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Cystic Lesion of the Eustachian Tube: Pathology and Management of a Rare Case Presentation

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Abstract

Cystic lesions are very common in the body, in particular in the ENT field. However, reports of cysts involving the Eustachian tube are very rare. We present in this report a case of a 49-years-old man who presented for unilateral chronic otitis media with effusion. A rigid endoscopy was done revealing no nasopharyngeal mass. An MRI showed the presence of a cystic lesion in the cartilaginous portion of the left Eustachian tube measuring 10 × 6 mm. The decision was made to do a left myringotomy with a PE tube insertion, followed by an endoscopic endonasal marsupialisation of the cyst. The cyst was sent to pathology. The pathologist confirmed the presence of a cyst with absence of signs of malignancy. In this article we will review the literature concerning Eustachian tube benign tumors; in particularly benign cysts, and we will discuss the pathology, symptoms, treatment and outcome.

Keywords: Cyst • Eustachian tube • Nasopharynx • Middle ear effusion

Introduction

Cystic lesions are very common. They can arise from many parts of the body, especially from the subcutaneous tissue of the head and neck. The majority of these benign tumors are asymptomatic, and symptoms that do arise are usually due to pressure effect on adjacent structures. But finding these lesions in the Eustachian tube is very rare. Even if the cyst is by nature benign, it can still cause considerable ear symptoms including recurrent episodes of middle ear effusion, hearing impairment, and chronic ear drainage. We report a case of a 49-years-old man, presenting with a unilateral chronic otitis media with effusion. A brain MRI showed a lesion in the cartilaginous portion of the Eustachian tube, blocking middle ear ventilation and causing effusion. In this article, we will discuss the imaging characteristics of cystic lesions in the Eustachian tube, the differential diagnosis of such lesions as well as the management of this case.

Case Presentation

We present the case of a 49-years-old man, who presented to our clinics, for decreased hearing and pressure in the left ear. An otoscopic exam showed left otitis media with effusion. A nasal endoscopy was done showing normal nasopharynx mucosa with absence of any tumor blocking the torus tubarius. An audiogram was done showing left conductive hearing loss with a maximum of 35 dB air-bone gap (Figure 1). A brain MRI revealed on axial and coronal T2 weighted images, a cystic lesion in the distal left Eustachian tube (cartilaginous portion) measuring 10 × 6 mm. It is not enhanced on T1- contrast enhanced images, with no bony erosion (Figures 2 and 3). The decision was made to do a left myringotomy with PE tube insertion, followed by an endoscopic endonasal marsupialisation of the cyst. The cyst was sent to pathology. The pathologist confirmed the presence of a cyst with absence of signs of malignancy. On microscopic exam, the section showed a cyst well devoid of epithelial lining, made up of a poorly cellular fibrous tissue, with association to an adipose tissue. The lamina propria is expanded by a chronic inflammatory exudate (Figure 4).

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Discussion

78 cases of tumors and tumor-like lesions of the Eustachian tube were described in the literature (49 benign tumors and 29 malignant tumors) [1]. The first case was described in 1924 by Henke et al. This was a case of a Eustachian tube dermoid cyst of an 8 months old girl. She was treated 2 times by a retroauricular approach [2]. In regards to the pathological diagnosis, among the 49 benign tumors: 27 cases were primary benign germ cell tumors of the Eustachian tube (from 1924 till 2013) 19 of them were within months after birth, and 9 were between 2 and 22 years of age, which is not the case of our patient who is 49 years old [3,4]. 12 cases were of melanin pigmented oncocytic metaplasia, 7 cases of chondromas, 1 osteoma, 1 cartilaginous horn and 1 cylindrical cell papilloma. Among the 29 malignant tumors: 8 cases were classified as melanoma, 18 cases of carcinoma and 3 cases of sarcoma. In regard to symptoms of all ET tumors (benign and malignant): Ear discharge (even bloody) (27%), hearing impairment (25%), middle ear effusion (23%), tinnitus (15%), ear fullness (12.8%) were the most commonly encountered symptoms.

