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Case Report

Middle ear lipoma mimicking a congenital cholesteatoma: A case report and review of the literature

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ABSTRACT

Objective: To describe a case of middle ear lipoma, review the current literature, and discuss the surgical approach.
Methods: Published case reports in the English literature of lipomas restricted to the middle ear were reviewed. The presentation, location, and management of the middle ear lipomas were analyzed.
Results: Histological examination of the resected middle ear lesion was compatible with lipoma. Review of the literature suggests middle ear lipomas are rare and involve the epitympanum.
Conclusion: Lipomas should be included in the differential diagnosis for middle ear lesions. Adequate surgical exposure can be achieved through a transcanal approach, with particular attention to carefully elevate the tympanic membrane off the malleus, preserving the integrity of the ossicular chain.

1. Introduction

One of the most common neoplasms of mesenchymal origin are lipomas [1]. Lipomas are benign tumors composed of mature adipocytes within lobules, enclosed by a fibrous capsule and located primarily in subcutaneous tissue. Lipomas tend to be slow growing and cause few symptoms. Thirteen percent of lipomas are found in the head and neck and a majority develop in the posterior neck region [1].

There have been instances of lipomas occurring within the temporal bone, specifically, in the internal auditory canal as well as the cerebellopontine angle [2–4]. Additionally, there are several case reports of lipomas occurring in the middle ear. Here, we report a case of a middle ear lipoma in a pediatric patient, describe our treatment approach for the mass and review the current literature regarding middle ear lipomas.

2. Materials and methods

2.1. Subject

A seventeen-month-old female with a history of cleft palate was referred to our clinic for evaluation of probable congenital cholesteatoma. She initially presented with recurrent serous otitis media and underwent ventilation tube placement by an experienced pediatric otolaryngologist. Presence of a white lesion was detected in the anterior epitympanum on examination in the right ear. The patient had an audiogram using behavioral testing which demonstrated speech reception threshold at 25dB. CT scan of the temporal bone demonstrated a right middle ear soft tissue density involving the epitympanum and it was considered to be compatible with the diagnosis of congenital cholesteatoma, therefore, no further imaging studies were indicated (Fig. 1).

This report is a review of a single patient's experience and management for middle ear lipoma at the UCLA Ronald Reagan Medical Center. As such, this study is exempted from the Institutional Review Board. All patient information has been de-identified.

2.2. Surgical approach

Otomicroscopic examination of the right ear revealed a soft tissue lesion in the anterior epitypanum compatible with congenital cholesteatoma (Fig. 2A). After the tympanomeatal flap was elevated and the tympanic membrane was completely lifted off the malleus, the lesion grossly had the appearance of a lipoma (Fig. 2B). It was saddled in the anterior superior mesotympanum and involved the anterior epitympanum. We excised the lesion completely without disrupting the integrity of the middle ear ossicles.

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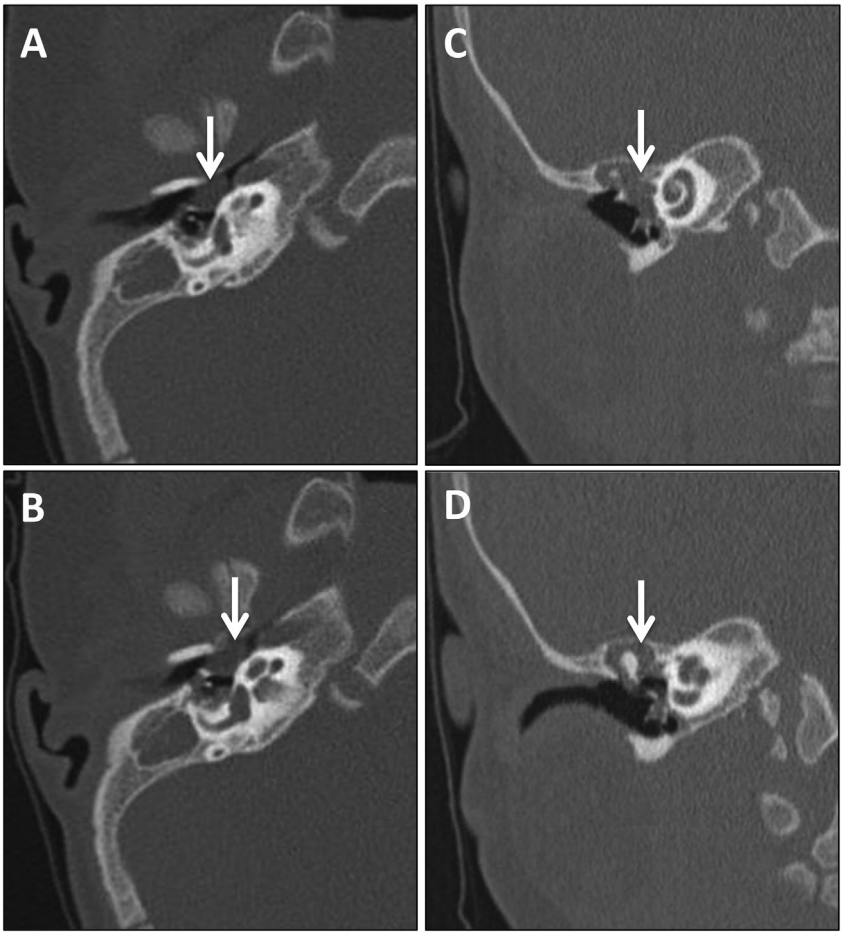

