Surgical Correction of an Accessory Auricle, Polyotia

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Polyotia is an extremely rare congenital anomaly of the external auricle. This condition is defined as an accessory auricle that is large enough to closely resemble an additional pinna rather than a skin remnant and cartilage [1]. Polyotia, also known as mirror ear or accessory ear, is a type of ear anomaly in the tragus area, but this term refers to substantial anomalies which resemble an accessory ear, unlike a pre-auricular tag. We report a case in which the patient had a duplicated auricle that was corrected successfully. A 9-year-old boy presented with a large accessory anomalous auricle on his left ear (Fig. 1). His accessory structure was approximately 2.3×2.0 cm in size and was composed of an elastic cartilaginous component. This duplicated structure was positioned anteriorly to the original auricle. There was a cartilaginous concave bowl that resembled the conchal hollow of the human ear just behind this duplicated auricular structure. This accessory anomaly was not as large as the patient's external auricle, but it mirrored his left external auricle. One auricular canal existed between the two auricle-concha structures. The patient also had a right pre-auricular skin tag, bilateral prominent ears and left-sided hemifacial microsomia. Although his other facial conditions could have been considered for surgical correction, we preferentially decided to correct his extra auricle. Surgical correction occurred via two main procedures. The goal of the first procedure was to correct the tragus area. We utilized the curved shape of the accessory auricle to simultaneously deconstruct the excess cartilaginous structure and to reconstruct the tragus. The accessory structure was resected in a wedge shape, remaining inferiorly based chondrocutaneous flap. The curved shape of the remaining chondrocutaneous composite flap was perfect for a new tragus (Fig. 2). The goal of the second procedure was to eliminate the concha-resembling cartilaginous bowl. Because of the possibility of variation in the facial nerve course [2], we avoided deep dissection for complete elimination of the cartilaginous component. We elevated the skin flap and only the superficial aspect of the cartilaginous bowl. Then, two quilting sutures using 4-0 prolene were placed to support the collapsed cartilaginous bowl (Fig. 3). The remnant skin flap was excised and trimmed to resemble an ear shape. After the operation and throughout the twelve months of follow-up, there have not been any complications. The patient's left tragus and external auricle have a natural-looking and symmetric appearance (Figs. 4, 5). Since the first report of polyotia by von Bol et al. 1918, no more than thirty cases have been reported worldwide [2,3]. Some cases were diagnosed with other congenital facial anomalies or craniofacial syndromes such as Goldenhar syndrome or Treacher-Collins syndrome [2,3]. In addition, polyotia can present even in patients with normal ear conditions, but sometimes a

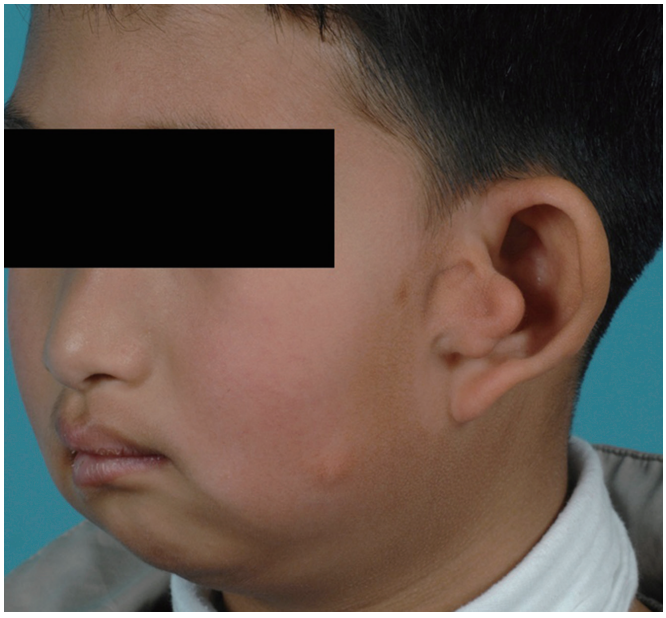

Fig. 1.
A 9-year-old boy presented with left polyotia. He also had a right pre-auricular skin tag, bilateral prominent ears, and left-sided hemifacial microsomia.

