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CLINICAL ARTICLES

OUR EXPERIENCE WITH THE CORRECTION OF PROTRUDING EARS: CLINICAL CASE SERIES

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Abstract

Many methods have been developed to correct protruding ears, but the best one should be simple, reliable, and reproducible.

Obectives: The purpose of our study is to evaluate the effectiveness of protruding ear correction.

Materials and Method: This is a 5-year retrospective study (2018–2023) of 103 patients with protruding ears. Patients were followed up for at least a year after surgery.

A modified Mustarde technique procedure was applied. Incision made high at the level of the retroauricular projection of the retroauricular fossa to make it more difficult to see. After that, the skin is carefully separates from the cartilage. The cartilage is trimmed followed by the formation and modeling of the cartilage configuratio so that the auricle acquires a normal and natural shape. We stabilize the newly reconstructed antihelix using two to three stitches of Vycryl 4/0. Elastic bandage is worn for seventh day. The sutures were removed at the consultation on the 7–10 postoperative day. Patients were followed up at 3, 6, and 12 months followed by yearly intervals for 3-5 years. Data on functional and aesthetic outcomes were documented. Preoperative and postoperative photographs were also taken of all patients. The result was assessed on a visual analogue scale by the patient. Patient satisfaction was assessed in accordance with the indicators of the questionnaire, in which their degree of satisfaction was assessed on a 4-point scale: 1 (poor), 2 (satisfactory), 3 (good) and 4 (Great). Parameters included: improvement in the natural contour of the ears, improvement in frontal vision, improvement in the asymmetry of the concho-mastoid angle.

Results: In study, hemorrhages, hematomas, keloid formations, suture extrusion, skin and cartilage infections, skin necrosis and recurrences were not observed in any patient.

The average score of the the patient's is 8.4. The average concho-mastoid distance before the operation is 2.2 cm, after the operation it decreases to 1.4 cm. Clinical evaluation showed excellent results (58.7%), good results (28.6%), satisfactory results (12.7%) and without poor results.

Conclusion: Correction of protruding ears using this technique is safe and simple. Serious complications were not observed, good aesthetic results were obtained. The applied technique is universal, gives good results and has a low level of complications.

Keywords: *prominent ears, cosmetic ear surgery, chongchet technique, otoplasty*

Intoduction

Severe ear deformity has a major impact on facial aesthetics and social acceptance. Many studies have demonstrated the negative impact of protruding ears on the social and psychological state of people with protruding ears and the positive impact of surgical treatment on their quality of life.[1-4]

The normal auricle protrudes 20 to 30 degrees from the skull. From the point of view of modern plastic surgery, the ears are considered normally located if:

- the angle between the auricle and the head does not exceed 30°;
- the lines of the ear and cheek are strictly parallel;
- the gap between the edge of the ear and the surface of the skull is about 2 cm.

Failure to meet these criteria is a sign of prominent ears.

Prominent ears are characterized by the following changes:

1. Deletion or absence of antihelix, with scapholunate-conchal angle of > 90º;
2. Excessively deep or hyperdeveloped shell with increased cephalo-auricular angle of > 40º;
3. Combination of the deformities of item 1 and 2, the most common finding;
4. Protrusion of the earlobe.

In about 60% of cases, the cause of the defect is a hereditary factor. In other situations, protruding ears are most likely due to disorders during fetal development. There is still controversy on this issue.

The laying of the ear cartilage occurs in the third month of fetal development, and the presence of a problem is already present at the time of the birth of the child. By the age of 6-7, the final formation of the ear occurs, and the defect can only become more or less pronounced.

There are two ways to get a prominent ear:

- functional weakness caused by improper muscle attachment;
- congenital, intrauterine deformity in which two cartilaginous lobes do not develop, which leads to deformation of the parts of the ear and their stretching and enlargement.

Surgical intervention prominent ears are performed from the age of 6, when the cartilage is completely formed and it is possible to perform otoplasty.

