OLGU SUNUMU CASE REPORT

DOI:10.24179/kbbbbc.2020-80117

Reconstruction of an Isolated Unilateral Aplasia of Right Alar Cartilage

İzole Tek Taraflı Sağ Alar Kartilaj Aplazisinin Rekonstrüksiyonu

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ABSTRACT Congenital nasal anomalies regarding lower third of the nose including alar cartilages and columella are very rare. Hypoplasia or aplasia of medial and lateral crural cartilages as well as columella may be seen. These defects may result in varying degrees of functional and cosmetic problems. In this study, we reported a septorhinoplasty case in which we encountered an isolated congenital aplasia of the right alar cartilage. We presented our reconstruction technique and reviewed relative literature data. In this study, we aimed to increase the awareness of clinicians about this extremely rare clinical condition and to give an idea for possible reconstruction techniques.

Keywords: Nasal cartilages; abnormalities; rhinoplasty

ÖZET Alar kartilajlar ve kolumellayı içeren burnun, alt 1/3 kısmının konjenital anomalileri oldukça nadirdir. Alar kartilaj mediyal ve lateral krusları ile kolumellada hipoplazi ve aplazi gibi anomaliler görülebilmektedir. Bu gibi defektler, değişen derecelerde kozmetik ve fonksiyonel sorunlara yol açabilir. Bu çalışmada bir septorinoplasti vakasında karşılaşılan izole sağ alar kartilaj aplazisi ve rekonstrüksiyonu literatür bilgileri eşliğinde sunulmuştur. Bu çalışmada bu nadir görülen klinik durum karşısında farkındalığı artırmak ve rekonstrüksiyon teknikleri hakkında bir fikir vermeyi amaçladık.

Anahtar Kelimeler: Nazal kartilajlar; anormallikler; rinoplasti

Congenital nasal anomalies like nasal clefts, hypoplasia-aplasia, duplications, neoplasms and vascular anomalies may be seen in every 20,000 to 40,000 live births.[1] In general, the reported cases are regarding the anomalies of columella and medial crura which are occasionally including skin defects. Varying degrees of hypoplasia/aplasia of the cartilage may result in divisions, gaps or segmental loss of alar crura as described by Kosins et al.[2] In this study, we reported a septorhinoplasty case in which we encountered an isolated congenital aplasia of the right alar cartilage.

CASE REPORT

A 50 years old female attended to our outpatient clinic with the complaints of nasal obstruction (predominantly right side) and cosmetic concerns. There was no history of previous nasal trauma, severe infection or nasal operation. A through otorhinolaryngology examination was performed. Nasal septal deviation obstructing the left nasal cavity was observed. Ptosis of nasal tip, nasal hump and nasal axis deviation to right side was observed (Figure 1). Open technique septorhinoplasty operation was planned to treat both functional and aesthetics problems of the patient. In the medical history, she didn't complain any additional systemic diseases. The operation was performed under general anesthesia after orotracheal intubation. Local anesthesia was applied to nasal septum and external nose skin with 1/100,000 adrenaline containing lidocaine solution. After performing an inverted V incision, the flap over the nasal tip and dor-

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Peer review under responsibility of Journal of Ear Nose Throat and Head Neck Surgery.

Received: 23 Nov 2020 ***Received in revised form:*** 05 Jan 2021 ***Accepted:*** 02 Feb 2021 ***Available online:*** 17 Mar 2021

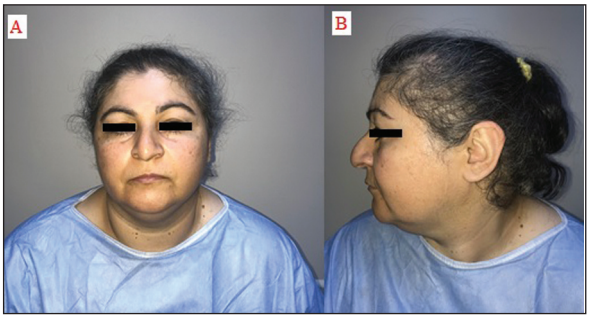

FIGURE 1: Preoperative frontal and profile views of the patient.

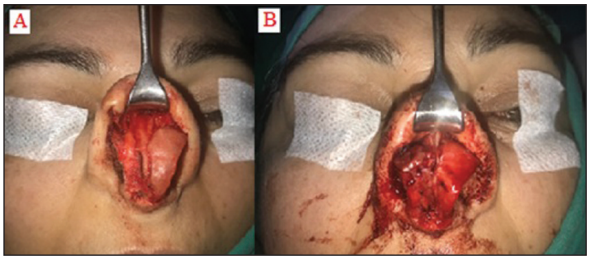

FIGURE 2: Intraoperative views of alar cartilage, before (A) and after (B) reconstruction.

sum was completely raised. The left alar cartilage was observed in place normally whereas we couldn't see the right alar cartilage (lateral and medial crura) in place (Figure 2). Later, nasal septal mucoperichondrial flaps were elevated bilaterally, and the septoplasty procedure was completed successfully leaving sufficient L-strut cartilage. Lateral and medial osteotomies were performed. Unilateral spreader graft was placed to right side to correct nasal asymmetry. The lateral and medial crura were regenerated using septal cartilage harvested during septoplasty. The grafts were sutured to underlying mucoperichondrial flap with 5.0 polydioxanone suture. Small cartilage pieces were placed between medial and lateral crura grafts to form intermediate crus (Figure 2). Finally, the silicone splints were placed in nasal cavity and the skin incision was closed with 6.0 proline suture. Thermal splint was used for external fixation. The silicone splints were removed on the postoperative fourth day. The external splint and the sutures were taken on the postoperative seventh day. Preoperative and early postoperative photographs after splint removal are given in Figure 3. The patient was satisfied with her nasal patency and appearing after the operation. No complication was observed postoperatively.