The patient in this present case report was suffering from recurrent middle ear effusion with decreased hearing in the left ear without any ear discharge, which is in accordance with symptoms described in the literature. Finally, concerning management of benign ET tumors: 16 cases were treated with transnasal approach and 13 cases were treated with Trans (mastoid+canal) approach. As for malignant tumors, 11 cases were treated with radical radiotherapy. Our patient was treated with an endoscopic transnasal approach, a biopsy was taken, and a marsupialization of the cyst was done (Figure 5). Recurrence of the disease after treatment was reported in the 27 cases of primary benign germ-cell tumors, of the Eustachian Tube:

- 9 cases underwent 1 intervention
- 10 cases underwent 2 interventions
- 5 cases underwent 3 cases
- 2 cases underwent 4 interventions
- 1 case not mentioned [2]

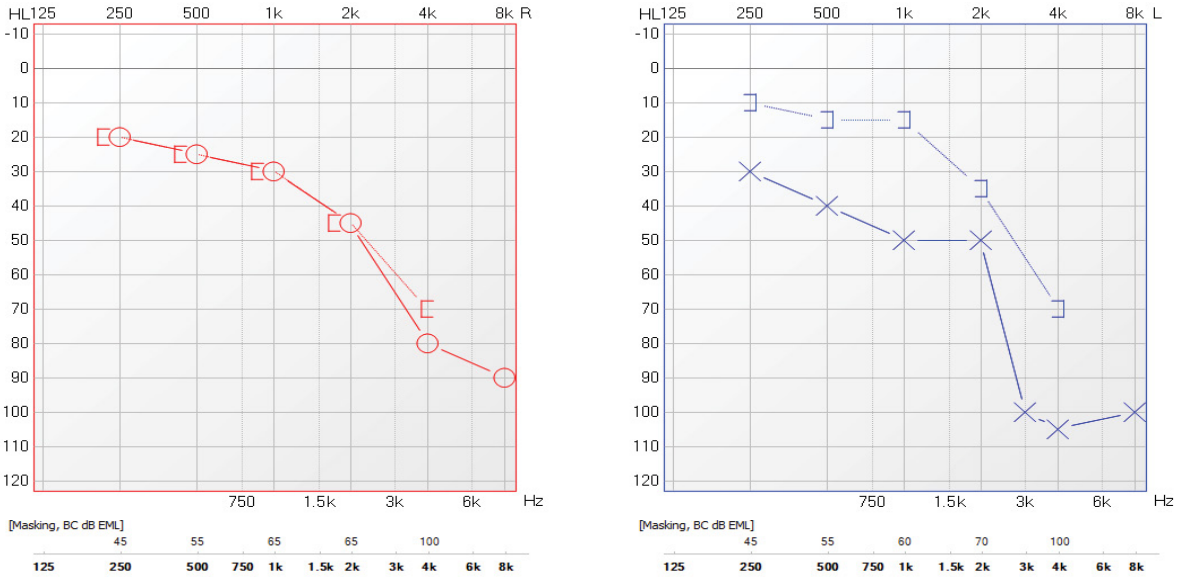

Figure 1. An audiogram was done showing left conductive hearing loss with a maximum of 35 dB air-bone gap.

Figure 2. Axial cut of Brain MRI in T2 demonstrating the presence of a cystic lesion in the distal left Eustachian tube measuring 10 x 6 mm. Absence of bony erosion.