In the Caucasoid population, the incidence of protruding ear is about 5%, and it accounts for the most common congenital deformity of the head and neck.[5]

The protruding ear is characterized by an enlarged conchomastoid angle, deep shell cartilage, a developed antihelix fold, or a combination of both.[5]A protruding ear is characterized by pinna hypertrophy or abnormal attachment of the pinna to the head side, either alone or in combination.[6] Patients with protruding ears are usually exposed to psychological distress at the beginning of schooling,[7] so it is advisable to correct the deformity before the age of 6 years.

Over the past few decades, there have been various methods to address the problem of protruding ears with sutures or incisions in the cartilage.[8-10]

The ears began to rule hundreds of years ago, during which time many methods of performing operations have been developed. The first operation to remove a protruding ear date back to 1845 by Dieffenbach.[11] Dieffenbach described the correction protruding ear defects postauricular skin excision and conchomastoid suture fixation.

Folds, Luckett was the first to describe a caniling technique in which he excised the medial skin and cartilage along the entire length of the new antihelical fold.[12]

Numerous modifications based on these foundational techniques have since been described in otoplasty. After that, more than 200 different methods were implemented.[13,14]

In 1960, Chongchet proposed his technique using a posterior approach to incise the anterior cartilage of the lateral part of the scapula to create an anti-helix.[15]

In 1963, Mustardé used an otoplasty technique in children with soft or thin cartilage. In this technique, an incision with retroauricular skin is made 8-10 mm below and parallel to the helical surface, the skin over the cartilage is mobilized caudally to the mastoid process and cranially to the spiral edge. The mobilization should not extend beyond the spiral edge to avoid postoperative skin defects. The perichondrium, which provides adequate nutrition for the cartilage, and the ear cartilage itself remain intact.[16] Mustarde technique one of the most popular approaches to correcting the prominent ear. Simply using the Mustard technique is usually not sufficient for most otoplasties, and additional work is usually required to correct an overdeveloped shell.[17]

Indractions for may include: protrusion of one or both

auricles; asymmetry of one or both ear cartilages; large size of the auricle; torn holes after wearing "tunnels"; age-related changes in the earlobe.
Complications after correction of protruding ears can be classified into early and late stages, with the former occurring within 14 days of surgery and the latter after an initial 14-day period.[17]
Sadhra et al reported complications during the first 2 weeks as bleeding, hematoma and infection. They referred to this as insufficient hemostasis during surgery or other errors in surgical technique. In our study, we have 1 case (1.7%) of wound rupture.[18]
The purpose of study is to evaluate the effectiveness of protruding ear correction.

Materials and Method

This is a 5-year retrospective study (2018–2023) of 103 patients with protruding ears. Patients were followed up for at least a year after surgery. The Mustarde technique was adopted to create a new anti-spiral fold using a permanent mattress conchoscaphalal suture.

A modified procedure was applied. Incision made high at the level of the retroauricular projection to make it more difficult to see. After that, the skin is carefully separates from the cartilage. The cartilage is trimmed followed by the formation and modeling of the cartilage configuratio so that the auricle acquires a normal and natural shape. We stabilize the newly reconstructed antihelix using two to three stitches of Vycryl 4/0. Elastic bandage is worn for seventh day (figure 1-4).

The sutures were removed at the consultation on the 7–10 postoperative day. Patients were followed up at 3, 6, and 12 months followed by yearly intervals for 3-5 years.

Data on functional and aesthetic outcomes were documented. Preoperative and postoperative photographs were also taken of all patients (figures 5-8).

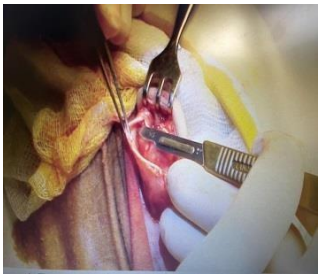

Figure 1. Incision made high at the level of the retroauricular projection.

