

Presentation and Management Outcome of Unilateral and Bilateral Prominent Ears with Standard Otoplasty Techniques

Muhammad Hamayun Shinwari¹, Irfan Ullah², Muhammad Bilal³

¹Plastic Surgeon, ²Assistant Professor, ³Assistant Professor
(Burn and Trauma Center, Hayatabad, Peshawar)

Author's Contribution

All authors equally contribute in Study Concept and Design, Data Collection and interpretation, Statistical Analysis, Protocol Writing, Manuscript Writing, Critical Manuscript Review, Final approval of article.

Funding Source: None

Conflict of Interest: None

Received: Jan 21, 2022

Accepted: June 14, 2022

Address of Correspondent

Dr. Irfan Ullah

Assistant Professor, Burn and Trauma Center, Hayatabad, Peshawar.

drirfann@gmail.com

ABSTRACT

Objective: To determine the outcome of otoplasty in terms of a satisfactory cosmetic outcome and any postoperative complications.

Methodology: This descriptive case series was carried out over a period of five years from January 2017 to December 2021 at the Burn and Trauma Center, Department of Plastic Surgery, Hayatabad Medical Complex, Peshawar. Patients of all ages and genders who presented with prominent ears and underwent corrective procedures at our institute were included. Patients who were unwilling to undergo surgery or who did not consent to inclusion in the study were excluded. Patients with constricted ears, cryptotia, shell ears, and question mark ears were also excluded.

Results: Out of 45 patients, 29 (64.44%) were females and 16 (35.55%) were males. Their ages ranged between 11-30 years, with a mean of 22.28±5.49 years. The anomaly was bilateral in 84.44% (n = 38) of the patients, while 15.55% (n=7) patients had unilateral defects. 57.7% (n=26) of the patients were unmarried, whereas 42.3% (n=19) were married. All the patients had satisfactory cosmetic outcomes. Various complications encountered included extrusion of sutures (n=3; 6.66%) and superficial wound infection (n=1; 2.22%).

Conclusion: Correction of the prominent ears with the standard otoplasty techniques yields satisfactory cosmetic results. Lasting results can be achieved by combining different otoplasty techniques that are stable over time.

Key Words: Prominent ear; Macrotia; Otoplasty.

Cite this article as: Shinwari MH, Ullah I, Bilal M. Presentation and Management Outcome of Unilateral and Bilateral Prominent Ears with Standard Otoplasty Techniques. *Ann Pak Inst Med Sci.* 2022; 18(2):94-97. doi. 10.48036/apims.v18i2.630

Introduction

Prominent ears are those ears that stick out sufficiently to look abnormal. They may or may not be large in their size. Normally the ear is placed less than 2 cm from the head and there is less than 25° angle from the side of the head. When these approximate measures are transgressed, the ear looks prominent when visualized from the front or the back side. In case of macrotia, the ears are primarily unduly large in size and hence may appear prominent secondarily. Normally the ear in adults is 6-6.5 cm long whereas in a child of 10-years, the ear measures 6-cm in length.¹⁻³

Prominent ears represent a relatively common congenital disorder in the new born. The reported prevalence of this congenital anomaly is approximately 5% in the United States. In more than 50% of cases, the anomaly is evident

at birth. It is usually neither associated with other congenital abnormalities nor itself causes any serious functional issues. However the anomaly carries serious psychosocial repercussions for the child as well as the parents.⁴⁻⁷

Regarding timing of surgical correction of the prominent ears, there is universally agreed age of the sufferer. Most of the authorities recommend it to be performed before the age of school going. i.e. 5-6 years of age. Children who have extremely anomalous ears, the procedure is recommended at the age of 4-years. In cases where the anomaly is secondary to macrotia, otoplasty is preferable at the age of 2-years as the procedure helps to inhibit further overgrowth.⁷⁻⁹

The present study was carried out to document the clinical presentation of prominent ears in our population and determine the outcome of otoplasty in terms of

satisfactory cosmetic results of otoplasty and any postoperative complications.

Methodology

The study was carried out over a period of 5-years (i.e. from January 2017 to December 2021) at the Burn and Trauma Center, Department of plastic surgery, Hayatabad Medical Complex, Peshawar. It included patients of all ages and genders who presented with prominent ears and underwent corrective procedure at our institute. Informed consent was taken from the patients or their guardians. The study was approved by the hospital ethics committee. Patients unwilling to undergo surgery or not consenting for inclusion in the study were excluded. Also patients with constricted ears, cryptotia, shell ears and question mark ears were excluded.

Initial clinical evaluation was performed with standard clinical examination of the ears to define the anomaly. Adults underwent the otoplasty under local anesthesia as a day care procedure. The children were hospitalized to undertake the surgery under general anesthesia.

The otoplasty procedures were tailored according to the anomalies present in the individual ears. Mostly, a combination of surgical maneuvers was employed depending on the deformities identified. Mustarde sutures were employed to recreate the antihelix and effect a setback of the upper and middle thirds of the auricle. The prominent concha was addressed with a combination of limited conchal resection and Furnas conchal mastoid sutures. Only 1–2 mm resection was done to minimize the chances of causing iatrogenic deformity. Earlobe repositioning was done whenever needed. In Stahl's ear deformity, the Kaplan and Hudson technique was employed. An incision was made inside the helical rim, the lateral skin was carefully dissected off the cartilage, the extra crus was excised. The cartilage defect was closed primarily. The excised cartilage was used as an onlay graft to reconstruct the superior crus of the triangular fossa. In macrotia, an incision was made on the lateral surface of the ear, just inside the helical rim, through the skin and the cartilage, without incising the medial skin. A crescent of scapha was removed. A triangular segment of helical rim along with medial skin was then excised and the defect closed primarily. This ensured that there was no redundant helical rim relative to the now smaller scapha following its crescent excision.⁸⁻¹⁰

Generally speaking, the otoplasty procedures aimed that the helix of both ears should be visible beyond the antihelix. The ear should not be placed too close to the head (i.e. helix to mastoid distance should be 10-12 mm at the top, 16-18 mm in the middle third, and 20-22 mm in the lower third).

