



Treatment of Auricular Deformity

Tratamento de deformidade auricular

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■ ABSTRACT

In this paper, we present a case of auricular deformity whose surgical correction is difficult, involving scapha-helical unit associated with prominent ear in a 25-year-old female patient. This is an uncommon congenital malformation of the ear, resulting in a flattened, straightened and folded helical rim over the scapha, compromising the helical appearance. The proposed surgical treatment involved posterior approach and conchal cartilage graft to the restoration of the helical rim contour in a single procedure. This new approach provides a fine result to the ear, particularly because it restores the scapha-helical unit with no scar on the surface of the anterior ear and also effectively treats the prominent ear.

Keywords: Ear; Ear auricle; Ear cartilage; Reconstructive surgical procedures.

■ RESUMO

Neste artigo, apresentamos um caso de uma deformidade auricular de difícil correção cirúrgica, envolvendo unidade escafo-helicoidal associada com a orelha proeminente em uma paciente de 25 anos de idade. Esta é uma malformação congênita incomum da orelha, o que resulta em uma borda helicoidal achatada, não curvilínea e dobrada sobre a escafa, comprometendo a aparência helicoidal. Foi proposto um tratamento cirúrgico com abordagem posterior e enxerto de cartilagem conchal à restauração do contorno borda helicoidal em um procedimento único. Esta nova abordagem proporciona um resultado agradável para o ouvido, principalmente por restaurar uma nova unidade escafo-helicoidal sem cicatriz na superfície orelha anterior e tratamento da orelha proeminente.

Descritores: Orelha; Pavilhão auricular; Cartilagem da orelha; Procedimentos cirúrgicos reconstrutivos.

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Article received: July 23, 2016.
Article accepted: February 21, 2017.

Conflicts of interest: none.

DOI: 10.5935/2177-1235.2017RBCP0020

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INTRODUCTION

Ear malformations result in social and psychological impacts to the quality of life of our patients. Prominent ears are relatively common, with an incidence in Caucasians of about 5%¹, and are the most frequent anomaly of the ear. The condition is instantly recognizable, and numerous studies attest to the psychological distress, emotional trauma, and behavioral problems that this anomaly can inflict on children².

Considering that prominent ears result from any underdevelopment of the antihelix and/or a conchal hypertrophy, secondary anomalies may coexist in association with prominauris, including excessive helical root protrusion, overprojected lobule, excessive antitragal protrusion, insufficient helical curling and macrotia^{3,4}.

At birth, up to 38% of infants present with helical malformation. However, 84% of neonatal cases are fully resolved by the first year of age, including lop and cup ear⁵.

Surgical treatment of the prominent ear requires careful approach as well as thorough understanding of its anatomical elements, and remains a major challenge for plastic surgeons⁶. The procedures consist in techniques, principles and varied tactics.

Otoplasty has experienced great evolution in the past 150 years, with the use of several maneuvers such as: bending, scraping, suturing, incising, repositioning and/or grafting auricular cartilage⁷⁻⁹. A great number of techniques have been described, many of which are aimed at a distinct part of the ear.

The multitude of approaches described in the literature suggest that no definitive technique has been established for correcting prominent ears in all patients. Surgeons must be able to correctly and precisely analyze the deformity, selecting and implementing an individualized surgical plan⁵⁻¹⁰, and must also be able to identify and treat the specific problem area of each individual ear rather than follow a routine¹⁰.

The goal of otoplasty is to handle ears in such a way that the contours look soft and natural, the setback appears harmonious, and there is no evidence of surgical intervention. Viewed from the front, the helical rim should be visible, protruding beyond the antihelix. Viewed laterally, the helical and anti-helical contour should be curved, smooth and round-not sharp, straight, or unnatural^{9,10}.

The aim of this paper is to present an unusual case of prominent ear associated with a flattened and folded helical rim with deficient scapha, which was evaluated and treated in a single surgical procedure. In addition, we intend to describe an optimal management strategy for this uncommon condition.

CASE REPORT

A 25-year-old Caucasian female was admitted to our service dissatisfied with her ear shape, mainly for the helical rim deformity. The patient had no functional deficits and, in the preoperative assessment, there was no history of facial surgery, trauma, allergy or disease.

Physical examination revealed an atypical auricular deformity, showing a deficient scapha, a flattened and folded helical rim, hindering the curved ear border (C-shape curve) associated with moderate hypertrophic concha. There was no ear height discrepancy, which is a common trait in constricted ears.

