A Case of a Child with a Lipoma of the Middle Ear and a Concomitant Chondroma of the External Auditory Canal

Tomoyasu Tachibana,1 Kazunori Nishizaki,2 Masayoshi Fujisawa,3 Yuya Ogawara,1 Yuko Matsuyama,1 Iku Abe,1 and Michihiro Nakada4

1Department of Otolaryngology, Himeji Red Cross Hospital, 12-1 Shimoteno 1-Chome, Himeji City, Hyogo 670-8540, Japan
2Department of Otolaryngology, Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, 2-5-1, shikata-cho, kita-ku, Okayama City, Okayama 700-8558, Japan
3Department of Pathology, Himeji Red Cross Hospital, 12-1 Shimoteno 1-Chome, Himeji City, Hyogo 670-8540, Japan
4Nakada ENT Clinic, 2-2-20, Shirakuni, Himeji City, Hyogo 670-0808, Japan

Address correspondence to Tomoyasu Tachibana, tomoyasutachibana@hotmail.co.jp

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Abstract The case of a 2-year-old boy with a right middle ear lipoma and a concomitant chondroma of the left external auditory canal is presented. The patient’s preoperative diagnosis was cholesteatomas of the right middle ear and left external ear canal. A right-sided epitympanotomy was performed. A lump of fatty tissue in the right anterior middle ear cleft that obstructed the Eustachian tube orifice was found. The white mass in the left external auditory canal, which easily separated from the tympanosquamous fissure of the temporal bone, was excised with a Rosen needle. Histopathologic examination revealed a lipoma of the right middle ear and a chondroma of the external ear canal. No cases of concomitant lipoma and chondroma have been previously reported. In the present case, the middle ear lipoma could be classified as a congenital anomaly because of its association with a contralateral side chondroma, which would be a choristoma.

Keywords chondroma; choristoma; lipoma

1 Introduction

Either lipoma or chondroma could be developed from anywhere in the body. Both middle ear lipoma and chondroma of the external auditory canal are rare, and it is difficult to differentiate preoperatively from cholesteatomas or other tumors. In addition, although several hypotheses have been proposed from the etiological perspective, it remains unclear whether the so-called lipomas and chondromas are true tumors. As far as we know, simultaneous occurrence of the two diseases has not been previously reported. The case of a young boy with a lipoma in the middle ear canal and a chondroma of the contralateral external auditory canal is reported.

2 Case report

The patient was a 2-year-old boy with no complaints who was evaluated by a local otolaryngologist because of right-sided otitis media with effusion. A right-sided myringotomy was performed twice. A yellowish-white mass was observed in the right middle ear at the time of the treatment for the otitis media. The mass did not change in size, form, or color during the course of treatment. The doctor also discovered a white mass in the left external auditory canal, which was suspected to be a congenital cholesteatoma. The patient was referred to our hospital for further evaluation.

Otoscopy revealed an opacity through the anterosuperior quadrant of the right tympanic membrane, and a flat and smooth white mass in front of the short process of the malleus on the superior wall of the left bony external auditory canal (Figure 1). The left tympanic membrane

Figure 1: Macroscopic findings of the right (left panel) and left (right panel) ear during the operation. Otoscopy reveals an opacity in the anterosuperior quadrant of the right membrane and a flat, smooth, white mass in front of the short process of the malleus on the superior wall of the left bony external auditory canal.
Figure 2: Computed tomography of the right temporal bone. A soft tissue density fills the epitympanum and mesotympanum in the right middle ear.

Figure 3: Computed tomography of the left temporal bone. A minute nodular mass on the anterior wall of the left bony external auditory canal is seen.

was normal. Auditory brainstem response (ABR) testing demonstrated a 50-dB conductive hearing loss in the right ear, with no hearing loss in the left ear.

On temporal bone computed tomography (CT) scan, a soft tissue density filled the epitympanum and mesotympanum in the right middle ear (Figure 2), and a minute nodular mass on the anterior wall of the left bony external auditory canal (Figure 3) was identified. The preoperative diagnosis was cholesteatomas in the right middle ear (Figure 2), and a minute nodular mass on the anterior wall of the left bony external auditory canal (Figure 3) was identified. The preoperative diagnosis was cholesteatomas in the right middle ear and left external ear canal. A right-sided epitympanotomy was performed through a transmeatal approach. A lump of fatty tissue that filled the right anterior middle ear cleft, producing obstruction of the Eustachian tube orifice, was found (Figure 4). The mass (5.5 mm × 4.5 mm) was dissected completely; it was yellow and round, surrounded with epithelium (Figure 5). The left-sided surgery was performed through the ear canal. The white mass of the external ear canal, which separated easily from the tympanosquamous fissure of the temporal bone, was excised with a Rosen needle. It was 1.4 mm in diameter. Histopathologic examination of the removed masses revealed a lipoma in the right middle ear and a chondroma in the left external ear canal (Figure 6). There were no signs of chronic or severe inflammation in the epithelium around the lipoma.

