Clinical Experiences in the Surgical Treatment of Accessory Tragus

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Abstract

Objective: Tragus is a part of the external ear that develops from the first branchial arch. Accessory ear is a congenital external ear anomaly and has skin elevation containing remnant cartilage. The auricle develops between the 4th and 12th week of the embryonic stage, which groove the tissue from the 1st and 2nd branchial arches. Histologically, the lesions include a rugated epidermis with a thin layer stratum corneum, tiny mature hair follicles, fat lobules, and connective tissue framework that may include a central cartilage core. The aim of this study was to evaluate the accessory tragus lesions with our clinical surgical treatment results.

Material and Methods: Lesions usually located anterior to the tragus and along an imaginary line drawn from the tragus to the angle of the mouth. Twelve patients admitted to our clinic between October 2011 and November 2014 were included in this study.

Results: Seven boys and five girls between two–13 years old underwent operation. In total, 28 accessory ears were excised. No complications were observed during the procedure, and no complaints were noted in the postoperative period.

Conclusion: Generally, limited anomaly is associated with the first and second branchial arch anomalies. Surgical excision is the standard treatment for the lesions which usually due to the esthetic concerns.

Keywords: Accessory tragus, congenital, external ear

INTRODUCTION

Accessory tragus is a lesion of the outer ear that derives from the pathological development of the first branchial arch. First described by Birkett in 1858, these lesions often occur sporadically, but can also occur together with anomalies of the first branchial arch (mandibular) and second branchial arch (hyoid). The ear, on the average, begins to develop in the 4th or 5th week of embryogenic life and is fully developed by the 12th week. Accessory tragus lesions present as small (3-10 mm), firm, skin-colored elevations of the skin, sometimes with underlying fatty tissue or cartilage remnants. While mostly encountered as a single lesion on one half of the face, there are cases that present on both halves or with multiple lesions. Cases that present with multiple accessory tragus pathologies should be thoroughly examined for concomitant congenital pathologies. Skin tags, polyps, papules, epidermal cysts, lipomas, congenital hamartomas, warts (cervical accessory tragus), thyroglossal cysts, macrotragus, and auricular fistulae constitute the differential diagnosis for accessory tragus cases. While prevalence of the lesions range from 1.7/1000 to 1/12,500, in literature 6% of the cases have been described as bilateral. Total surgical excision is curative and often performed for cosmetic or psychological reasons, or for local irritation problems.

Our study aims to evaluate the diagnosis-to-treatment cases of patients who were operated on for accessory tragus and to emphasize that lesions which, when encountered, may be deemed surgically insignificant, can be the early precursors of concomitant congenital syndromes.

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MATERIAL AND METHODS

The study included 12 patients who presented to our clinic with preauricular mass and were operated on subsequent to the necessary consultations and preoperative evaluation between October 2011 and November 2014. The patients were evaluated by age, gender, and the number, size and localization of their lesions. Additional pathologies were identified in three patients, of whom one presented with hemifacial microsomia, one with inguinal hernia, and one with microcephaly. None of the patients presented with a positive familial history. All patients were re-examined in months 1, 6 and 12 following the early postoperative follow-up period. No recurrences, pathological scarring or additional complications had been encountered by the end of this period (Figures 1-5).

RESULTS

Of the 12 patients included in the study, 7 were male and 5 were female. The ages of the patients ranged from 2 to 13 with a median age of 8. Lesions were found to be localized in the preauricular region in all patients. Sizes of the lesions varied from 3 to 12 mm. Three of the patients presented with bilateral lesions. While 9 patients were found to have multiple accessory tragus, 3 were found to have single lesions. A total of 28 masses were identified in 12 patients, of which 12 lesions were localized on the left half and 16 on the right half of the face. Reasons for seeking surgical remedy were found to be primarily cosmetic, basing on families’ aesthetic concerns. All patients were operated on under general anesthesia (sedation, anesthesia mask and laryngeal mask). After local anesthesia was administered on the lesion site, a total deep elliptical excision was performed. Wounds were closed with subcutaneous 4/0 and cutaneous 6/0 absorbable sutures, and covered with antibacterial ointment dressing. Sutures were removed after 5 to 7 days. All lesions were pathologically analyzed, and reports indicated findings for accessory ear lesions. Patients were followed-up on for 3 to 36 months. None of the lesions revealed any findings or additional pathologies indicating cancerous formation.

