Extracorporeal Septoplasty-A Well Proven Technique for Treatment of Crooked Noses

IVAN VATAMANESKU¹, MARIUS CIUREA¹, DRAGOS GEORGE POPA¹, OLIVIU NICA¹, SORIN VIOREL PARASCA²

¹University of Medicine and Pharmacy of Craiova, Romania
²“Carol Davila” University of Medicine and Pharmacy Bucharest, Romania

ABSTRACT: Crooked noses (noses with complex septal and pyramidal deviations) are an important challenge for both plastic surgeons and otolaryngologists. Extracorporeal septoplasty, described by Gubisch constitutes an effective solution to this problem. The article describes a series of 7 cases (5 males and 2 females) in which this method was used during open rhinoseptoplasty. The technique we used is described in detail. All the patients showed improvement of the nose appearance and good nasal air flow. Hypertrophy of the right inferior turbinate complicated one case, but was resolved with electro cauterization. Although the learning curve is slow and it claims the surgeon’s imagination, the method is sometimes the only solution in complex cases of septal deviation. Our short series demonstrates that good indication and careful dissection are prerequisites for success in difficult cases.

KEYWORDS: Crooked noses, Extracorporeal septoplasty, open rhinoseptoplasty.

Introduction

Modern rhinoplasty is aimed to improve both esthetic and functional characteristics of the nose.

Therefore, there are many cases in which septal deviation must be repaired at the same time with the shape of the nasal pyramid.

Crooked noses or noses with dorsal or distal complex septum deviations cannot be treated with simple submucosal resection of the deviated septum and pose huge challenges to rhinologists.

Since 1995, when Gubitch published its description [1], extracorporeal septoplasty is the main method of solving complex septal and pyramid deviations.

Many surgeons have embraced this method in selected cases, despite its difficulty and slow learning curve.

This study presents the authors’ experience with such a technique.

Material and Method

Figure 1. The quadrangural cartilage completely removed.
The authors present a short series of 7 patients, 5 males and 2 women with complex septal deviations who were operated between March 2018 and September 2019 in the Clinical Hospital for Plastic Surgery and Burns, Bucharest.

Age ranged between 21 and 37 years old, with a median of 27.

Patients included in the group had complex deviated nasal pyramids (crooked noses) and the method was chosen in order to avoid distant grafts.

The study was approved by the Ethical Committee of the hospital and the patients signed an informed consent regarding the procedure and publication of their data, but they were also informed that cartilaginous grafts from elsewhere (rib or concha) might be needed, the decision being taken during surgery.

We didn’t use grafts harvested from distant areas in this group (this being one of the method’s advantages).

Surgery was performed under general anesthesia.

An open approach was chosen for all patients in the group.
The procedure started with careful infiltration of the nasal pyramid and of the septum with 1/50000 solution of epinephrine, while the nostrils were packed with gauze soaked in the same solution.

After 10-15 minutes, an inverted V columellar incision was continued on both sides of the columella into the vestibule at the caudal border of the lateral crura.

The skin and subcutaneous tissues were undermined as close to the osteocartilagenous frame as possible completely exposing the cartilage and nasal bones.

The upper lateral and septal cartilages were separated and the mucopericondrium and periosteum of the septum were undermined. This was one of the most important and difficult moments of the operation because of the need to avoid any mucosal tear and any further damage to the septal cartilage.

All the cartilaginous portion of the septum was removed in one piece (including the extension inferior to the ethmoidal plate—Figure 1).

Figure 2 depicts an intraoperative image of the nose with the quadrangular cartilage removed. At this moment, ethmoidal bone obstructing the airway passage was removed subperiosteally.

Reshaping the cartilage was the creative part of the surgery, because one needs to adapt to the various shapes and fracture lines of each septum.

Two straight (or near straight) portions of the septal cartilage were chosen: a longer one of 30-35mm for dorsal support and a shorter one, 18-20mm, for the caudal part of the future septum (both being 8-10mm wide).

The two grafts were sutured together in an L shaped neoseptum using 5/0 monofilament absorbable sutures. Sometimes a L strut from one piece can be tailored (Figure 3).

A unilateral spreader graft was used in 2 cases (Figure 4), and bilateral spreader grafts were used in other 5 patients.

The spreader grafts were harvested from remains of the septal cartilage, and were destined to stabilize the straightened neoseptum and to open the angle of the internal nasal valve.

The osseous hump was removed, followed by lateral osteotomies and remodelation of the alar cartilages.

Then, the neoseptum was inserted in place.

The grafts were sutured to the nasal bones in the key-stone area in 3 cases with non-absorbable 4/0 sutures (the holes in the nasal bones were performed using a fine drill or a 18 gauge needle), and to the upper lateral cartilages with 5/0 absorbable threads.

In other four cases we sutured the graft to the upper lateral cartilages alone.

Caudally, the graft was sutured to the maxillary spine with a 4/0 non-absorbable figure of 8 suture.

A columellar strut was sutured to the medial crura in all patients for tip stabilization.

The tip was refined with domal and interdomal sutures (5/0 absorbable) in order to obtain a diamond shaped design of the tip. 6/0 non-absorbable suture were used for skin closure.

Silicone tubes were inserted into the nostrils in order to maintain the position of the new septum and a dorsal splint (metal in 4 cases and thermoplastic material in 3 cases) was applied.