DISCUSSION

During embryologic development, medial and lateral nasal processes give rise to upper and lower lateral cartilages, respectively.[3] A possible problem during this embryological development may result in varying degrees of hypoplasia/aplasia in alar cartilages. Evident congenital anomalies of the nose like columellar atresia or nasal cleft may easily be diagnosed at birth. However, partial or segmental loss of medial or lateral crural cartilages as in our case may only result in minor functional and/or aesthetic problems which only may be diagnosed in the operation.[4]

Coban et al. reported congenital hypoplasia of lower lateral cartilages in a 2.5 years of child presenting with upper airway obstruction. They have corrected the anomaly through an open rhinoplasty approach with conchal cartilage and helical rim composite grafts.[5] Fijałkowska and Antoszewski have reported 13 patients with isolated nasal underdevelopment. In their series, the most common anomaly was saddle nose (6 patients) while two patients were diagnosed with isolated underdevelopment of alar cartilage.[6]

Adelson et al. described a case of unilateral absence of alar cartilage for the first time. They placed septal extension and lateral crural strut grafts to replace absent medial and lateral crura, respectively using harvested septal cartilage.[3] Barutca and colleagues described the reconstruction of congenital aplasia of lateral crura with the use of ear cartilage graft.[7] Temiz et al. reported a congenital absence of lower lateral cartilage with the use of resected dorsal hump.[8] In our case, we regenerated the absent medial

FIGURE 3: Early postoperative frontal and profile views of the patient.

and lateral crural cartilages with the use of harvested septal cartilage.

To our knowledge, this is the fourth reported case in the literature with an isolated unilateral absence of lower lateral cartilage in an otherwise healthy individual. We have performed an open technique septorhinoplasty operation. The congenital anomaly of the alar cartilage was diagnosed during the operation. The defect was repaired with standard rhinoplasty techniques with the use of harvested septal cartilage graft as described in the case report section. Finally, we achieved acceptable cosmetic and functional results.

In conclusion, we have reported this case with relevant literature data in order to increase the awareness of clinicians about this extremely rare clinical condition and to give an idea for the possible reconstruction techniques if experienced.

Informed consent for this case report was taken from the patient.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: *Mehmet Düzlü, Süleyman Cebeci, Muammer Melih Şahin, Recep Karamert;* ***Design:*** *Mehmet Düzlü, Süleyman Cebeci;* ***Control/Supervision:*** *Mehmet Düzlü, Süleyman Cebeci;* ***Analysis and/or Interpretation:*** *Mehmet Düzlü, Süleyman Cebeci, Muammer Melih Şahin, Recep Karamert;* ***Literature Review:*** *Muammer Melih Şahin, Recep Karamert;* ***Writing the Article:*** *Mehmet Düzlü, Süleyman Cebeci;* ***Critical Review:*** *Muammer Melih Şahin, Recep Karamert.*

REFERENCES

1. Losee JE, Kirschner RE, Whitaker LA, Bartlett SP. Congenital nasal anomalies: a classification scheme. Plast Reconstr Surg. 2004;113(2):676-89. [Crossref] [PubMed]
2. Kosins AM, Daniel RK, Sajjadian A, Helms J. Rhinoplasty: congenital deficiencies of the alar cartilage. Aesthet Surg J. 2013;33(6):799-808. [Crossref] [PubMed]
3. Adelson RT, Karimi K, Herrero N. Isolated congenital absence of the left lower lateral cartilage. Otolaryngol Head Neck Surg. 2008;138(6):793-4. [Crossref] [PubMed]
4. Jacobs KF. Angeborene Aplasie von Nasensteg und knorpeligem Septum. Beschreibung eines Falles und der operativen Korrektur [Congenital aplasia of the nasal columella and cartilaginous septum]. Laryngol Rhinol Otol (Stuttg). 1984;63(7):344-6. [Crossref] [PubMed]
5. Coban YK, Dogan A, Erbatur S. Isolated congenital hypoplasia of nasal lower lateral cartilages and its correction with helical rim and conchal cartilage composite grafts. Cleft Palate Craniofac J. 2012;49(4):e42-5. [Crossref] [PubMed]
6. Fijałkowska M, Antoszewski B. Nose underdevelopment - etiology, diagnosis and treatment. Otolaryngol Pol. 2016;70(2):13-8. [Crossref] [PubMed]
7. Barutca SA, Öreroğlu AR, Usçetin I, Kutlu N. Isolated congenital partial absence of the left lower lateral nasal cartilage: case report. Ann Plast Surg. 2011;67(6):662-4. [Crossref] [PubMed]
8. Temiz G, Yeşiloğlu N, Sarici M, Filinte GT. Congenital isolated aplasia of lower lateral cartilage and reconstruction using dorsal hump material. J Craniofac Surg. 2014;25(5):e411-3. [Crossref] [PubMed]