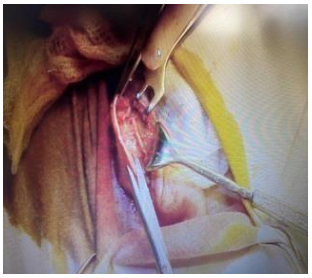

Figure 2. Skin is carefully separates from the cartilage

Figure 3. The cartilage is trimmed followed by the formation and modeling of the cartilage configuratio so that the auricle acquires a normal and natural shape

Figure 4. Stabilize the newly reconstructed antihelix using two to three stitches of Vycryl 4/0

Figure 5. Patients A. Front view (preoperative)

Figure 6. Patients A. Front view (postperative)

Figure 7. Patients B. Front view (preoperative)

Figure 8. Patients B. Front view (postperative)

The result was assessed on a visual analogue scale by the patient. Patient satisfaction was assessed in accordance with the indicators of the questionnaire, in which their degree of satisfaction was assessed on a 4-point scale: 1 (poor), 2 (satisfactory), 3 (good) and 4 (Great).

Parameters included: improvement in the natural contour of the ears, improvement in frontal vision, improvement in the asymmetry of the concho-mastoid angle.

Results

In study, hemorrhages, hematomas, keloid formations, suture extrusion, skin and cartilage infections, skin necrosis and recurrences were not observed in any patient.

The average score of the the patient's is 8.4. The average concho-mastoid distance before the operation is 2.2 cm, after the operation it decreases to 1.4 cm. Clinical evaluation showed excellent results (58.7%), good results (28.6%), satisfactory results (12.7%) and without poor results.

Discussion

The external ear is a complex structure with great variation between individuals and even between the two sides of the same individual. Protruding ears are the most common congenital deformity of the outer ear. The defect is usually bilateral and may be asymmetrical. The optimal age for the correction of protruding ears is 10-14 years. There are many methods of surgical treatment of patients with protruding ears.

Becker proposed a method of using cartilage dimensions and suturing techniques to reduce the contour of a corrected protruding ear.[19]

Chongchet,[15] Converse and Wood-Smith,[20] Criklair GF,[21] Stenström SJ[22] performed incomplete posterior cartilage incisions.

In combination with fixing sutures. the use of the conchomastoid suture was popularized by Furnas and later modified by Spira et al.

Otoplasty techniques are divided in

- cartilagesculpting (cutting)[22]
- cartilage-sparing (suturing)[16,23]
- composite techniques (combination of sutures and sculpting)[20,24]

One of the main difficulties associated with otoplasty techniques is related to achieving durable aesthetic results. This cartilage memory problem occurs especially in the case of notched cartilage reshaping procedures with protruding ears. auricular cartilage cartilage tends to warp away from an injured surface.[25]

Unsatisfactory long-term outcome otoplasty - residual deformity over time after surgery, even if with the correct implementation of the surgical technique with the resumption of protruding ears.[26-29]

Proper evaluation is therefore essential to the application of the corrective technique. The goals of performing otoplasty are well known and can be achieved through a thorough medical examination. This variety of options can make it difficult for a surgeon to choose the right procedure most appropriate for a particular patient.

This article presents our experience of more than 100 otoplasties using a range of previously described techniques, resulting in consistent, aesthetically pleasing results in both young and elderly patients. This study presents its own experience in the correction of protruding ears using a range of previously described techniques (combination of seams and cartilage cutting technique). Resulting in consistent, aesthetically pleasing results in both young and elderly patients. The proposed measures can be used as an accurate planning to improve the effectiveness of surgical treatment in order to eliminate defects and deformities of the auricles.

The surgeon will be able to use an arsenal of corrective measures that are most appropriate for each individual patient. With an objective algorithm of the surgeon in relation to the deformation of the auricle, you can get the maximum aesthetic result.

For best results when correcting protruding ears, the following should be observed:

Perform an ellipsoid resection of the skin in the postauricular region, where the final scar should be hidden in the postauricular sulcus.

Creation of an anti-spiral with rounded contours, avoiding borders with sharp edges.

Avoid overcorrecting the anti-helix, which causes helix wear.

