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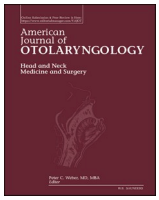

Surgical correction of the lower lateral cartilage protrusion and external nasal valve pinching with lateral crural resection technique

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ABSTRACT

Objective: The aim of this study is to demonstrate a novel surgical technique in the treatment of lower lateral crural protrusion and external nasal valve pinching.
Method: The lower lateral crural resection technique was used in 24 patients who underwent open technique septorhinoplasty between 2019 and 2022. Fourteen of the patients were female and 10 were male. In this technique, excess part of crura's tail was excised from the lower lateral crura and placed in the same pocket. This area was supported with a diced cartilage and a postoperative nasal retainer was applied. We have corrected the aesthetic problem that occurs when the lower lateral cartilage is convex, and external nasal valve pinching that occurs when the lower lateral crural protrusion is concave.
Result: The mean age of the patients was 23. The mean follow-up time of the patients was between 6 and 18 months. No complications were observed due to this technique. Satisfactory results were obtained in the post-operative period after surgery.
Conclusion: A new surgical approach has been proposed for patients with lower lateral crural protrusion and external nasal valve pinching using the lateral crural resection technique.

1. Introduction

Improving the nose tip contour is the main goal in most rhinoplasty cases. Many surgical techniques have been described, especially suturing techniques, grafting techniques or cartilage reduction techniques. Combining patient-specific techniques is generally successful in the approach to nasal tip deformity [1]. In previous studies on alar cartilage anomalies, various features such as cephalically positioned alar cartilages, long alar creases, boxy and ball-shaped nasal tip, parenthesis tip deformity, and finally external nasal valve insufficiency have been demonstrated [2–4].

Although different techniques have been suggested for the correction of alar cartilage anomalies, the lateral crural strut graft (Gunter graft) is still the most effective method [3].

In cases where the lower lateral crural strut does not fit in its pocket and is too long, it creates a convexity or concavity. When it is convex, Lower lateral crural protrusion occurs in the external view of the nose. When it is concave, the external nasal valve causes pinching. The aim of this study is to demonstrate the lateral crural resection technique in the treatment of lower lateral crural protrusion and external nasal valve pinching.

2. Patients and methods

This retrospective study was approved by the Bezmialem Vakıf University Faculty of Medicine Clinical Research Ethics Committee. Inclusion criteria were patients aged 18–70 years. Patients with lateral crural protrusion or external nasal valve pinching were included in the study. We also excluded patients with known psychotic illness, heart disease, and chronic obstructive pulmonary disease. Twenty-four patients (14 women, 10 men) with lateral crural protrusion or external nasal valve pinching were operated with the open rhinoplasty technique. All operations were performed by a single senior surgeon. Patients with a minimum follow-up period of 12 months were included in the study.

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3. Technique

All patients were operated under general anesthesia. For adequate hemostasis, 1 % lidocaine with 1/100,000 epinephrine is injected into the submucosal region. A transcolumellar incision and bilateral infracartilaginous incision were made using a #15 blade. Following supraperichondrial and subperiosteal dorsal elevation, the upper lateral cartilages were separated bilaterally from the dorsal septum. Septal cartilaginous and bony bumps and upper lateral cartilages were resected. Transverse and lateral osteotomies were performed appropriately. Septoplasty was performed by leaving at least 10 mm of septal cartilage to form an L-shitrat from the dorsal and caudal regions. Following domal sutures patients with convexity or concavity on their lower lateral cartilage will present respectively. In these patients with lower lateral crural protrusion or external nasal valve pinching, the lateral crura was removed from its pocket. The excess part of crura's tail was excised from the lower lateral crura and placed in the same pocket. Thus, the lateral crural protrusion or external nasal valve pinching caused by the convexity or concavity formed by the lateral crus was removed. This area was supported with a diced cartilage and a postoperative nasal retainer was applied. Finally, a silicone pad and external splint were placed inside the nose. Intranasal splint and external splint were removed on the 4th and 7th postoperative days (Video 1).

4. Results

Twenty-four patients (14 women and 10 men) with thick skin and planned rhinoplasty were included in this study. The mean ages were 23 (range 18–26 years). The mean follow-up period of the patients was 9 months (range 6–18 months). The desired image was obtained with the lateral crural resection technique in all patients with postoperative lower lateral crural protrusion and external nasal valve pinching. No patient required revision surgery.

5. Discussion

Considering the high prevalence of alar cartilage anomalies and the need for correction, we wanted to demonstrate a relatively new technique, the lateral crural resection technique.

Many techniques have been previously described for the correction of anomalies of the lower lateral alar cartilage. The lateral crural suturing graft (Gunter graft) is known as the gold standard procedure for correcting the cephalically located crura. In some cases, there is insufficient graft material in the nasoseptal cartilage and therefore grafts must be taken from elsewhere (eg, ear cartilage). In addition, in some patients, the grafts can be seen or palpated after surgery, creating an uncomfortable foreign body sensation in patients.

To prevent this, two types of cartilage supports have been developed. Some authors have resected the animalized lateral crus and replaced it as a free graft in a more caudal position [5,6]. Others have used an extra cartilage graft, placed caudally below the anomalised lateral crus in the alar rim [7]; however, when a rigid cartilage graft is placed along the interior of the alar rim, the ala may not adapt to the nasal muscles [8].

When the lower lateral crura is longer and convex than it is, a lower lateral crural protrusion occurs. When the lower lateral crura is longer and concave than it is, stenosis and pinching occur in the external nasal valve. In Oktem et al., cartilage Z plasty was performed on the lateral crus of the alar cartilage to treat anomaly; they concluded that alar cartilage anomaly was successfully corrected in patients with aesthetic and functional improvements [8]. With our technique, the Lateral crural resection technique, we remove the lower lateral crura from its pocket, shorten it, and place it back in the same pocket. We do not reposition the lower lateral crura. Thus, we offer a solution to the aesthetic problem caused by convexity and the functional problem caused by concavity.

6. Conclusion

In patients with longer lower lateral crura, convex or concave, different techniques have been described, such as the lateral crural suturing grafting. In these patients, when the lower lateral crura is long and convex, it causes aesthetic problems, and when it is long and concave, it creates external nasal valve stenosis and creates a functional problem. We propose an alternative approach to create an aesthetic and functional solution with the lateral crural resection technique.

Supplementary data to this article can be found online at https://doi.org/10.1016/j.amjoto.2023.103817.

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None.

Declaration of competing interest

None.

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