Fig. 1. CT temporal bone without contrast. Serial axial cuts starting superiorly (A) to inferiorly (B) demonstrating intact middle ear structures with an effusion and soft tissue density in the right middle ear. Coronal view starting more anteriorly (C) to posteriorly (D) demonstrating the soft tissue density in the anterior epitympanum and anterior superior mesotympanum. Mass is depicted by white arrow.

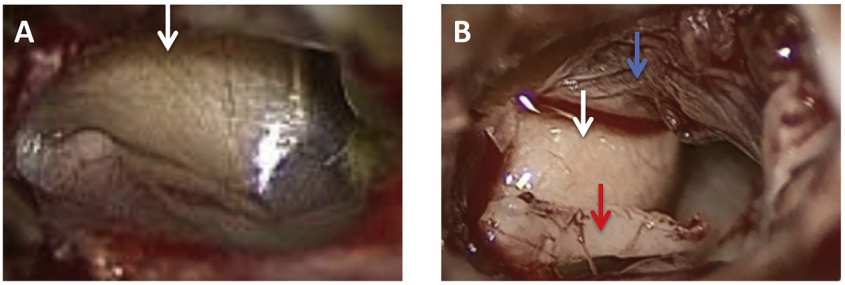

Fig. 2. Intraoperative images of the mass. (A) A yellowish mass (white arrow) is seen in the anterior mesotympanum without evidence of erosion of the tympanic membrane. (B) The tympanic membrane (blue arrow) was carefully dissected from the malleus (red arrow) revealing a well circumscribed lipomatous appearing mass. (For interpretation of the references to colour in this figure legend, the reader is referred to the Web version of this article.)

2.3. Literature review

A literature search was performed in Pubmed with key words that included “middle ear” and “lipoma”. Case reports that describe patients with histologically proven lipomas originating from the middle ear were included in the review. A total of seven case reports were found in the English literature between the years 1985 and 2017. The presentation of each patient, location of the middle ear lipoma, and surgical technique were analyzed.

3. Results

During surgical excision of the soft tissue mass in the present case, there was no evidence of ossicular chain erosion. The described surgical approach was sufficient for complete excision, without need to remove the malleus or incus for greater exposure, or for increased access to the mass. Histological analysis demonstrated mature adipocytes consistent with a lipoma (Fig. 3). Five months later, the patient had a well healed tympanic membrane without evidence of perforation, effusion or recurrence of the lipoma. The patient demonstrated speech detection in bilateral ears at 20dB.

A total of seven reported cases of middle ear lipoma were reviewed (Table 1). Including the present report, six out of eight are pediatric cases. Four out of the seven case reports demonstrate a lipoma within the epitympanum. The anterior location of the lipoma in the present patient appears consistent with previous reports. All patients underwent surgical excision: five underwent transcanal approach while two underwent mastoidectomy. Additionally, removal of the incus and malleus were noted in two case reports during surgical excision requiring ossicular chain reconstruction.

4. Discussion

To our knowledge, there have only been seven reported cases of middle ear lipoma in the literature. The present report represents a case of a young patient with a middle ear lipoma, suspected to be a congenital cholesteatoma. All reported cases of middle ear lipoma demonstrated hearing loss, most commonly conductive hearing loss.