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Clinical Case Report

Dermal Leiomyoma in the Ear Canal: An Unusual Tumour in an Unusual Location

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Abstract

Cutaneous leiomyomas are rare, benign smooth muscle tumors originating from the arrector pili muscles of hair follicles. These tumors are seldom found in the external auditory canal (EAC). This case report documents a unique instance of cutaneous leiomyoma in the EAC which is the 9th case of leiomyoma of the external auditory canal and the 3rd case of Leiomyoma arising from arrectores pilorum muscles, all the other 6 cases were angioleiomyomas, arising from blood vessels. This article discusses the clinical presentation, diagnostic process, treatment, and follow-up. The occurrence of leiomyoma in the external auditory canal being rare since there are very few to no smooth muscles in the external canal, therefore should be considered as a very rare differential diagnosis for an aural polyp.

Keywords: Cutaneous Leiomyoma; External Auditory Canal; Smooth Muscle Tumor; Benign Neoplasm; Otolaryngology

Abbreviations

EAC: External Auditory Canal; CT: Computed Tomography; HU: Hounsfield Unit; ALMA: Angioleiomyoma

Introduction

Leiomyomas are benign smooth muscle neoplasms that can occur in various parts of the body, including the uterus, gastrointestinal tract, and skin. Cutaneous leiomyomas, particularly in the EAC, are exceptionally rare, with limited cases reported in the literature. For known facts of little to no smooth muscles exist in the head and neck region, except the cervical oesophagus, circumvallate papillae and ductus lingualis of the tongue [1]. These tumours are believed to arise from smooth muscles of tunica media in the blood vessels/vascular structures. They represent only 1.3% of soft tissue tumour of head and neck comprising only 0.16% which occur in the auricle. The peak incidence is between third and sixth decade of life having a female predominance with male: female ratio 4:1 [2,3]. While the pathophysiology of the occurrence of leiomyoma is not completely known, two contributing factors postulated are venous stasis and trauma [3,4].

Case Presentation

A 59-year-old female presented to the otolaryngology clinic with a 3-month history of ear pain, aural fullness in her right external auditory canal associated with hearing loss with no history of trauma or infection. On otoendoscopic examination A polypoidal mass with bosselated surface, firm and tender obliterating 90% of the right EAC. The left ear was normal and remainder of examination including cranial nerves was unremarkable.

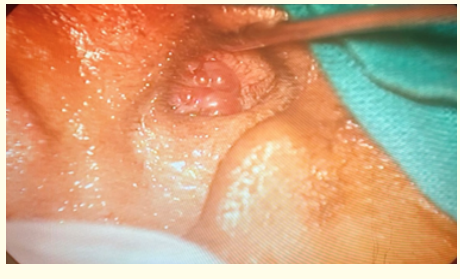

Figure 1: Otoendoscopic view of the leiomyoma in the right EAC depicting a bosselated surface occupying most of the external auditory canal.

Investigations

Audiometry

Conductive hearing loss in the right ear.

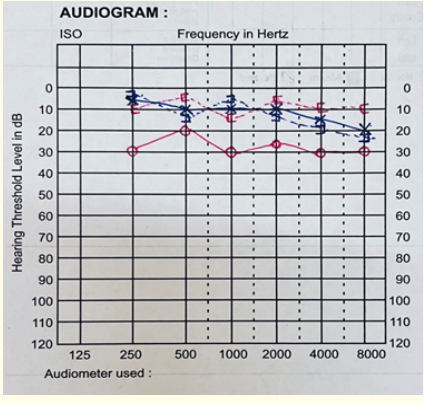

Figure 2: Audiometry showing minimal conductive hearing loss on the right with no sensorineural hearing loss.

Imaging

High-resolution computed tomography (CT) of the temporal bone showed evidence of a soft tissue density microlobulated lesion (average CT HU 32) measuring ~ 5.8 x 19.8 x 10 mm (AP x TR x CC) in size noted arising from the superior wall of the right external auditory canal, causing significant obliteration of right external auditory canal. The lesion is seen extending upto the tympanic membrane. However, no disruption of right middle ear ossicles noted.

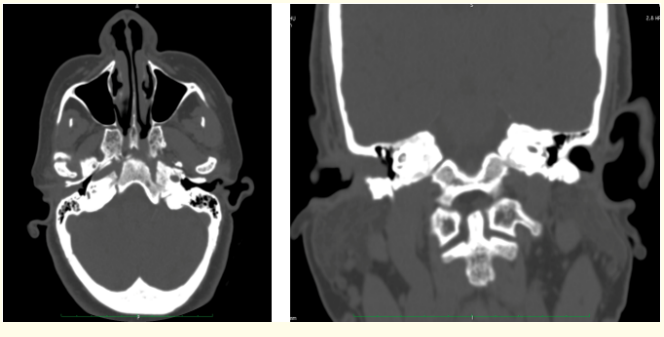

Figure 3: High resolution CT scan showing the lesion obliterating the right external auditory canal with no bony erosions, having preserved the surrounding and underlying structures with apparent intact tympanic membrane.