Reducing the hypertrophy of the shell in some cases, when indicated.

Control the position of the earlobe, which often remains in front when the ear is positioned behind.

Attaching the shell to the mastoid fascia, if necessary.

Surgical treatment of ear correction according to thes method gives satisfactory aesthetic results, favorably affects the mental status of the patient. The long-term result in our series was completely satisfactory: the natural appearance, tactile sensations and plasticity of the ear are similar those of the ears that have not undergone surgery.

The reconstructed auricle shows reliable results in terms of stability, size and normal convolutions without recurrence in this study group. It does not lead to complications and gives good, reproducible esthetic results. None of the patients developed keloids. Suture extrusion did not occur in any of the patients during the follow-up period. No patient developed a recurrence or required a corrective secondary operation.

Conclusion

Correction of protruding ears using this technique is safe and simple. Serious complications were not observed, good aesthetic results were obtained. The applied technique is universal, gives good results and has a low level of complications.

Conflicts of Interest

The authors declare no conflict of interest.

Funding

This research received no external funding.

Institutional Review Board Statement

The study was conducted by the Declaration of Helsinki and approved by the Institutional Review Board (or Ethics Committee).

Informed Consent Statement

Informed consent was obtained from patient involved in the study.

Data Availability Statement

Not applicable.

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ԼՈՇՏԱԿՈՒԹՅԱՆ ՇՏԿՄԱՆ ՄԵՐ ՓՈՐՁԸ. ԿԼԻՆԻԿԱԿԱՆ ԴԵՊՔԵՐԻ ՇԱՐՔ

Հայկ Ենոքյան [1]

[1] բ.գ.թ., դոցենտ, Առողջապահության ազգային ինստիտուտի գլխի և պարանոցի էսթետիկ և վերականգնողական վիրաբուժության ամբիոնի վարիչ, «Էլիտ-Մեդ» ԲԿ պլաստիկ և դիմածնոտային վիրաբուժության ծառայության ղեկավար

Ամփոփում

Շատ մեթոդներ են մշակվել լոշտակության շտկման համար, բայց լավագույնը պետք է լինի պարզ, հուսալին վերարտադրելի:

Նպատակները. Մեր ուսումնասիրության նպատակն է գնահատել լոշտակության շտկման արդյունավետությունը:

Նյութեր եւ մեթոդներ. Սա 5-ամյա հետահայաց ուսումնասիրություն է (2018–2023) 103 հիվանդների լոշտակության շտկման վիրահատության արդյունավետություն գնահատման: Կիրառվել է փոփոխված Mustarde տեխնիկան։

Կտրվածքը կատրվել է ականջի հետին վերին պրոյեկցիայի մակարդակում՝ այն ավելի դժվար տեսնելուհամար: Դրանից հետո մաշկը խնամքով առանձնացվել է աճառից։ Աճառը կտրվել է, որին հաջորդել է աճառիկոնֆիգուրացիայի ձևավորումն ու մոդելավորումը, որպեսզի ականջը նորմալ և բնական տեսք ստանա,կայունացվել է նոր մոդելավորված ականջը, օգտագործելով Vycryl 4/0 երկու-երեք կար: Հիվանդը վիրակապըկրել են յոթ օր: Կարերը հանվել են կոնսուլտացիայի ժամանակ հետվիրահատական 7-10-րդ օրը:Հիվանդներին հետևել են 3, 6 և 12 ամիս, որին հաջորդել են տարեկան ընդմիջումներով 3-5 տարի: Փաստագրվել են ֆունկցիոնալ և էսթետիկ արդյունքների վերաբերյալ տվյալները: Բոլոր հիվանդներին արվելեն նաև նախավիրահատական և հետվիրահատական լուսանկարներ: Արդյունքը գնահատվել է հիվանդիկողմից տեսողական անալոգային սանդղակով: Հիվանդի բավարարվածությունը գնահատվել է հարցաշարիցուցանիշներին համապատասխան, որոնցում նրանց բավարարվածության աստիճանը գնահատվել է 4բալանոց սանդղակով՝ 1 (վատ), 2 (բավարար) , 3 (լավ) և 4 (գերազանց): Պարամետրերը ներառում են՝ ականջների բնական ուրվագծի բարելավում, դիմային տեսողության բարելավում, կոնխո-մաստոիդ անկյանանհամաչափության բարելավում:

