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Technical note

Semilunar conchal cartilage graft in saddle nose reconstruction

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ABSTRACT

Introduction: The saddle nose deformity is easily recognized by the loss of septal support and nasal dorsal height with adverse functional and aesthetic consequences.
Technique: We treated a 50-year-old woman and a 54-year old man that presented with a moderate saddle nose deformity following a previous septorhinoplasty (female patient) and a posttraumatic severe saddle nose deformity (male patient). The patients were treated by open approach rhinoplasty under general anesthesia, and the saddle nose deformity was reconstructed with a semilunar conchal cartilage graft. A semilunar part of the conchal cartilage is excised, lending its name to the graft. A smaller leaf shaped cartilage part is excised and sutured upside-down with PDS 5-0 sutures on the opposite of the cartilage, so that the concave surfaces are facing each other. The newly formed graft is then sutured in its place on the nasal dorsum in the supratip saddle area over the triangular cartilages to widen the inner nasal valve angle. The lateral tips of the semilunar graft are placed below the lateral alar crura to improve external nasal valve functionality.
Discussion: This modified conchal cartilage graft presents itself as an excellent reconstructive option, especially considering its low morbidity, availability and ability to retrieve an adequate amount of cartilage in the vast majority of patients. These modifications of the conchal cartilage are previously unreported, and provide the needed height and elasticity in saddle nose reconstruction without the need for additional grafting. It is important to stress that when positioned properly, a beneficial effect in peak nasal inspiratory flow may be observed, adding to its usefulness in repairing both function and aesthetics.

1. Introduction

The saddle nose deformity is one of the most challenging problems in nasal reconstructive surgery with a less predictable and reproducible result than other reconstructive procedures. The main feature of this deformity is the loss of septal support and nasal dorsal height with adverse functional and aesthetic consequences. The first published attempts of saddle nose deformity reconstruction can be attributed to John Orlando Roe and his original article published as early as 1887 [1]. According to Tardy and Daniel, there are three categories of saddle nose deformities: minimal, moderate and major. Most saddle nose deformities are acquired; trauma, previous septoplasty and septorhinoplasty being the most common causes [2].

Affecting a critical location in nasal anatomy, it is also a major factor in internal nasal valve insufficiency. Possible treatment choices include using a septal cartilage graft, a butterfly lateral alar cartilage graft, an autologous costal cartilage graft and a semilunar conchal cartilage graft.

The goal of this technical note is to report on a modified conchal cartilage graft that offers a novel option in reconstructing moderate and major saddle nose deformities.

2. Technique

In this case, we treated a 50-year-old woman and a 54-year old man that presented with a moderate saddle nose deformity following a previous septorhinoplasty (female patient) and a posttraumatic severe saddle nose deformity (male patient) (Figs. 1 and 2). In the female patient, excessive over-resection of septal cartilage was noted. She, in turn, showed signs of middle vault collapse, lateral nasal wall narrowing and saddling in the supratip area. In the male patient, a step-shaped impression of the Keystone area and nasal septal cartilage was noted, with profound middle vault collapse and nasal obstruction.

This specific combination of several defects further increases the problems with paradoxical concavities of alar lateral crura and

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Fig. 1. The patient presenting with a moderate saddle nose deformity following a previous septorhinoplasty. Excessive over-resection of septal cartilage, middle vault collapse, lateral nasal wall narrowing and saddling in the supratip area (A) were addressed with reconstructive nasal surgery (B).

Fig. 2. The patient presenting with a severe saddle nose deformity following previous trauma to the mid-face. A step-shaped impression of the keystone area and nasal septal cartilage was noted, with profound middle vault collapse and nasal obstruction (A) were addressed with reconstructive nasal surgery (B).

external nasal valve collapse that were all addressed after reconstructive surgery.

The patients were treated by open approach rhinoplasty under general anesthesia, and the saddle nose deformity was reconstructed with a semilunar conchal cartilage graft. The shape and material characteristics of the conchal cartilage graft make it ideal for use in moderate saddle nose deformities. It is easy to harvest through an anterior approach. Almost all of the conchal cartilage may be harvested without any donor site morbidity. A leaf shape part of the conchal cartilage is excised, forming a semilunar shape lending its name to the graft. A smaller leaf shaped cartilage part is excised, rotated and sutured upside-down with transparent PDS 5-0 sutures on the opposite of the cartilage, so that the concave surfaces are facing each other. (Figs. 3–6) The newly formed graft is then sutured in its place on the nasal dorsum in the supratip saddle area over the triangular cartilages to widen the inner nasal valve angle (Fig. 7). The lateral tips of the semilunar graft are placed below the lateral alar crura to improve external nasal valve functionality (Fig. 8). Both patients underwent peak nasal inspiratory flow measurements (PNIF) before and after surgery. In the male patient, a preoperative result of 72 liters/minute was noted, with a postoperative improvement to 118 liters/minute. In the female patient, the preoperative result was 82 liters/minute, with a postoperative improvement to 104 liters/minute (GM Instruments, PNIF meter).

Through the use of this modified type of conchal cartilage graft, all of the major functional and aesthetic insufficiencies were

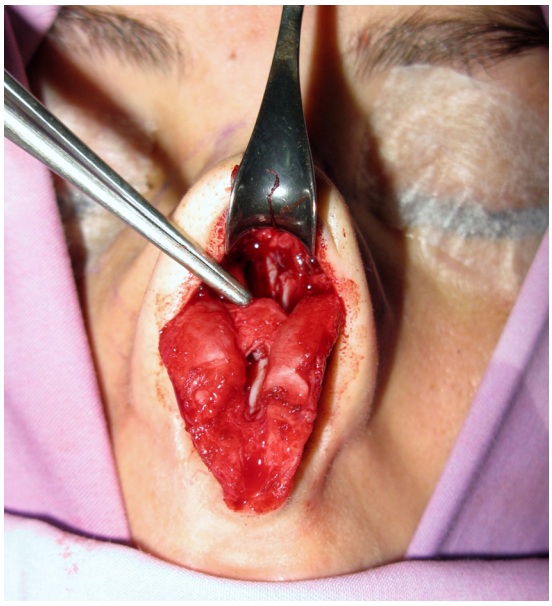

Fig. 7. Positioning of the newly formed graft in the supratip area. Note that the lateral tips of the semilunar graft are placed below the lateral alar crura to improve nasal valve functionality.

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