3 Discussion

A patient who had a lipoma in the middle ear associated with a chondroma in the contralateral external ear canal was described. Both middle ear lipoma and chondroma of the external auditory canal are rare. Further, to the best of our knowledge, there have been no previous reports concerning
Table 1: Past reports of lipoma of the middle ear.

<table>
<thead>
<tr>
<th>Author</th>
<th>Publication year</th>
<th>Age</th>
<th>Sex</th>
<th>Location</th>
<th>Conductive hearing loss</th>
<th>Otitis media with effusion</th>
<th>Complications</th>
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<tr>
<td>Kasbekar et al.</td>
<td>1984</td>
<td>33</td>
<td>M</td>
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<td>Steghuis et al.</td>
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<td>(-)</td>
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<td>Selesnick et al.</td>
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<td>F</td>
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<td>(−)</td>
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<td>7</td>
<td>M</td>
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<td>1993</td>
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<td>7</td>
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<td>Ito et al.</td>
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<td>8</td>
<td>F</td>
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<td>Present case</td>
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<td>Mesotympanum</td>
<td>(+)</td>
<td>(+)</td>
<td>Chondroma</td>
</tr>
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Figure 6: Histopathologic examination of the removed masses shows a lipoma (A, left panel) and a chondroma (B, right panel). (H & E stain × 100).

As far as we could determine, only 9 cases of lipoma of the middle ear have been reported previously [1,2,3,5,6,7,12,14,15]. The details, including the case reported here, are summarized in Table 1. Patients’ ages ranged from 2 to 64 years, with an average of 14.7 years. The sex distribution was approximately equal (6 males, 4 females). All but one developed in the epitympanum or mesotympanum. Conductive hearing loss was reported in 7 of 9 cases. Otitis media with effusion was reported in 6 of 9 cases. In all cases with secretory otitis media, the lipoma was located around the Eustachian tube. In the case presented, it appears that the lipoma obstructed the Eustachian tube orifice, resulting in secretory otitis media with conductive hearing loss. Four of eight previously reported cases had congenital disease, including meatal atresia, middle ear anomaly, craniofacial abnormalities, and congenital cholesteatoma.

In a case report and review by Ito et al. [5], the lipoma could be congenital, because their case was associated with a middle ear anomaly and a subcutaneous lipoma at the time of birth. On the other hand, Selesnick et al. [12] reported a lipoma patient with meatal atresia, but they suggested that this disease could be acquired; the lipoma may have developed due to repeated or long-term inflammation in the middle ear. The present patient was 2 years of age, which is too young to consider that chronic inflammation was the major cause of this disease. In addition, otitis media in this patient was not long-term, and there were no signs of severe inflammation in the epithelium around the lipoma. Therefore, the lipoma in the present case was most likely caused by congenital factors.

Chondroma of the external auditory canal is also rare. Nelms Jr. and Paparella [10] divided tumors found in the external auditory canal into three groups (epithelial anlage, interstitial anlage, and melanoma), and they classified chondroma as interstitial anlage. Recently, Yokogawa et al. [17] reviewed 26 cases of chondroma, and Tanigawa et al. [16] analyzed 48 previously reported cases [4,7,8,9,16] of this disease. According to their investigations, the patients’ ages ranged from 2 to 70 years. There was an approximately equal distribution between males and females. Most of the patients were asymptomatic, as in the present case, but some others complained of otalgia, an abnormal sensation around the ear, otorrhea, facial nerve paresis, or conductive hearing loss. Chondroma was most frequently observed in the medial portion of the bony external auditory canal just in front of the short process of the malleus. The etiological mechanism of chondroma is unknown, but many authors have strongly suggested a congenital origin. Kobayashi et al. [7] hypothesized that chondroma developed from stray germ tissue at the tympanosquamous fissure. In the case report and review by Yokogawa et al. [17], one patient had an inner ear malformation of the Mondini type. They suggested a relationship between chondroma and Mondini-type malformation, because the formative period of the external auditory canal is compatible with the embryonic period of 7 weeks when the malformation of Mondini type is caused. Quercetani et al. [11] reported that chondroma of the external auditory canal could be a hamartoma. Lee [8]
recently proposed that cartilaginous choristoma rather than chondroma may be more appropriate terminology for the lesion. All of these authors suggested that chondroma in the ear would be congenital.

Simoni et al. [13] reported that choristomatous polyps of the aural and pharyngeal regions in the same patient would be thought to be due to errors in development of the second and first branchial arches. In our case, it would be reasonable to consider that two different types of choristoma developed in a single patient, although we have no idea why the two possible anomalies of the ear developed in the same patient; whether they were accidental or there were common congenital factors is unknown.

4 Summary
(1) A middle ear lipoma with a chondroma of the external auditory canal is rare.
(2) The case of a young male patient with a lipoma in the middle ear canal associated with a chondroma of the external auditory canal was described.
(3) The lipoma in the present patient was probably not a true tumor but a congenital anomaly called choristoma, because the chondroma, which is strongly suspected to be a congenital anomaly, was associated with a lipoma.

References