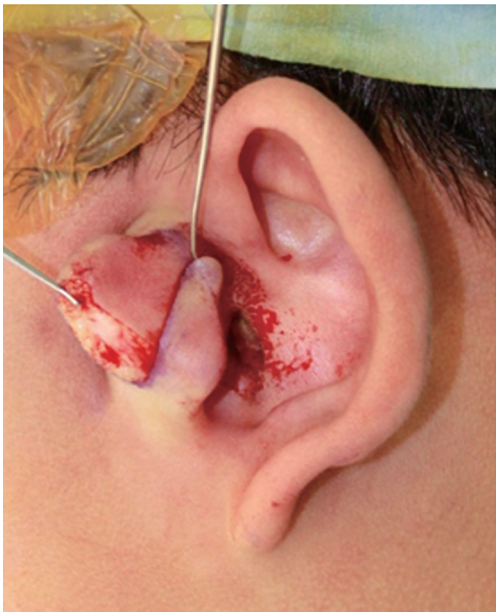

Fig. 2.
After wedge resection, the remaining inferiorly-based chondrocutaneous flap was used for a new tragus.

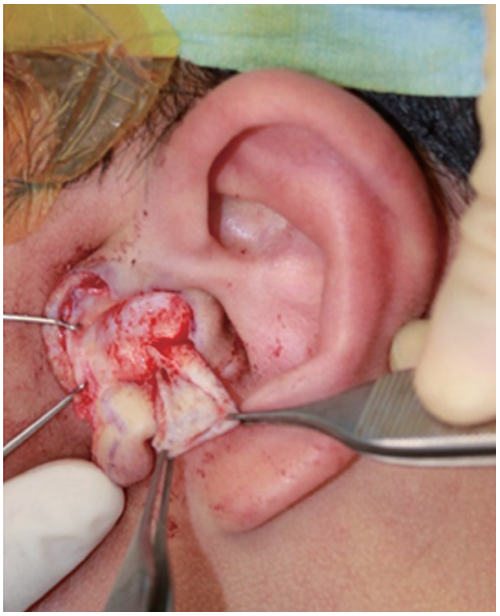

Fig. 3.
After elevation of skin, the concha-resembling hollow was obliterated by quilting sutures.

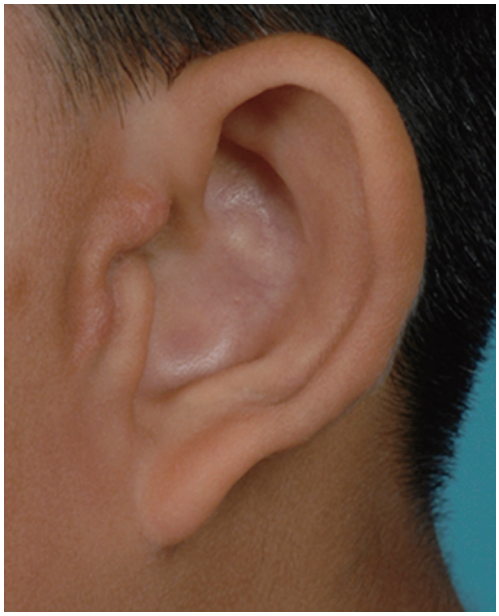

Fig. 4.
Postoperative appearance of left auricle at the 6 months follow-up.

