Nasal Bone Grafts from the Removed Hump Used as Overlay Grafts to Camouflage Concave Lateral Crura

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Abstract Alar cartilage consists of a medial crus, middle crus and lateral crus. The lateral crus is an important aesthetic and functional structure of the nose. A 32-year-old male patient with concave lateral crura was operated by the authors. An open rhinoplasty with a dorsal approach to the septum is preferred. The nasal bones harvested from the hump, which is an autogenous graft trimmed and sutured on both concave lateral crura as an overlay camouflage grafts. Satisfactory result was achieved.

Keywords Concave lateral crus · Open rhinoplasty · Nasal bone

Introduction

The lateral crura play a significant role in the aesthetic appearance of the nose.

It determines the volume, size and position of the nasal tip [1]. Although a wide variety of methods have been proposed to correct the deformed lateral crus, each technique addresses only a specific subset of patients [2–11]. Concave lateral crura are one of those. Overlay grafts can be used to camouflage the defect.

Case Report

A 32-year-old male patient with concave lateral crura was operated by the authors.

Possible complications due to graft application such as obstruction, extrusion or infection were explained to the patient. Patient informed consent forms were taken from the patient.

After a thorough history had been obtained and a physical examination was completed frontal, lateral, oblique and basal view photographs of the patient were taken using digital cameras.

An open rhinoplasty with a dorsal approach to the septum is preferred for both dorsal and caudal septal deviations. This is achieved through bilateral infracartilaginous incisions connected by a transcolumellar Goodman incision. The tip and midvault dissection is performed over the perichondrium, leaving all subcutaneous tissues within the nasal skin flap. Dissection is extended in a supraperiosteal plane over the bony dorsum. Dorsal hump was removed in one piece. The hump tailored into a thin composite graft (bone + cartilage). The composite graft was cut into two pieces in horizontal plane. Using the drill, two pairs of holes were made to each of the nasal bone grafts. The nasal bones harvested from the hump, which is an autogenous graft were tightly sutured to concave lateral cartilages with two sutures of 5-0 Vicryl (Fig. 1). The vestibular skin is not undermined off the lateral crus. It is technically unnecessary and produces more scar too.

Finally, C shaped septums were corrected with bilateral spreader grafts and then stabilized with 5-0 plain catgut suture knots were placed on the inner surface of the lateral crus. Once the septal surgery was completed, the osteotomies were made using a low-to-high method to achieve the desired greenstick fracture.

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Fig. 1 Intraoperative view of the patient. Skin flap above the lateral crura is elevated in supraperichondrial plane. The nasal bones harvested from the hump, which is an autogenous graft were trimmed and tightly sutured to camouflage concave lateral cartilages with sutures of 5-0 Vicryl

Fig. 2 Postoperative 18th month CT scan show radiographic evidence of bone graft survival

Fig. 3 Frontal views of preoperative (*left*), postoperative 6th month (*middle*) and postoperative 18th month (*right*)

Fig. 4 Basal views of preoperative (*left*), postoperative 6th month (*middle*) and postoperative 18th month (*right*)

Fig. 5 Oblique views of preoperative (*left*), postoperative 6th month (*middle*) and postoperative 18th month (*right*)

Closure of all incisions was accomplished with 5-0 nonabsorbable mattress sutures. Dressings were made with the Doyle nasal splint internally, followed by a tape dressing and a cast externally.

In our case nasal bone grafts from the removed hump were used as overlay grafts to camouflage concave lateral crura. These bony grafts did survive and remained evident on the CT scan 18 months later (Fig. 2). No significant resorption has been observed in the grafts and a favourable aesthetic result was achieved (Figs. 3, 4, 5). Longer follow-up of the patient is needed to corroborate its efficiency.

Discussion

Many techniques had been described for correction of concave lateral crura. One of the most popular technique is turn-in folding of the cephalic portion of the lateral crura. This technique not only enables aesthetic corrections, but also reinforces the durability of the lateral crus for correction of a concave alar rim [12].

A lateral crural strut, an onlay graft or a rim graft are other techniques that eliminates the concavity [13].

Overlay grafts camouflage the defect, and underlay grafts can be used to tent the deficient cartilage upward [14, 15]. Gruber has suggested excising a curved cartilage segment, reversing its position, and suturing it back in place. Interlocking small mattress sutures are used in tension-control fashion to reverse cartilage concavities [16].

With our technique, the nasal bones harvested from the hump, which is an autogenous graft sutured on both concave lateral crura as an overlay camouflage grafts.

Attention should be paid to the exact size and shaping of the graft that must fit the nose and to its right placement. Securing the graft to the skin is perhaps not essential, but it adds to the safety of the procedure. The procedure respects the integrity of the cartilage rim strip.

Alloplastic grafts can be used as overlay grafts but have a great risk due to extrusion from the body.

However, allografts graft when these materials are used in a nose, infections could lead to very serious problems.

The most important risk with autogenous materials is repeated operations due to resorption, but the infection risk is low. Infection can be terrible in some cases [17].

With our technique, the grafted material is thicker and more resistant to resorption than other materials.

It is ready to use and not time-consuming, there is no donor area and no additional donor site morbidity.

Drawback is the stiffness of the material and the fact that, when harvested too long, they could eventually extrude through the nasal skin. This technique has some advantages: it is costless and safe, its ready to use and not time-consuming, there is no donor area and no additional donor site morbidity.

CT scan show radiographic evidence of bone graft survival. It may be that nasal bones behave differently and do not need a bony contact to survive.

It is suggested that facial bone grafts survive better in the nose than grafts taken from the iliac crest or the ribs.

As a result, surgeons should keep this approach in mind the cases with for concave lateral crura.

The technique is safe, easy to perform and it gives consistently good results.

We believe that this article adds something new to our knowledge of rhinoplasty. Further follow-up by the patient will answer some of these questions.

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