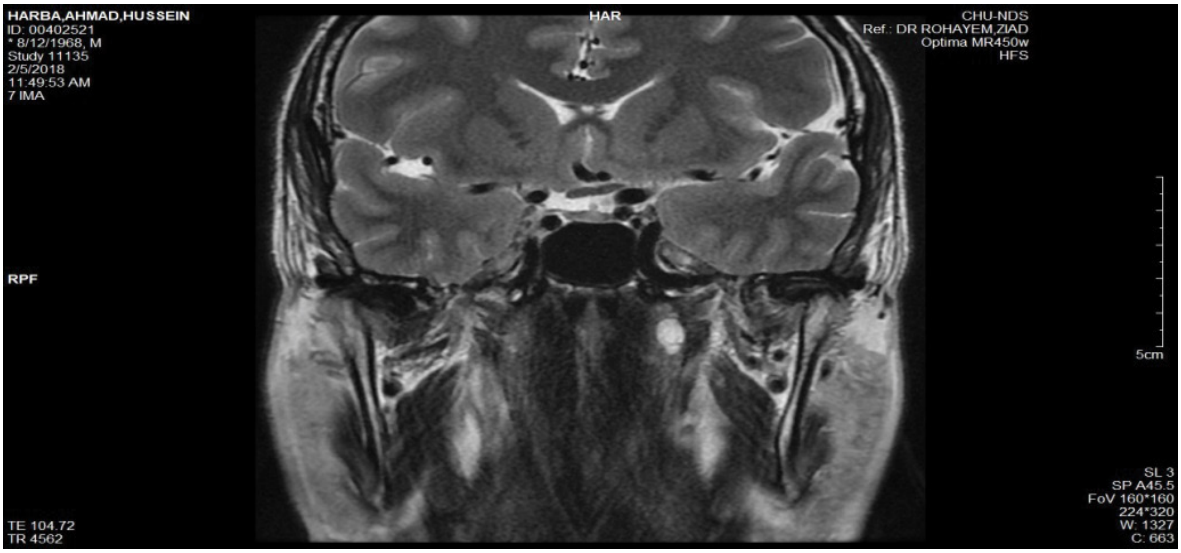

Figure 3. Coronal cut of Brain MRI in T2 showing cystic lesion in the left Eustachian tube.

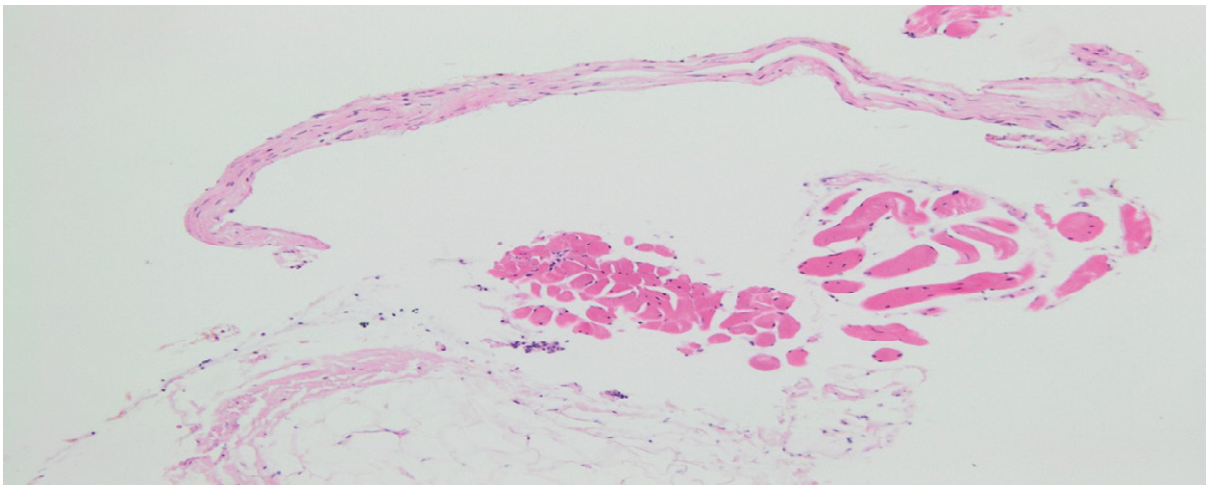

Figure 4. Cyst wall devoid of epithelial lining. The lamina propria is expanded by a chronic inflammatory exudate. No sign of malignancy.