constricted ear or a microtic ear can accompany [3]. In our case report, the patient presented with left polyotia and with bilateral prominent ears. The precise etiology of polyotia remains unclear. Embryologically, the external part of the human ear is derived from first (mandibular) and second (hyoid) branchial arches. The tragus and the crus of helix are derived from the first branchial arch and other external structures are derived from the second branchial arch [4]. A recent etiology suggested that polyotia is caused by the extraordinary migration of neural crest cells in the branchial arch during embryologic development. Lammer [5] insisted that fetal exposure to isotretinoin (retinoic acid) affects migration of neural crest cells, which then provokes external ear abnormalities including duplication. Surgical techniques to correct polyotia have not been established because of its rarity and shape variation. Gore et al. [2] reported eight cases of polyotia and presented five salient points for surgical correction. The five points were: releasing the skin of the extra component, excision of extra cartilage, remnant skin trimming, preservation of facial nerve, and timing of operation. Previous reported surgical corrections for polyotia recommend excision of all accessory structures and using the excised cartilage to fill the accessory conchal hollow [2,3]. In those cases, extra conchal hollows of polyotia were maintained as cartilage-linked cheek defects. The cheek defects were filled using excised accessory cartilages. In our case, however, the patient only had a conchal hollow without a linked cheek defect and the hollow was small. Therefore, we decided to remove this hollow by collapsing the concha-resembling cartilage instead of filling the defect with excised cartilage. After the skin flap on the cartilaginous bowl was released, the cartilaginous hollow was collapsed using quilting sutures. In addition, we reconstructed a new tragus using the chondrocutaneous composite flap from the marginal portion of the excessive structure, as opposed to just trimming or following the previously mentioned technique, which excised all of the

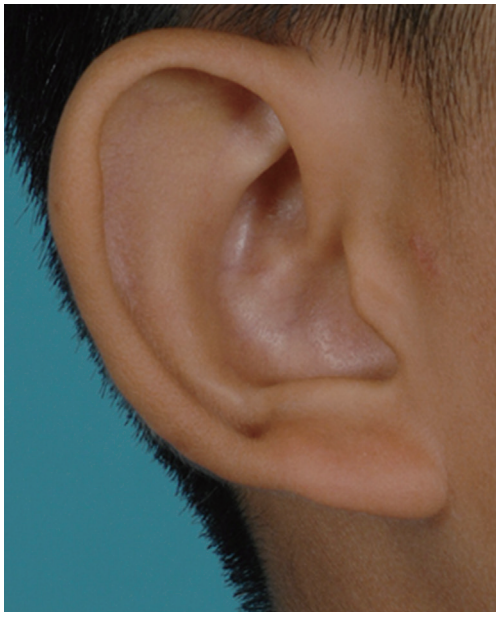

Fig. 5.
Photograph of the patient's right ear. Postoperative left ear shown in Fig. 4 have a symmetric appearance compared with right ear.

accessory components. By collapsing the unnecessary space and reconstructing a new tragus, we achieved an ideal distance from the new tragus to the auditory canal, which could not be attained by filling the hollow using cartilage graft. Because the shape and conditions of polyotia are very inconstant and the incidence of this anomaly is rare, it is difficult to establish a uniform surgical technique. We report our experience with polyotia and successful application of surgical technique: we utilized the shape of the excess auricle to build a new tragus and collapsed the concha-resembling hollow with quilting sutures. In addition, this is the first formal case report of polyotia in Korea.

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Congenital Midline Cervical Cleft

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The occurrence of congenital midline cervical cleft (CMCC) is very rare all over the world and has never been reported in Korea. The typical characteristic of CMCC is a longitudinal skin defect on the midline of the anterior neck that has a nipple-like skin tag at the cranial end, a fistula or sinus tract at the caudal end, and atrophic skin in between. It appears anywhere between the mandibular symphysis and the manubrium [1,2]. Surgical removal in early infancy is the choice of treatment in order to prevent neck extension disabilities caused by cicatricial neck contracture that may occur while aging. Complete excision of abnormal tissue and closure with single or multiple Z-plasty is usually required for functional and aesthetic purposes [1-3].

This report is about a 13-month-old female with the typical characteristics of CMCC, for whom we performed complete excision, platysmaplasty with Z-plasty, and skin closure with single Z-plasty.

The patient was a 13-month-old girl born by a full-term vaginal delivery and whose initial crying and other activities were normal. No other abnormal finding except a vertical skin defect in the anterior