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Ganglion Cyst Presenting as an External Auditory Canal Mass

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Introduction

Ganglion cysts are the most common benign tumor of the wrist and hand; however, ganglion cysts associated with the temporomandibular joint (TMJ) are a rare finding. In this report, we present a case of a ganglion cyst found in the external auditory canal (EAC). This case is distinctive as there are currently no published reports of a ganglion cyst originally presenting as an EAC mass without anterior canal wall erosion.

Case Report

A 56-year-old male was referred to a tertiary care Neurotology clinic with a history of frequent left ear infections and a mass in his left ear canal. He had no history of otorrhea, otalgia, hearing loss or vestibular complaints. His past otological, medical, and surgical histories were otherwise unremarkable. Physical exam revealed a firm white mass emanating from the anterior EAC with near occlusion of the canal. The visible portion of the tympanic membrane was normal appearing and the middle ear appeared aerated. Cranial nerve examination was normal and no parotid or neck masses were palpable. Weber test was midline and Rinne was positive bilaterally. His audiogram revealed a symmetric bilateral down-sloping sensorineural hearing loss. Thin cut computed tomography revealed a soft tissue mass in the EAC with a heterogeneous signal density (Fig. 1). No erosion of the anterior tympanic bone was evident though the contour of the mandibular condyle was irregular.

The patient was taken to the operating room for biopsy of the lesion through a transcanal approach. Intraoperatively the mass appeared to be communicating with the glenoid fossa/TMJ through a microscopic bony dehiscence. Definitive therapy was not planned until a pathological diagnosis was confirmed.

The histologic examination revealed a solid and cystic lesion beneath the squamous epithelium of the canal and had a nodular growth pattern at low microscopic power. The solid components varied from myxoid to densely collagenous. The myxoid areas were

composed of loosely arranged fibrovascular tissue. The more dense regions had areas of fibrosis, representing areas of organization (Fig. 2).

Following the biopsy, the patient elected for definitive treatment due to symptomatic involvement of the TMJ and continued EAC occlusion causing a conductive hearing loss. A partial mandibular condylectomy and partial resection of the TMJ capsule along with canalplasty with skin grafting and wide meatoplasty were performed via a preauricular/endaural approach. The patient had an uneventful postoperative course with resolution of his conductive hearing loss. His EAC healed without stenosis and has remained widely patent when last seen two years postoperatively.

Institutional approval for this case report was obtained from the University of Iowa Internal Review Board.

Discussion

A ganglion cyst is a benign cystic lesion in close association with a joint or tendon sheath.^{1–2} Ganglion cysts are commonly found subcutaneously on the extensor surfaces of wrist, hip, knee, and ankle joints;^{1,3} 70% of all ganglion cysts occur within the second to fourth decades of life affecting females three times as often as males.⁴ The etiology of ganglion cysts remains elusive; however, the most widely accepted belief is that ganglion cysts arise from chronic, repetitive trauma to adjacent connective tissue leading to the myxoid degenerative changes of connective tissue.

TMJ ganglion cysts are rare lesions that typically present as a preauricular mass with or without associated pain that progressively worsens over a period of weeks to months. Rarely, ganglion cysts of the TMJ can present as a mass of the EAC, sometimes without obvious communication with the glenoid fossa. The most common differential diagnoses of masses in the EAC region are malignant otitis externa and tumors. Benign neoplasms of the EAC include exostoses and osteomas. Malignant lesions of the EAC are rare, and usually limited to local squamous cell carcinomas, although metastatic carcinomas to this region have been reported. CT and MRI are important diagnostic tools; however, biopsy of the lesions is indicated to exclude the possibility of malignancy.

In general, TMJ ganglion cysts do not require surgical excision unless they cause pain or interfere with joint function. If symptoms clearly attributable to the ganglion cyst are present, complete resection of the TMJ ganglion cysts, along with any component in the EAC, can provide relief in cases with severe associated symptoms.^{1, 5}

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Figure 1.

Axial non-contrast computed tomography of temporal bone. The external auditory canal is nearly occluded by the anteriorly-based soft tissue mass of heterogeneous signal intensity. There is no evidence of erosion of the anterior bony external auditory canal. Contour irregularity of the mandibular condyle is evident.

Figure 2. Histologic features of ganglion cyst. The overlying epithelium of the external auditory canal is visible with a nodular lesion beneath. The solid component has loose, myxoid areas and the adjacent cystic component contains mucinous material. Original magnification=40X.