The skin sutures, silicone tubes and dorsal splint were removed at 10 days when surgical healing was assumed.

The patients were instructed to clean their nares with saline and cotton tip sticks and avoid forceful blowing of the nose for two months.

Follow-up at 2, 4 and 6 months was the rule.

Final evaluation was done at one year after surgery.

Results

All noses healed uneventfully, with minor secretions obstructing the silicone tube needing cleansing during the immediate postoperative course.

All patients showed significant esthetic improvement of the nasal pyramid.

In one patient (male) a slight dorsal curvature was detectable at one year, but the patient was happy with his appearance and refused further corrections.

Two cases (one male and one female) are depicted in figures 5 and 6 with preoperative and postoperative images.

The respiratory function was restored in both nostrils of all patients with good correction of the septal deviations.

In one patient, a hypertrophy of the right inferior turbinate was discovered and resolved with electrocoagulation under local anesthesia and sedation.
Figure 5. Frontal and caudal preoperative and postoperative views of one male patient.

Figure 6. Frontal and oblique cephalic views pre- and postoperative of one female patient.
Discussion

Complex nasal septum deviations associated with asymmetrical and uneven external pyramid, the so-called “crooked noses” pose major problems to rhinoplastic surgeons. Both functional and esthetic problems must be solved at the same time, and classic septoplasty methods are not applicable in these cases. Total reconstruction of the septum with rib grafts or complex straightening with spanning sutures, scoring and internal splinting were used until Gubisch published in 1995 his experience with extracorporeal septoplasty [1].

His method allowed for reshaping the septum with surgical comfort, after removing it, on the operating table, thus avoiding donor site morbidity and reducing the operative time. Gubisch [2] also advocated the use of ethmoidal osseous plate for stabilizing the neo-septum, providing more material for septal reconstruction, a method which we also used in 4 cases.

One important point is the external approach, which was first recommended by the creator of the method and supported by others [3].

This allows for better support of the dorsal area and avoids irregularities of the dorsum. We have used this approach in all the patients because it allows for other esthetic improvements like tip projection and stability. It is worth mentioning that not addressing the tip may produce unwanted downward tip rotation and lack of projection despite an open approach [4].

Use of a columellar strut like in our group can avoid such problems.

Although a modified extracorporeal septoplasty was described by Persichetti [5], with partial preservation of a dorsal and caudal septum with good results in moderate to severe septal deviations, the complete extracorporeal approach that we used seems to give better results. At least two studies [6,7] compared extracorporeal to in situ septoplasty and demonstrated that the former gave better functional (in both studies) and esthetic (one study) results.

Extracorporeal septoplasty has been modified over time, one of the issues addressed being the stabilization of the reinserted septum [8].

We have used a modification of Gubisch’s technique, but when suturing to upper lateral cartilages seems stable enough, it is our method of choice, due to its simplicity. In the 4 cases with the simpler method, we didn’t get any key-stone area deformity.

Conclusion

Even in our short series, extracorporeal septoplasty has proven its value in crooked noses, although it needs inventiveness and a delicate dissection technique. It remains one of the best solutions in difficult cases and it stood the test of time [9,10].

Disclosure

The authors have no interest to disclose. No part of this study has been financed by any organization, public or private.

Conflict of interests

None to declare.

References

1. Gubisch W. The extracorporeal septoplasty: a technique to correct difficult nasal deformities. Plast Reconstr Surg. 1995, 95:672-682.
2. Gubisch W, Sinha V. Extracorporeal septoplasty: how do we do it at Marienhospital Stuttgart Germany. Indian J. Otolaryngol. Head Neck Surg, 2008, 60:16-19.
3. Senyuva C, Yucel A, Aydin Y, Okur I, Guzel Z. Extracorporeal septoplasty combined with open rhinoplasty. Aesthet Plast Surg, 1997, 21(4):233-239.
4. Unsal O, Bozkurt G, Akpınar M, Akova P, Türk B, Coskun BU. Outcomes of open-approach extracorporeal septoplasty without simultaneous rhinoplasty: effects on nasal tip projection and rotation. JAMA Otolaryngol Head Neck Surg, 2016, 142(10):988-993.
5. Persichetti P, Toto V, Segreto F, Signoretti M, Marangi GF. Modified extracorporeal septoplasty: functional results at 6-year follow up. Ann Plast Surg, 2016, 76(5):504-508.
6. Gode S, Benzer M, Uslu M, Kaya I, Midilli R, Karci B. Outcome of in situ septoplasty and subtotal extracorporeal septal reconstruction in crooked noses: a randomized self-controlled study. Ann Plast Surg, 2018, 42(1):234-243.
7. Lee SB, Jang YJ. Treatment outcomes of extracorporeal septoplasty compared with in situ septal correction in rhinoplasty. JAMA Facial Plast Surg, 2014, 16(5):328-334.
8. Rezaeian F, Gubisch W, Janku D, Haack S. New suturing techniques to reconstruct the keystone area in extracorporeal septoplasty. Plast Reconstr Surg, 2016, 138(2):374-382.
9. Gubisch W. Twenty-five-year experience with extracorporeal septoplasty. Facial Plast Surg, 2006, 22(4):230-239.
10. McGrath M, Bell E, Locketz GD, Becker DG. Review and update on extracorporeal septoplasty. Curr Opin Otolaryngol Head Neck Surg, 2019, 27(1):1-6.