



Fig. 2. A patient is shown before (left) and after (right) injection.

injection into the deep dermis. This indicates that injecting hyaluronic acid using our method does not affect its duration of effect.

As a microinvasive rhinoplasty technique, hyaluronic acid injection is a simple procedure with minimum downtime and instant improvement, and is suitable for those who are reluctant to undergo surgery yet need nose correction. Despite its advantages, accidental injection into the bloodstream causing arterial embolism and local skin necrosis² is still an issue. Thus, injecting filler material into different planes, where few branch vessels are present, can greatly reduce the risk of arterial embolism and skin necrosis. We believe that with the combination of careful preoperative planning and proficient skill, the multiplane hyaluronic acid injection technique can lead to more harmonious results and greatly improves patient satisfaction.

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DISCLOSURE

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PATIENT CONSENT

The patient provided written consent for the use of her image.

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A New Z-Plasty–Based Local Flap Procedure for Closure of Lateral Canthal Skin Defects

Sir:

Reconstruction of lateral canthal defects presents some particular difficulties resulting from the unique anatomy of this region, which is surrounded by a number of mobile anatomical structures. Because they provide better aesthetic and functional results, local flaps have been accepted worldwide as the method of choice in reconstruction of this region. However, most flap procedures fail to provide a tension-free closure and often cause secondary cosmetic problems resulting from distortion of the surrounding anatomical structures, such as ectropion, dystopia of the lateral canthus, and asymmetry of the eyebrows and sideburns. Here, we would like to present a 5-year clinical experience with a new Z-plasty–based local flap procedure to minimize the above-mentioned problems in reconstruction of large excisional defects of the lateral canthal region.

In this procedure, after surgical removal of the tumor, the resultant defect is converted to an acute triangle, with the axis of the triangle parallel to the lateral canthal skin crease (Fig. 1). This is critical to obtain fine final scars aligned with the natural skin creases. Then, five skin flaps are outlined by using a modified five-flap Z-plasty pattern, including two opposing unequal Z-plasties (45 degrees/60 degrees). After elevation of the

skin flaps is completed, defect closure is accomplished by transposing these flaps in the routine manner of the five-flap Z-plasty technique (Fig. 1).

Over 5 years, this technique has been used for closure of lateral canthal defects resulting from excision of basal cell carcinomas in 11 patients, eight men and three women, aged between 43 and 82 years. The tumors were removed with an intact margin of 0.5 cm. The resultant defects ranged from 1.5 to 3.5 cm in diameter (Table 1). A tension-free closure was obtained for all patients. All patients healed uneventfully. During a mean follow-up of 30 months (5 months to 3½ years), no recurrence was observed. There was no patient with dog-ear formation or distortion of the surrounding mobile structures. The scars were found to be almost invisible (Fig. 2). All patients were satisfied with the cosmetic and functional results.

Until now, there have been several procedures using various Z-plasty techniques as a means of providing extra tissue relaxation for defect closure.¹⁻³ Since its first description by Mustarde in 1959,³ the five-flap Z-plasty has been used worldwide for many reconstructive problems.^{4,5} To our knowledge, there has been no report yet of the use of this technique for defect closure. Using the advantage of extra tissue relaxation provided by two Z-plasties, this new procedure seems to be a useful alternative for tension-free closure of large defects of the lateral canthal region. By borrowing tissue from all directions, the risk of distortion of the neighboring anatomical landmarks is minimized. The final scar is easy to conceal in the natural skin creases. However, a careful surgical plan is critical to obtain better cosmetic results, with fine scars aligned with the natural skin creases (crow lines) of the lateral canthal region. DOI: 10.1097/PRS.0b013e31823af080



Fig. 1. A 72-year-old man presented with a pigmented basal cell carcinoma of 3 years' duration on his left lateral eyebrow area. The tumor was excised with a 0.5-cm intact surgical margin under local anesthesia. The resultant defect, 2.8 cm in diameter, was converted surgically to a triangle.

Table 1. Patient Summary*

Patient	Age (yr)	Sex	Defect Size (cm)	Anesthesia
1	43	M	2.2	Local
2	58	M	2.8	General
3	69	M	3.1	Local
4	52	M	3.5	Local
5	55	F	2.0	Local
6	72	M	3.3	Local
7	54	F	2.9	General
8	47	M	3.2	Local
9	58	M	3.5	General
10	79	M	3.1	Local
11	82	F	3.0	Local

M, male; F, female.

*The pathologic diagnosis in all cases was basal cell carcinoma.



Fig. 2. At 2 years after surgery, there was no tumor recurrence, and the result was excellent, without any distortions of the surrounding mobile anatomical structures. Note that the final scars are almost invisible.

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Construction of the Philtral Column Using Palmaris Longus Tendon

Sir:

The philtrum and the Cupid bow are the most prominent features of the upper lip and are crucial for normal appearance. Unfortunately, projection of the philtral ridge is a common deficiency of repaired cleft lips. Many methods for constructing the philtral dimple and column have been described, most commonly involving the manipulation of orbicularis oris muscle or using various autologous grafts to augment the philtral column.^{1–3} Despite these developments, no single procedure has achieved complete satisfactory results.

The palmaris longus tendon, present in 75 to 95 percent of the population, is well established as a graft because of its ease of harvest, minimal donor-site morbidity, and long-term viability. Recently, the palmaris longus tendon graft has been used as a cosmetic and reconstructive option for upper lip augmentation and also has been reported as a philtral graft in cleft lip repair.^{4,5} Since December of 1998, the senior author (H.H.K.) has used the palmaris longus graft to correct the depression of the philtral scar following cleft lip repair.

After harvesting the palmaris longus, creation of the recipient site begins with a 5-mm incision made in the nasal floor remote from the philtrum. Sharp dissection with iris scissors creates a subcutaneous tunnel underneath the philtral scar that extends caudally 1 to 2 mm into the vermilion. The tendon is folded onto itself and secured with 5-0 chromic suture to create a graft that is at least four layers thick. Guide sutures of 4-0 Vicryl are placed through both ends of the graft. A groove director is directed down the subcutaneous philtral tunnel with its end positioned under the lip vermilion. A large Keith needle with the attached 4-0 Vicryl suture is passed down the groove director and brought out through the lip vermilion. On removal of the groove director, the multilayered tendon graft is manipulated down the tunnel using the Vicryl guide sutures. The graft is secured at each end with one or two percuta-

neous 5-0 plain catgut sutures. The incision is closed with 5-0 chromic suture.

In 1997, Youn and colleagues reported the use of palmaris longus tendon to construct the philtral column in the secondary cleft lip deformity.⁵ Our experience similarly finds the palmaris longus tendon to be an ideal graft. However, there are significant differences between our experience and previously published reports. Although Youn and colleagues used grafting of the tendon in conjunction with open cleft lip revision, we found the transfer of the palmaris longus graft alone to be adequate in the majority of cases. We also describe a closed technique using one small incision in the nasal sill that offers significant advantages over previously reported methods. Long-term follow-up of up to 10 years proves that a significant portion of this volume persists. This results in the effacement of the depressed philtral scar in all patients, which contributes significantly to a good cosmetic outcome (Fig. 1). In our experience, all patients were satisfied with the improvement in lip appearance and no patient required another operation.

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Fig. 1. (Above) Preoperative appearance. (Below) Postoperative appearance 29 months after a palmaris graft to the left philtrum.