Given these characteristics, the surgical plan consisted of performing an otoplasty intended to treat the scapha-helical unit deformity and the conchal hypertrophy under local anesthesia with sedation (Figure 1). This study was performed in accordance with the ethical principles of the Helsinki 2000 and Istanbul 2008 declarations, and a Free Informed Consent was signed by the patient before the surgery.

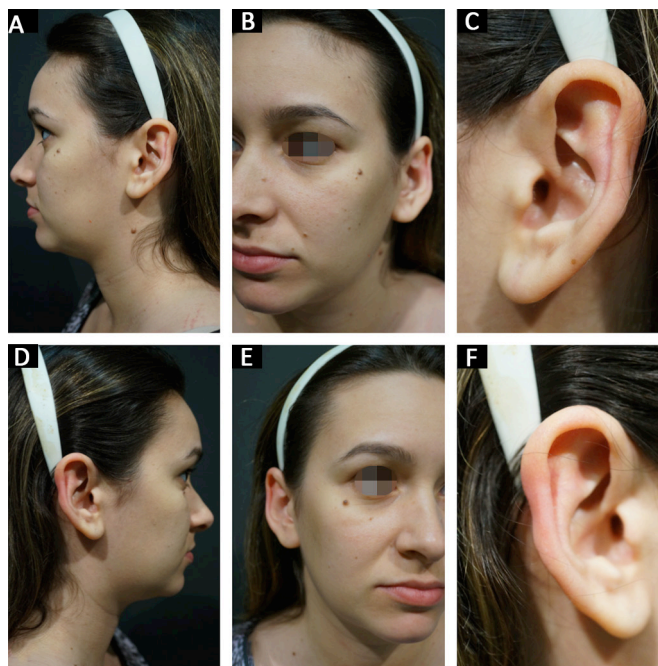


Figure 1. Pre-operative of a 25-year-old female patient complaining of floppy ear, presenting folded and flattened helical rim.

At the beginning of the surgery, local anesthesia was applied with 0.5% lidocaine and epinephrine diluted to 1:100,000 units. The infero-posterior incision of the skin was made in the area of the posterior furrow of the ear, and the skin was folded back to expose the conchal cartilage. After the posterior conchal cartilage was exhibited, a part of conchal cartilage was removed and harvested for grafting.

Another skin incision was made in the posterior surface of the scapha. A skin flap was posteriorly lifted to reach the anterior face of the scapha, exposing the whole anterior cartilage of the scapha-helical unit. Posterior and anterior skin flaps near the helix were lifted to access the helical rim and the surface of the anterior scapha, releasing the fibrous connections between the scapha and the helix that caused a folded, flat helical rim.

After treatment of these fibrous connections, a semilunar conchal cartilage graft (measuring 6 x 3 mm) was provided to stabilize the scapha and helical rim. This graft was fixed with two inabsorbable 4-0 nylon sutures (Figure 2). The skin was then allowed to redrape over the new scapha-helical unit in proper anatomical position. To keep the skin and cartilage firm, a bolster dressing was sewn in place.

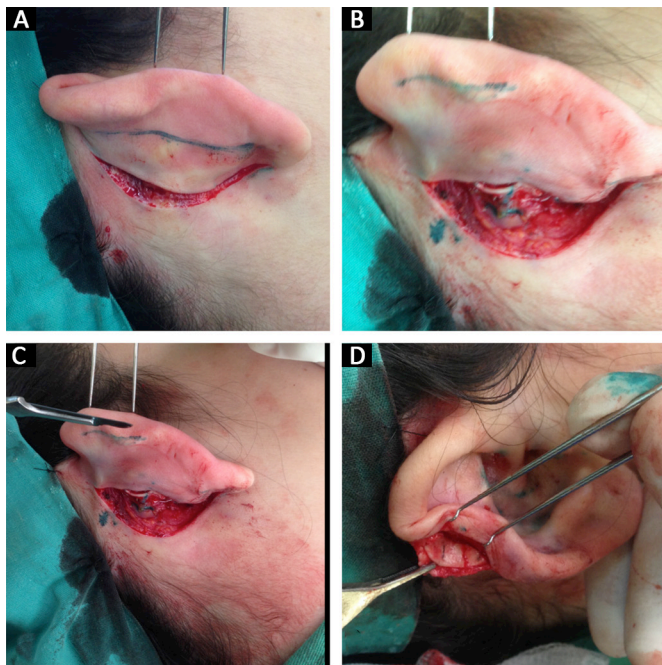


Figure 2. A, B and C: Transoperative showing two posterior skin incisions; D: Reconstruction of the scapha-helical unit with cartilage grafting on the anterior surface of the helix to stabilize the unit.