Արդյունքները: Ուսումնասիրության ընթացքում արյունազեղումներ, հեմատոմաներ, կելոիդային գոյացություններ, կարի արտամղում, մաշկի և աճառի վարակներ, մաշկի նեկրոզ և ռեցիդիվներ չեն նկատվելոչ մի հիվանդի մոտ:

Հիվանդի գնահատման միջին միավորը 8,4 է: Միջին կոնխո-մաստոիդ հեռավորությունը մինչև վիրահատությունը 2,2 սմ է, վիրահատությունից հետո այն նվազել է մինչև 1,4 սմ: Կլինիկական գնահատումը ցույց է տվել գերազանց արդյունքներ (58.7%), լավ արդյունքներ (28.6%), բավարար արդյունքներ (12.7%) և առանց վատ արդյունքների:

Եզրակացություն. Լոշտակության շտկման կիրառված այս տեխնիկան անվտանգ և պարզ է, լավ էսթետիկ արդյունքներ են ստացվել: Կիրառվող տեխնիկան ունիվերսալ է, լավ արդյունք է տալիս և ունի բարդությունների ցածր մակարդակ;

НАШ ОПЫТ КОРРЕКЦИИ ЛОПОУХОСТИ УХА. СЕРИЯ КЛИНИЧЕСКИХ СЛУЧАЕВ

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Резюме

Для коррекции лопоухости уха разработано множество методов, но лучший из них должен быть простым, надежным и воспроизводимым.

Цели: Цель нашего исследования - оценить эффективность лопоухости уха.

Материалы и методы: Это 5-летнее ретроспективное исследование (2018–2023 гг.) 103 пациентов, оценивающее эффективность коррекции лопоухости уха. Использовалась модифицированная методика Mustarde.

Разрез был сделан на уровне задней верхней проекции уха, чтобы его было труднее увидеть. После этого кожу аккуратно отделяли от хрящей. Производился обрезка хряща с последующим формированием и

моделированием конфигурации хряща, чтобы ушная раковина приобрела нормальную и естественную форму и вновь смоделированное ухо было стабилизировано с помощью двух-трех швов Vycryl 4/0.
Пациент эластичный бинт носил семь дней. Швы были сняты во время консультации на 7-10 день после операции. Пациентов наблюдали в течение 3, 6 и 12 месяцев с ежегодными интервалами в течение 3–5 лет.
Функциональные и эстетические данные результатов были задокументированы. Все пациенты были также сфотографированы до и после операции. Результат оценивался пациентом по визуальной аналоговой шкале. Удовлетворенность пациентов оценивалась по показателям анкеты, в которой степень их удовлетворенности оценивалась по 4-балльной шкале: 1 (плохо), 2 (удовлетворительно), 3 (хорошо), 4 (отлично). Параметры включают: улучшение естественного контура ушей, улучшение фронтального зрения, улучшение асимметрии конхо-сосцевидного угла.
Результаты: Кровоизлияний, гематом, келоидных образований, экструзии швов, инфекций кожи и хрящей, некрозов кожи и рецидивов не наблюдалось ни у одного больного за время исследования.
Средняя оценка пациента 8,4. Среднее конхо-сосцевидное расстояние до операции составляло 2,2 см, после операции уменьшилось до 1,4 см. Клиническая оценка показала отличные результаты (58,7%), хорошие результаты (28,6%), удовлетворительные результаты (12,7%) и отсутствие плохих результатов.
Заключение: Этот метод коррекции деформации безопасен и прост, с хорошими эстетическими результатами. Применяемая методика универсальна, дает хороший результат и имеет низкий процент осложнений.