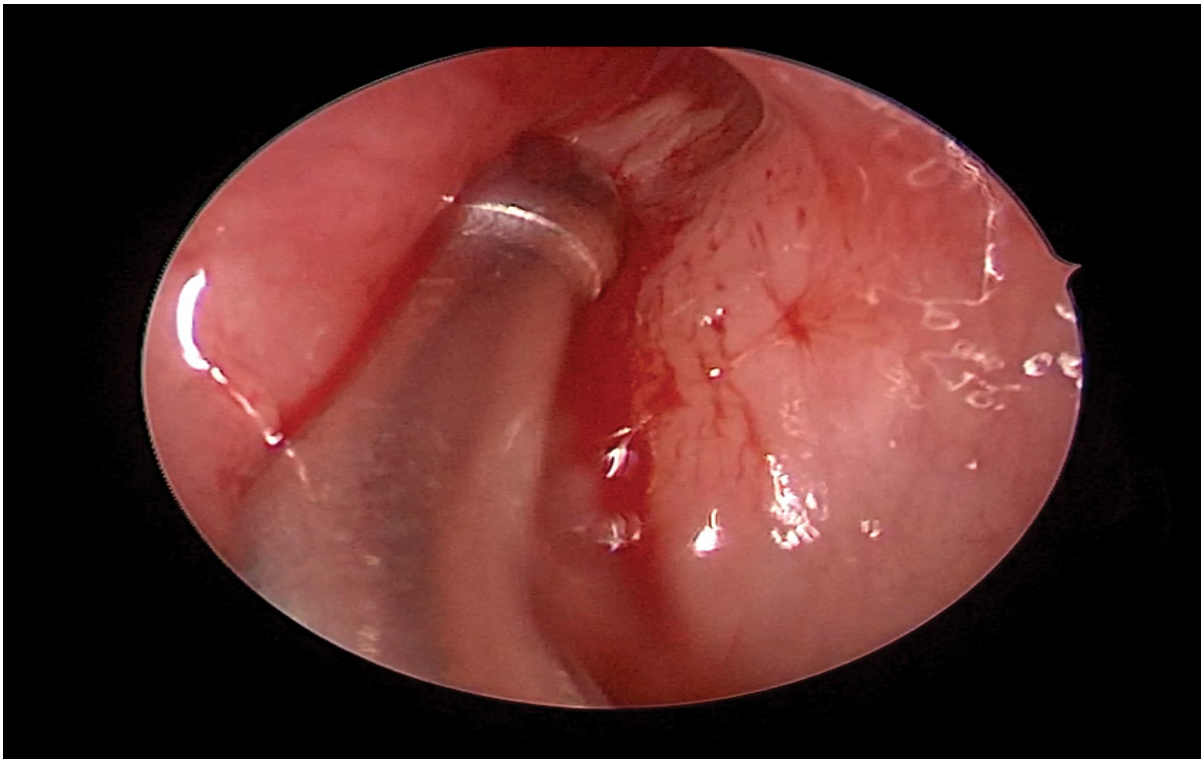

Figure 5. Marsupialization of the cyst treated with an endoscopic transnasal approach.

As for our patient, after the endoscopic intranasal intervention and the placement of PE tube in the affected ear, he presented a significant improvement of symptoms a few days after surgery. A follow up after one year, revealed an absence of the PE tube, and didn't show any middle ear effusion. A nasal endoscopy was normal. No follow-up imaging was requested in light of the complete resolution of symptoms

Conclusion

This is a case of a 49-years-old patient, who was diagnosed with a cystic lesion in the cartilaginous portion of the left Eustachian tube causing a unilateral chronic serous otitis media. He was treated with a marsupialization of the cyst by a nasal endoscopic approach. On the pathologic exam, the cyst was benign with absence of signs of malignancy. Finally, with the progression of the endoscopic nasal surgery, ENT surgeons tend to use this technique for the treatment of lesions of the medial portion of the Eustachian Tube.

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