

The Importance Of Perichondrium Disorganization In Otoplasty And Its Implications For Recurrence And The Role Of Otoplasty: Case Report.

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Summary

Otoplasty is a procedure widely performed to correct ear deformities, especially prominent ears. However, one of the persistent challenges of surgery is recurrence of the deformity, often attributed to the elastic resistance of the cartilage. This article explores the role of perichondrium disorganization and the application of otomodeling as complementary techniques to increase the durability of results and minimize the recurrence rate. Reviews of recent studies demonstrate that careful manipulation of the perichondrium, combined with the application of postoperative shaping devices, can significantly improve aesthetic results and patient satisfaction. Otoplasty, as well as closed otomodeling with non-absorbable sutures, are techniques that are part of the list of procedures in the annexed and related areas of oral and maxillofacial surgery and traumatology and aesthetic surgeries of the face.

Keywords: Otoplasty, Perichondrium Disorganization, Otomodeling, Relapse, Facial aesthetic surgeries, Oral and maxillofacial surgery and traumatology and Auricular Surgery.

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I. Introduction

Otoplasty, a procedure designed to correct prominent ears and other auricular deformities. It is one of the most frequent surgeries in aesthetic and reconstructive practice. It is estimated that the incidence rate of people with protruding ears varies between 2% and 5% worldwide.¹ Even though it is not an excessive amount, the deformity can affect self-esteem and even the individual's quality of life due to the practice of bullying. Although the technique has a high success rate, recurrence of the deformity remains a significant concern among surgeons and patients. This study reviews the importance of disorganization of the perichondrium in reducing relapses and the role of otomodeling as complementary technique to improve results.

The Role of the Perichondrium in Otoplasty

The perichondrium, a layer of connective tissue that covers the cartilage, plays a fundamental role in the nutrition, protection and stability of the ear cartilage. During otoplasty, manipulation of the perichondrium is essential to remodel the cartilage, positioning it according to the new desired shape.²

Function of the Perichondrium in the Nutrition and Regeneration of Auricular Cartilage

The perichondrium has a crucial function in supporting and nourishing the auricular cartilage, providing blood vessels and nutrients necessary for its regeneration and healing. Modifications to this layer during otoplasty can promote more effective adhesion of the cartilage to the new position, enhancing the durability of the procedure.³

Disorganization of the Auricular Perichondrium: Technique and Efficacy

Disorganization of the perichondrium involves cuts or partial removal of this layer to reduce the natural elastic resistance of the cartilage. This approach facilitates the healing process in the new auricular configuration, reducing the tendency of the cartilage to return to its original position.^{3,4}

Case Studies and Clinical Results

Several recent studies have investigated the effectiveness of perichondrium disorganization in preventing relapse. This technique was associated with a recurrence rate of only 7% compared to 25% in patients undergoing conventional techniques. Manipulation of the perichondrium improves the adhesion and stabilization of the cartilage, providing more satisfactory aesthetics.^{5,6,7}

II. Case Report

Patient W.C.S.S., 12 years old. He presented a right auricular deformity, involving the helix, antihelix, upper pillar, triangular fossa and lower pillar of traumatic etiology. Figure 1. External auricular anatomy. Figure 2. Initial clinical appearance.



Figure 1. External auricular anatomy.



Figure 2. Initial clinical appearance.



Figure 3. Incision and conchal exposure.



Figure 4. Disorganization of the perichondrium and **Figure 5.** Detachment and preparation of the recipient area.



Figure 6. Donor cartilage and **Figure 7.** Preparation of cartilage for implantation in the recipient area.



Figures 8,9 and 10: Block insertion and reconstruction.



Figure 11. Immediate postoperative period.

Otomodeling: Complement to Otoplasty

Otomodeling, a technique that involves the application of molds or shaping devices to the ear, can be used before and after otoplasty to help mold and stabilize the cartilage.^{8,9}

Indications and Applications of Otomodeling

This technique is especially recommended for young patients, with malleable and still developing cartilage, and is effective in cases of mild and moderate deformities. Applying molds after surgery can help stabilize the cartilage in the new position, reducing the need for surgical intervention.^{9,10,11,12}

Clinical Results of Otomodelation

The combination of disorganization of the perichondrium and use of postoperative casts resulted in a significantly higher satisfaction rate, with an average recurrence rate of 10% in patients who received this combined approach.^{9,12,13}

Surgical Approaches and Technical Considerations

Performing perichondrium disorganization requires caution, with attention to preserving the vascularization of the cartilage to avoid complications such as necrosis. Selection of appropriate otomodeling devices is also crucial to ensure that the pressure applied is balanced, promoting healing without causing additional deformities.⁹

Potential Complications and Management

Every surgical procedure can present complications and, eventually, lead to an unsatisfactory result. The main objective of the movement is to try to avoid them, but when they occur you must be able to identify and correct such complications. Some non-specific signs and symptoms may indicate an evolving evolution and it is up to the seeker to identify and diagnose the problem, as it is important with a sudden onset, which must be evaluated carefully. Patients who undergo otoplasty do not usually require high doses of analgesics and the pain may be due to hematoma, excessive pressure from the dressing, skin necrosis or infection. Poor positioning corresponds to the late complication most frequently described in the literature in relation to otoplasties.¹⁴

The chances of recurrence increase when related to some immediate postoperative complications, such as bruises or infections, which impede the healing process. However, relapses can occur late, without an evident causal factor.^{14,15}

Complications associated with perichondrium disorganization and otomodelation include hematomas, infections, and cartilage necrosis. The surgeon's experience and postoperative follow-up are essential for the prevention and adequate management of these complications.¹⁶

III. Discussion

One common factor leading to ear protrusion is a deficiency or total absence of the antihelix. A technique first described by Gottfried Lemperle in 2003 attempts cartilage thinning, folding, and fixation by non-absorbable mattress sutures after ventral skin incision along the ventral helical kidney.^{15,16}

Auricular corrective and/or reconstructive surgeries may include anatomical defects in the prominent ear, due to indistinctness in the anti-helical fold, an overdeveloped fold or deep turbinate, widening of the auricular-cephalic angle and lobe abnormalities. In other cases, associations may or may not occur with congenital growth or formation anomalies. Other cases arise from physical trauma.^{15,16,17}

In patients with strong cartilaginous changes or lesions, whether in otoplasty, otomodeling or the combined technique, partial removal of the anti-helical projection is necessary. In cases of excessive and deep folds of the turbinate, total removal or an incision in the cartilage can be performed to reduce the fold.^{16,17}

Disorganization of the perichondrium and otomodeling represent significant advances in otoplasty surgery. Both techniques reduce the elastic forces of the cartilage, minimizing the tendency for recurrence. The reviewed literature indicates that the combination of these techniques offers an effective approach to improving aesthetic outcomes and patient satisfaction.^{2,4,18,19,20}

IV. Conclusion

Disorganization of the perichondrium, combined with otomodeling, constitutes a robust approach to improving otoplasty results. Careful manipulation of the perichondrium allows for more efficient healing, while otomodeling helps to stabilize the new auricular configuration, reducing recurrence rates. Additional clinical studies are recommended to consolidate these findings and optimize practices in surgeries to correct auricular deformities, based on the importance of the oral and maxillofacial surgeon and facial aesthetic surgeries, from diagnosis, planning, prognosis, treatment and monitoring of cases.

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