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Cholesterol Granuloma in the Inner Ear that Looks Like a Glomus Tumour: A Case Study

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Abstract

One of the uncommon complications of chronic otitis media that presents a diagnostic challenge is cholesterol granuloma. We present a case of middle ear and mastoid cholesterol granuloma that mimics glomus tumour. According to what we could find in the literature, this has never been mentioned in the local literature. A case is presented with a review of the literature.

Keywords: Cholesterol granuloma, middle ear, mastoid antrum

Introduction

One of the uncommon complications of chronic otitis media is a cholesterol granuloma. Any pneumatized portion of the temporal bone, middle ear cavity, mastoid antrum, EAC, or petrous apex are possible locations.

Patients with cholesterol granulomas that are restricted to the middle ear typically exhibit conductive hearing loss and a blue ear drum, whereas those that are located in the temporal bone either present incidentally or exhibit symptoms related to bone erosion, such as sensorineural hearing loss, tinnitus, vertigo, or cranial nerve impairment. We describe a case in which a cholesterol granuloma that resembled a glomus tumour was discovered in the mastoid antrum as well as the middle ear cavity.

Case Report

A 32-year-old woman who had no known co-morbidities and complained of right ear drainage for five months visited the ENT office. The discharge started out abruptly and got worse over time. It was thick, mucoid, and yellow in colour. She also laments the foul stench of the discharge. She subsequently noticed a strong right-sided headache that was constricting in nature, getting worse over time, and getting better when she took medicines. Since five months ago, the patient has additionally had dizziness and tinnitus. Four months ago, the patient complained of a similar discharge from the left ear, which later turned dry. She complains of diminished hearing in her left ear but not diminished hearing in her right ear. She had never had face weakness in her life.

A tertiary care hospital performed surgery on her right ear 20 years ago due to identical complaints of ear drainage.

Patient was alert and well-oriented when examined. She also had normal vitals and subvitals. No disease was visible in either ear's pinna or external auditory canal.

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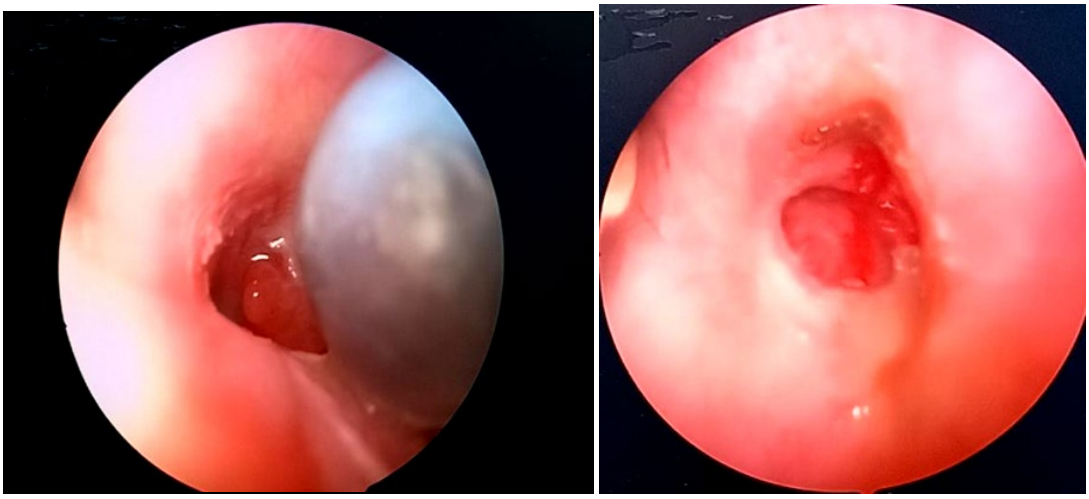

a) Bluish mass arrising from right ear resembling glomus tumor

2) Dry central perforation of left ear

Fig 1:

