Lateral nasal osteotomies: Does the creation of a periosteal tunnel influence the degree of postoperative ecchymosis?

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In a prospective study of 20 consecutive patients, all patients underwent a closed rhinoplasty in which bilateral, lateral nasal osteotomies were performed to close an open roof following dorsal reduction. On one side, the osteotomy was performed without periosteal elevation, and on the other side, an external periosteal tunnel was created before performing the osteotomy. The side of the face with more ecchymosis was determined by another surgeon who was unaware of the side with the periosteal tunnel. Using Fisher's exact test, $P=0.1$, indicating that the creation of a periosteal tunnel had no significant influence on the degree of postoperative ecchymosis.

Key Words: *Lateral nasal osteotomy; Postoperative ecchymosis; Rhinoplasty*

Ostéotomies nasales latérales : la création d'un canal périostique influe-t-elle sur le degré d'écchymoses postopératoires ?

RÉSUMÉ: Dans une étude prospective de 20 patients consécutifs, tous les patients ont subi une rhinoplastie fermée au cours de laquelle on a pratiqué des ostéotomies nasales bilatérales pour fermer une voûte ouverte après une réduction par voie dorsale. D'un côté, on a pratiqué une ostéotomie sans élévation périostique et de l'autre, on a créé un canal périostique avant de pratiquer l'ostéotomie. Le côté du visage qui portait le plus d'écchymoses a été déterminé par un autre chirurgien ignorant du côté doté du canal périostique. L'utilisation du test exact de Fisher, $p = 0,1$, a montré que la création d'un canal périostique n'influa pas de façon significative sur le degré d'écchymoses postopératoires.

Lateral nasal osteotomy is a critical step in rhinoplasty and is usually performed to close an open roof following dorsal reduction (1). Different types of instruments and surgical techniques have been described by many authors. The basic points of argument in the literature include the ideal instrument for performing the osteotomy, the site and type of incision, the creation of periosteal tunnel and the direction of osteotomy (1-11).

Goldfarb et al (2) described some complications of rhinoplasty, several of which were the direct result of lateral osteotomy. These complications included mucoid cysts along

the lines of the osteotomy, lacrimal sac injury and hemorrhage secondary to the trauma caused by the osteotome. Furthermore, morbidity in the form of edema and ecchymosis was more pronounced in rhinoplasty patients who had a lateral osteotomy.

In this paper, a prospective, controlled study investigated whether the creation of a periosteal tunnel before performing lateral nasal osteotomies influences the degree of postoperative ecchymosis.

PATIENTS AND METHODS

In a prospective study involving 20 consecutive patients, all patients underwent a closed rhinoplasty in which bilateral, lateral nasal osteotomies were performed to close an open roof following dorsal reduction. On one side, the osteotomy was performed without periosteal elevation and on the other

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TABLE 1
The influence of the creation of a periosteal tunnel on the degree of postoperative ecchymosis in lateral nasal osteotomies

		Periosteal tunnel		Total
		Yes	No	
Ecchymosis	More	8	12	20
	Less	12	8	20
Total		20	20	40

P=0.1 by Fisher's exact test

side, an external periosteal tunnel was created before performing the osteotomy. Except for the periosteal tunnel, the lateral osteotomy technique was identical for both sides of the nose: A low-to-high osteotomy was performed by the same surgeon in every case using a 4 mm curved osteotome. Photographs of the face were taken at one, three, seven, 14 and 21 days after surgery. The side of the face with more ecchymosis was determined from these photographs, which were assessed by another surgeon who was unaware of the side with the periosteal tunnel. The results were tabulated, and Fischer's exact test was used for statistical analysis.

RESULTS

The results are summarized in Table 1. Using Fisher's exact test, $P=0.1$, indicating that the creation of a periosteal tunnel had no significant influence on the degree of postoperative ecchymosis.

DISCUSSION

Thomas et al (3) described several technical tips to reduce the postoperative ecchymosis following lateral nasal osteotomies. The proposed osteotomy pathway should be injected with 1% lidocaine with epinephrine 10 mins before creating the bony cuts. This will allow for a reduction in bleeding associated with the trauma of fracture. Direct pressure applied to the overlying soft tissue for 5 mins following the osteotomy may also contribute to hemostasis and reduction of postoperative ecchymosis. Finally, the use of narrower osteotomies may cause less soft tissue trauma and, hence, reduce the ecchymosis.

The influence of a periosteal tunnel on postoperative ecchymosis had not been investigated before our study. Historically, several surgeons advocated the creation of periosteal

tunnels, both internally and externally, before the bony cuts (3). Anatomically, the anterior wall of the lacrimal sac is densely adherent to the posterior aspect of the medial canthal ligament. Blind subperiosteal tunneling in the area of the medial canthus may disrupt the lacrimal sac and, hence, increase the risk of postoperative epiphora. Elevation of periosteum around the medial canthus before osteotomies, therefore, is not recommended (12). In addition, periosteal elevation should never extend beyond the intended level of the lateral osteotomies because the nasal bone fragments may lose periosteal support. In the present study, on one side of the nose, the osteotomy was performed without any periosteal elevation and on the other side, an external periosteal tunnel was created along the intended level of the lateral osteotomy before performing the bony cut. The study showed that this periosteal tunnel had no significant influence on the postoperative ecchymosis. Because injudicious elevation of periosteum may lead to other complications such as epiphora and lack of splinting action of the periosteum on the mobilized nasal bones, the author no longer creates a periosteal tunnel before performing nasal osteotomies.

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