DISCUSSION

The human ear begins to develop in the fourth or fifth week of the embryogenic life. In the sixth week hillocks begin to develop from the mesenchymal tissue, where the 1st, 2nd and 3rd hillocks arise from the first branchial arch and the 4th, 5th and 6th mesenchymal tubercles arise from the second branchial arch. At the sixth week of intrauterine life tubercles begin to fuse and development of the auricle is largely completed by the 12th week. Accessory tragus lesions are thought to occur as a result of the complications that take place during this fusion process. Lesions have been suggested to primarily develop from the cartilage remnants of the first branchial arch. While lesions are often encountered in the preauricular region, along an imaginary line drawn between the ear and the corner of the mouth, and in the neck region, they can be rarely encountered on the front of the sternocleidomastoid muscle, on the glabella, the nasal vestibule, the middle ear, the nasopharynx and the ster-
In all of the cases included in our study, lesions were localized in the preauricular region. Congenital ear pathologies have been reported to occur in relation to a number of etiological factors. Although in the literature, accessory tragus lesions are frequently described together with syndromes, lesions are usually seen to be isolated. When accessory ear is diagnosed at birth or postnatally the patient should be evaluated for accompanying syndromes. Accessory tragus can be seen together with Goldenhar syndrome (anomalies of the eye, the ear and the vertebral system), VACTERL syndrome (malformed or small vertebrae, cardiac anomalies, tracheal and esophageal anomalies, renal anomalies, and articular pathologies), Treacher Collins syndrome (maxillary-mandibular hypoplasia, cleft palate, macrostomia), Delleman syndrome (skin lesions, anomalies of the ocular and central nervous systems), Wolf–Hirschhorn syndrome and Townes-Brocks syndrome. Apart from these, accessory tragus lesions can present as a clinical precursor of Goldenhar syndrome. While in literature multiple lesions are often indicated to be found together with such syndromes, in our study no concomitant syndromes were identified albeit 9 of the 12 patients presented with multiple lesions.

Accessory tragus is also known as rudimentary ear, accesso-
ry auricle, lateral tragus, polytotia, extra tragus, preauricular tag. Polyotia is an anomaly of the outer ear that presents in the tragus region as a ‘second ear’ rather than skin or cartilage remnants. Sachdeva et al. screened 500 newborns for skin manifestations and identified an accessory tragus in 0.06%. Beder et al. reported 4 cases of accessory tragus diagnosis among 850 school children whom they screened in their study. Jung et al. screened 63 children presenting with auricular mass, of which they identified 6 cases to present with an accessory ear. Two separate studies focusing on the prevalence of accessory tragus in Turkey and China found this rate to be 0.47% and 0.22% respectively. Diagnosis of accessory ear malformations, a congenital pathology of the outer ear, can often be overlooked at birth. There is one reported case of accessory tragus pathology, which is a pathology of the outer ear, identified in the middle ear, however no reports are available on its relation to the inner ear. In the presence of the Goldenhar syndrome, however, pathologies of the inner ear and hearing loss can be seen in association with the syndrome. While the accessory tragus tissue can be confused with a number of similar appearing lesions, they can be accurately discriminated by pathological analysis. Histologically, it is characterized by a thin stratum corneum, presence of sporadic hair follicles in the epidermis, and apocrine or eccrine sweat glands. Mature fat cells and partial skeletal muscle can present in the stroma. While autosomal dominant inheritance is reported in familial cases, there are discussions on the possibility of autosomal recessive inheritance associated with the X chromosome.

Accessory tragus is treated by surgical excision, but can also be followed-up in cases presenting with discomfort in the lesion region or when the patient’s family does not consent to surgery. While deep-reaching total excision of the lesion is known to be the definitive treatment, insufficient excision or cartilage fragments that remain after shaving, can lead to complications such as exposition, problems in wound healing, local tenderness, and rarely chondrodermatitis. Surgically accessory tragus lesions are found to be uneventful both in nature and in treatment. When identified, its presence should be systematically evaluated by the relevant departments and advanced examinations should be further conducted when suspected of congenital anomalies.

**CONCLUSION**

Today, surgical excision of accessory tragus lesions is often performed for aesthetic concerns. When identified in the pre-
natal, perinatal or postnatal period, it should be noted that accessory tragus lesions can be indicative of congenital syndromes, and patients should be evaluated for dysmorphic appearance and accompanying anomalies, and, when deemed necessary, further evaluated in consideration of a diagnosis.

**Ethics Committee Approval:** Authors declared that the research was conducted according to the principles of the World Medical Association Declaration of Helsinki “Ethical Principles for Medical Research Involving Human Subjects”, (amended in October 2013).

**Informed Consent:** Written informed consent was obtained from patients who participated in this study.

**Peer-review:** Externally peer-reviewed.


**Conflict of Interest:** No conflict of interest was declared by the authors.

**Financial Disclosure:** The authors declared that this study has received no financial support.

**REFERENCES**