October 2023, 25 patients underwent reconstruction of eyelid-cheek junction.

The mean age of the patients (10 male and 15 female patients) was 55 years (range, 24–85 years).

All participants were nonsmokers, and none of them had facial scars that influenced the decision of reconstruction.

The eyelid-cheek junction defects were the result of skin tumor excision including basal cell carcinomas (n = 15), Melanoma (n= 6) and squamous cellcarcinomas (n = 4).

The reconstruction took place 10,3 days following excision.

For most of the patients (n = 20),the superficial myocutaneous system was left intact. Inthe other Five cases, the facial muscle was excised, resulting a bone exposure.

The removed specimens' histopathologic analysis showed tumor-free margins. one tumor recurrence was noted during a mean follow up of 7 months.

The recontrustruction wasdone by: total skin graft (n=7), a lateral V-Y flap (n= 4), a vertical V-Y flap (n=5), a rotation- advancement flap (n= 8) and association of frontal flap and Rotation-AdvancementFlap (n=1).

the authors performed all of these surgeriesnunder local anesthesia instead of using a regional nerve block.

III. DISCUSSION:

The difference in skin texture, thickness, laxity, and shape between the two neighboring aesthetic subunits and the lower lid's ectropionsusceptibilityshould be taken into account while planning repair of small-moderate eyelid–cheek junction Defects.

In order to prevent distortion of free margins and maintain facial contour, these variables and the movability of the surrounding skin must be assessed individually.

The pinch and snap-back tests(7) can be used to evaluate lid laxity prior to surgery in order to better determine a patient's risk. Growing older causes the lower lid to become more flexible, and even a small amount of downward force can cause ectropion. Consequently, it's imperative that faults involving the lower eyelid close without strain. For this reason, suborbital cheek deformities frequently do not respond well to linear cheek restorations that span or border the lower eyelid.

Skin grafts near the eyelid-cheek junction are usually indicated for small defects because of their propensity to contract,ectropion rate as high as 14.2%(8), as well as their lower cosmetic results due to variations in skin color and texture.

The Mustardé flap has been the recommended technique for reconstructing abnormalities in the lid-cheek junction. In an attempt to reduce the risk of ectropion, this approach minimizes the inferior tension exerted on the lid border by borrowing tissue lateral to the defect to direct tension medially to laterally. This flap carries a somewhat high risk of complications, including distal flap necrosis, hypertrophic scarring, and hematoma.

It has been demonstrated that the inferiorly based V-Y advancement flap is comparable to the Mustardé flap in terms of preventing ectropion and provides a less invasive procedure, less operating time, less complications and following their procedure, every patient was sent home(9).

By dispersing the perpendicularly oriented stress from wound closure over the whole length of the flap and cheek, the lateral modification of the V-Y flap decreases tension in the direction of flap advancement. And since it has features that are both practical and aesthetically pleasing, this flap can be employed with great results(10).

IV. CONCLUSION:

Small to moderate eyelid-cheek junction has a variety of defects. To preserve the lower lid's structural integrity, volume restoration is the basic reconstructive strategy in this field.the means of reconstruction are several. the main purpose is to restore the aesthetic appearance while avoiding the risk of ectropion.

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