Postoperatively, a bulky, non-compressive dressing was applied. The first dressing was changed on the 5th postoperative day. The stitches were removed on 7th postoperative day. Subsequently, the patients were advised to wear a loose headband at night for the next 6 weeks.

Statistical analysis: SPSS version 21 (SPSS Inc., Chicago, IL, USA) was used to analyse the data statistically. Descriptive statistics were employed to measure the outcomes.

Results

Out of 45 patients, there were 29(64.44%) females and 16(35.55%) males. Their ages ranged between 11-30 years with a mean of 22.28 ± 5.49 years. The anomaly was bilateral in 84.44% (n=38) patients while 15.55% (n=7) had unilateral defects. 57.7% (n=26) of the patients were unmarried whereas 42.3% (n=19) were married. The patients belonged to four different age groups. Most belonged to the age group of 26-30 years (40%; n=18), followed by 21-25 years age group (28.88%; n=13), 16-20 years age group (20%; n=9) and 11-15 years age group (11.11%; n=5). (Table I)

Table I: Sociodemographic data of the patients. (n=45)

Parameters	N	Percentage
Gender :		
Male	16	35.5%
Female	29	64.5%
Marital status:		
Married	19	42.3%
Single	26	57.7%
Age Range (Years):		
11-15	5	11.1%
16-20	9	20%
21-25	13	28.9%
26-30	18	40%

All the patients had satisfactory cosmetic outcome. The commonest complication encountered was extrusion of sutures (n=3; 6.66%) at one year follow up. There was one case of superficial wound infection (n=1; 2.22%). (Table II)

Table II: Complications observed. (n=4)

Complication	N	Percentage
Extrusion of sutures	3	6.66%
Superficial wound infection	1	2.22%

Discussion

In this study, majority of the patients presented for otoplasty in adult life. Kajosaari L et al¹¹ in their series from Finland reported the age range for the otoplasty to be between 3-36 years, with a mean of 9.2 years and median of 7 years. The same authors analysed 20 publications on operative management of prominent ears. These included a total of 4433 patients. The mean age at operation in these patients was found to range between 7-38 years with an overall mean of 15 years.¹¹

In this study, majority of the patients had bilateral prominent ears. Kajosaari L et al¹¹ observed bilateral deformities among 78.9% patients.

In this majority of the patients were females. . Kajosaari L et al¹¹ observed considerable variation in gender distribution of prominent ears patients. The pooled data of 3840 patients revealed 52% of patients being females.

In this study, we ensured a through pre-operative assessment of the affected ears. Meticulous preoperative assessment of the ears helps to determine which parts of the auricles have morbid anatomy. This in turn helps in deciding the appropriate otoplasty techniques. For instance an underdeveloped antihelix, deep wide concha and prominent ear lobule.¹²⁻¹⁵

In the past some procedures such as scoring, rasping or scratching of the ear cartilage were performed in an attempt to decrease the stiffness of the cartilage. However these procedures have recently gone into a disfavor as these are often unreliable, uncontrollable, and may result in sharp edges or an overdone appearance of the auricle.^{9, 16}

The prominent ears are most commonly caused by one or more of the following anatomic distortions. They may be found alone or in various combinations. These include underdeveloped antihelical fold, prominent concha and protruding earlobe. Additionally there may be more anomalies. For instance, in case Stahl's ear deformity, an extra third crus is present. In case of underdeveloped antihelical fold, the antihelix is inadequate owing to which the scapha and helical rim protrude. Resultantly there is prominence of the upper third or middle third of the ear. In case of prominent concha, the concha is either

deeper than normal or the concha/mastoid angle is more than normal. These two abnormalities of the concha may co-exist also. The prominent concha leads to prominence of the middle third of the auricle. In case of protruding earlobe, the earlobe is protruding that leads to prominence of the lower third of the ear.^{9, 15-17}

In our study, the patients had satisfactory cosmetic outcome. This is owing to fact that we tailored our procedures to achieve the goals of otoplasty. These included effecting a set back to the ears in such a way that the contours appeared soft and natural, the setback was harmonious and there was no evidence of operation. We ensured that when the ear was viewed from the front, the helical rim was visible, behind the recreated antihelical fold. When the ear was viewed from behind, the helical rim was straight, not bent like a hockey stick. From the lateral view, the ear had soft and natural contours, not sharp and operated ones.^{9, 18-22}

In our share of complications, we had three cases of extrusion of sutures and one case of superficial wound infection. In the literature, there is 3% reported frequency of skin and wound healing problems whereas the suture-related problems are reported to occur in 1.8% of the patients. A variety of complications have been described in the literature. For instance, incomplete correction, overcorrection, pain and itching, hematomas formation, seroma formation, chondritis of the ear cartilage, hypertrophic scars, keloid formation and loss of correction after otoplasty.²³

Conclusion

Correction of the prominent ears with the standard otoplasty techniques yields satisfactory cosmetic results. Lasting results can be achieved by combining different otoplasty techniques that are stable over time.

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