When tested with a tuning fork, Rinne's in the right ear was positive but not in the left. Weber lateralized in the direction of the left ear. Due to the patient's extreme agitation and confusion, pure tone audiometry was performed with poor results. It revealed a combined hearing loss of 30 dB in the right ear and conductive deafness in the left ear. Every cranial nerve was unharmed. A CT scan of the temporal bone was suggested, and the results revealed a soft tissue mass including the pars flaccida of the tympanic membrane that measured 2.0 x 1.9 cm (AP x TR) in the right middle ear cavity. scutum erosion and superior extension into prussac space. Mastoid section of the temporal bone's right lateral wall was destroyed as a result of the mastoid antrum expanding and extending into the mastoid air cells. Additionally, it appears that the mass has entered the external auditory canal. Ossicles and the tegmen tympani were discovered to be whole. The left middle ear cavity has soft tissue thickening as well, but the rest of the scan looks normal (fig. 2). It was suggested to perform an MRI of the bilateral temporal region, which revealed aberrant signal intensity that appeared high on both the T1WI and T2WI, and exhibited no fat suppression. The findings above suggested that cholestrol granuloma could develop as a result of CSOM.

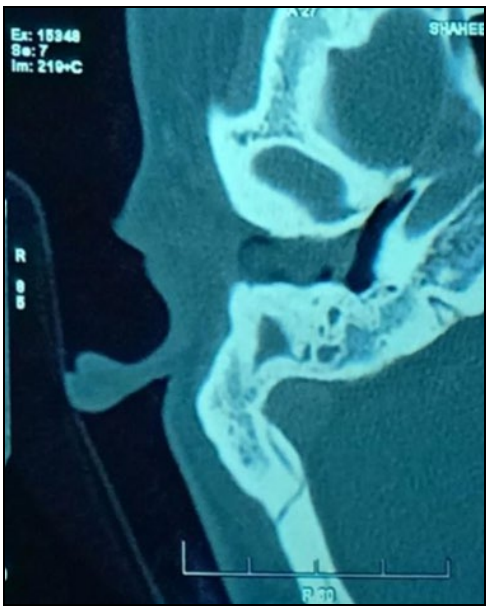

Fig 2: HRCT temporal bone

It was planned to explore her right mastoid, and after an EUA, inscion was administered behind the right ear, and a periosteal flap was obtained. Cholestrol granuloma was discovered when the mastoid was drilled. During the surgery, a cholestrol granuloma sac with a thin wall burst, releasing a thick golden fluid. Granuloma walls were referred for histopathology. Disease was eradicated from the attic, antrum, and aditus. Incus was cut and put on the stapes after it was discovered that the malleus was deteriorated. Meatoplasty and periosteum graft placement on the incus

Discussion

A cholesterol granuloma is a tissue reaction to cholesterol crystals, which are the byproducts of the breakdown of local tissue and blood. Haemorrhage, blockage of ventilation, and interference with drainage are three crucial aspects in the development of cholesterol granuloma.1. Only the traditional obstruction-vaccum explanation was previously recognised, which states that the formation of a cholesterol granuloma in the petrous apex results from mucosal swelling that prevents airflow. Gases that have been trapped create a vacuum, which causes bleeding and the subsequent creation of cholesterol granulomas. In 2003, Jackler *et al*. suggested a different idea for the origin of the cholesterol granuloma in the petrous apex. In this proposal, he discovered inadequate septation between the air cells and the marrow. Bony erosion is caused when bleeding from the exposed hematopoietic marrow coagulates within the mucosal cells and restricts the outflow routes.2,3. Another strong blood supply idea postulates that the creation of cholesterol granulomas and bone deterioration require blood flow from the sigmoid sinus, carotid artery, or big epidural vein.

In our case, we discovered a cholesterol granuloma sac in the petrous apex, middle ear, and mastoid antrum, together with a torn TM and the development of a cholestatoma in the middle ear.It's possible that the thinness and fragility of the sac contributed to its lack of intracranial expansion in our case.

Options for management depend on the sac's location, size, neurovascular connections, and the symptoms it is causing. The "wait and scan" policy might be applied to people who have no symptoms or very minor ones. This policy may also be applied to elderly or sick people who cannot undergo

surgery. To compare the growth of the sac in this instance, long-term follow-up with yearly CT/MRI scans is necessary. Since the patient in our case exhibited symptoms, surgery was preferred. Following surgery, hearing significantly improved, and headache and tinnitus disappeared.

Conclusion

Although uncommon, cholesterol granuloma can result in a number of serious consequences. Clinical suspicion is typically used to make a diagnosis, and a CT or MRI scan is diagnostic. Following diagnosis, a cyst must have its walls as well as the diseased ear removed surgically. Unless addressed, an expanding The sac has the potential to enter the skull and erode the bone.

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