Treatment

The patient underwent microscopic assisted en-bloc surgical excision of the lesion through endaural approach under local anesthesia. The mass was noted to arise from the postero-superior wall of the external auditory canal, removed en bloc, the specimen measured 1x1x0.5 cm and showed a polypoidal conformation. The tympanic membrane was intact and the underlying structures were preserved.

Outcome and follow-up

The patient recovered well postoperatively and achieved complete re-epithelialization of the external auditory canal at 6 weeks. There was no recurrence of the lesion and audiometric evaluation showed improvement in hearing.

Biopsy

An excisional biopsy was performed. Histopathological examination from the soft tissue revealed epidermis and dermis. Epidermis lined by stratified squamous epithelium. The underlying dermis shows benign neoplasm composed of interlacing bundles of smooth muscle cells with individual cells having elongated spindle shaped nuclei and moderate amount of cytoplasm, consistent with cutaneous leiomyoma.

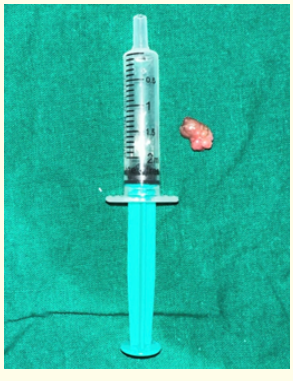

Figure 4: Image of the en-bloc mass excised measuring 1x1x0.5cm showing a bosselated surface, non vascular and firm in consistency.

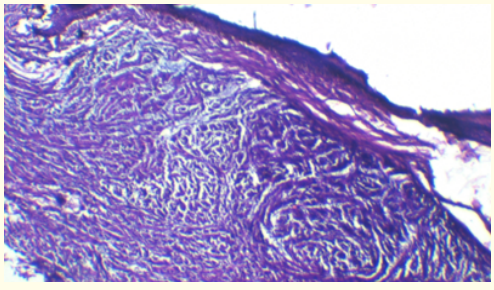

Figure 5: Histopathological image of the excised tumour under hematoxylin-eosin stain depicting multiple interlaced bundles of smooth muscle spindle shaped nuclei.

Discussion

Cutaneous leiomyomas are rare in the EAC, and their presentation can mimic other common EAC lesions. Our case represents the 9th case generally of leiomyoma and 3rd of cutaneous leiomyoma subtype of the EAC principally reported in the literature till date. Solid leiomyoma theorize to arise from the arrectores pili muscle of the skin while angioleiomyoma arise from smooth muscle cells of the tunica media of blood vessels. Most cases of leiomyoma presents with a slow growing mass with progressive conductive hearing loss which may or may not be associated with pain or discharge. Our case presented to us with pain and decreased hearing. A possible association of leiomyoma with trauma has been described; however, in our case there was no history of trauma.

The lion's share of benign tumours of the EAC develop from ceruminous glands or include hemangiomas, schwannomas and plexiform neuromas [2]. Leiomyoma have been divided into two types: tumours arising from arrectores pilorum muscles, usually occur in the skin called as PILAR LEIOMYOMA and those that develop from the tunica media of blood vessels are called Angioleiomyoma [2]. Morimoto., *et al*. also divided the ALMA into solid, venous and cavernous [4,5]. Complete surgical excision is the treatment of choice, with a low likelihood of recurrence. The approach, methodology and scope of surgery is conditional to the site and size of the tumour. Explicit histopathological examination is compulsory to eliminate malignancy, mitosis [1]. Immunohistochemically, the lesions stain positive for smooth muscle actin, desmin, myosin, calponin, h-caldesmon, HHF35 with some variations [3]. All the cases reposted in literature were managed surgically, therefore surgical excision stands the mainstay of treatment to prevent recurrence and achieve complete cure [1,3,4]. This case highlights the importance of considering leiomyoma in the differential diagnosis of EAC masses and the role of histopathology in establishing the diagnosis.

Conclusion

This case report presents a rare occurrence of cutaneous leiomyoma in the EAC, adding valuable information to the limited existing literature. Accurate diagnosis and appropriate surgical management are crucial for favorable outcomes in such cases. Histopathological investigations plays a pivotal role to arrive at the final diagnosis and exclude malignancy [1,3].

Conflict of Interest

There is no conflict of interest.

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