The ear was then drawn backward with the use of conchal fixation to the mastoid with 4-0 PDS (Ethicon, Inc., Somerville, N.J.) until the desired appearance was achieved. Before suturing the retroauricular skin, the cephaloauricular angle was evaluated, which must to be around 30°. At the end of the surgery, a dressing was made with wet cotton wool, modeling the lateral surface of the ear.

Gauzes and a head bandage complete the contensive dressing. At 24 hours postoperative, the dressing was removed to look for the presence of hematomas, and was then maintained for another 5 days. The skin suture was removed along the 7th to the 10th postoperative day. No

postoperative complications were observed. Follow-up time was 8 months (Figure 3).



Figure 3. Post-operative 8 months after otoplasty with total correction of floppy ear and restoration of the scapha-helical unit, providing a more curvilinear and harmonious auricular contour.

DISCUSSION

The correction of prominent ears by means of surgical techniques that provide a harmonious, natural and symmetrical look has long presented stimulating challenges to plastic surgeons. Several surgical techniques appeared along the years, aiming at the correction of the prominent ear.

The ear auricle is an elastic cartilaginous structure with many details, turning surgery of the prominent ear into a complex procedure. Multiple techniques and tactics have been developed to achieve normal aesthetic appearance¹⁻¹⁰.

For the otoplasty technique performed in this case, we approached the conchal cartilage to treat the hypertrophy and to harvest a graft that would stabilize the new scapha-helical unit. At first impression, there was a deficiency of the scapha cartilage and skin. However, after releasing fibrous attachments between the scapha and the anterior face of the helix, a new scapha-helical unit was restored in proper position.

All skin incisions to approach the conchal and anterior scapha were posterior, leaving no scar in the anterior surface of the ear. Usually, a skin ellipse is anteriorly removed along the posterior sulcus after surgical treatment of conchal hypertrophy.

In this case, after a posterior sulcus incision to access the conchal cartilage, we undermined the entire posterior skin flap to reach the posterior-superior incision at the level of the scapha. This inferior-posterior skin flap was slid upward to close the gap of the superior incision. This gap was due to the use of a skin flap to cover anteriorly the new cartilage of the scapha-helical unit.

Cases of prominent ear resulting from antihelical underdevelopment and conchal hypertrophy associated with any malformation of the scapha-helical rim may also be treated with the same approach used in this case. Nowadays, the techniques to treat prominent ear consist in producing a new antihelix using permanent sutures with cartilaginous incisions or conchal rotation and fixation, or scraping the lateral surface of the antihelix, or incising the entire extension at the antihelix (Pitanguy)², or the association of other surgical tactics²⁻⁸.

The technique proposed by the authors provides a well-defined curved helical rim and also provides restoration of the scapha, maintaining a smooth surface without sharp borders and approaching the cartilage without incisions along the whole scapha-helical unit, preserving the intact cartilage scaffold in a very strong and stable structure.

We agree with the importance of using inabsorbable sutures in the graft to stabilize it and to maintaining an unflattened helical rim in a new curved contour⁹. The excess of retroauricular skin should only be dried up to adjust the excess, after the superior incision has been closed¹⁰.

In this case, the two main goals were to create a clearly defined and curved helical rim and to treat the conchal hypertrophy. The first aim was achieved by restoring the helical rim, the scapha and the conchal hypertrophy. This new approach demonstrated a nice result to the ear, particularly for restoring the scapha-helical unit without scar on the surface of the anterior ear and for treating the prominent ear as well.

CONCLUSION

In conclusion, we presented a case of an ear deformity with a flattened and folded helical rim and

deficient scapha associated to a moderate prominent ear, an uncommon condition that must be treated appropriately in order to improve an aesthetic result of the otoplasty.

COLLABORATIONS

- LCS** Final approval of the manuscript; conception and design of the study; completion of surgeries and/or experiments.
- NGA** Final approval of the manuscript.
- AWSD** Analysis and/or interpretation of data.
- JHA** Final approval of the manuscript.

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