

RESECTION AND ANTERIOR PETROSECTOMY OF TEMPORAL BONE TUMOR WITH COMBINED SUBTEMPORAL AND ENDAURAL APPROACH

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ABSTRACT

Background: Ceruminous adenoma is a tumor originating from the external acoustic canal (EAC). It is seen for less than one percent of all external ear tumors. Tumor characteristic slow growth. This mass appears on the posterior wall of the outer 1/3 of the ear canal. Surgical management resection of the tumor with endaural approach **Aim:** To share knowledge regarding to surgical management of the temporal bone tumor **Case report:** 56 year old female, referred to ENT Department of Akademis Hospital from Neurosurgery Department, with chief complaint was hearing impairment with appearance of lump in ear canal that growing up for a year together with frequent earache. The otoscopy shows mass covering the anterior superior external acoustic meatus (EAM). Computed tomography (CT) scan showed extension of the tumor that eroded the anterior petrous bone. The management was resection and anterior petrosectomy of the temporal bone tumor with combined subtemporal and endaural approach (join operation with neurosurgeon). The results of pathology examination was ceruminous adenoma. Eleven months of follow up after operation, there was no sign of regrowth mass in the right ear canal. **Methods:** Relevant literatures were collected from Pubmed database using certain keywords and predetermined inclusion criteria. **Results:** Based on the inclusion and exclusion criteria, 5 literature related to this case was obtained. **Conclusion:** Ceruminous adenoma is benign tumor but could be extended to the petrous bone, surgery management is carried out with a subtemporal approach because the exploration must reach to the petrous bone

Keywords: Temporal bone tumor, anterior petrosectomy, subtemporal endaural approach.

Introduction

Ceruminous adenoma is a benign tumor originate from the outer third of the lateral ear canal cartilaginous part. Ceruminous adenoma is also known as 'ceruminoma' or 'apocrine adenoma' is a benign tumor of the ceruminous gland from skin gland but because it grows in the ear canal so it can give symptoms of hearing loss, otalgia, otorrhea or fullness in the ear. The diagnose based on clinical appearance, CT scan and/or magnetic resonance imaging (MRI) and histopathology examination. CT scan can provide clues in the absence of signs of invasion and erosion that are characteristic of benign tumors. MRI with gadolinium diethylene triamine pentaacetic acid (DTPA) contrast used to differentiate between benign and malignant gland tumors^{1,2}



Surgical management for temporal bone ceruminous adenoma is resection with endaural approach. Small tumors are resected using an endaural approach for better access and visualization. The surgical scars caused no deformities and no complications were seen with the endaural approach because the tumor was completely excised.³

CASE REPORT

A 56-year-old woman was referred to the ENT department by Neurosurgery department, with extension of a petrous tumor into the ear canal. A lump

On otoscopy found mass covering the anterior superior EAM with a superior base, on palpation it was soft and attached to the skin (figure 1).

Axial section of the temporal bone CT scan: right EAM mass that eroded the tympanic part, petrous part, and squamous part of temporal bone, zygomatic process,

in the ear that has been complaining for more than 1 year, accompanied by hearing loss and frequent earache.

Figure 1. Mass at right EAM

and eroded the condylar process of the mandible. (Fig. 2 and 3)



Figure 2. The red arrow shows a mass in the petrous anterior superior to EA

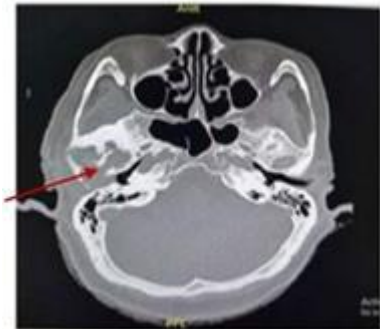


Figure 3. Red arrow: eroded tympanic part, petrous part, squamous part, processus zygomaticum and eroded the condylar process of the mandible.

Management:

Temporal bone tumor resection and anterior petrosectomy combined subtemporal and endaural approach



Figure 4. Mass in the anterior petrou

Intraoperative findings:

An ear canal mass of superior origin was seen with a consistency similar to mass of anterior petrous, the tympanic membrane was intact.

Histopathology result : Ceruminous adenoma

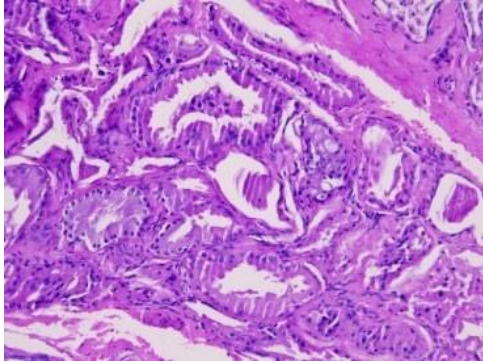


Figure 5. The tumor tissue is lined by the epidermis, under the tumor tissue there is a fairly dense

proliferation of apocrine glands with the lumen filled with eosinophilic masses



Figure 6. eleven months follow up post operation: ear canal was adequate and there was no sign of tumor growth

METHOD

Using literature review with the question “what is the management of temporal bone tumor?”

Obtained from Medeni med, Indian Journal of Otolaryngology and reconstructive surgery, Head and neck surgery.

Inclusion criteria

1. The method uses literature with the keywords
2. Published in the last 10 years
3. Full text available

Exclusion Criteria

- 1.ReviewArticles

No	Journal Writer	Population/Patient /Problem	Intervention/ Index/ Indicator	Co mpa rato r	Results
1	George et al, 2015	<p>A 87-year-old woman with complaints of otalgia, hearing loss, otorrhea, itching, otoscopy, redness, tenderness, rounded, tender mass in the outer third of the left inferior wall of the left EAC. . CT scan : lesion cystic on part EAC inferior cartilage but no there is lysis temporal bone .</p> <p>Histopathology : Ceruminous adenoma</p>	Excision with transmeatal approach	-	Follow up 2 years no there is recurrence
2	Khabti et al, 2016	<p>A 45-year-old woman with complaints of hearing loss in the right ear which has worsened since 2 years, occasional otalgia.</p> <p>Otoscopy showed a soft mass in the posterior</p>	Postaural approach	-	Not there is recurrence up to 7 months.post surgery

		<p>cavity and mastoid cleft</p> <p>within normal limits.</p> <p>Histopathology : Ceruminous adenoma</p>			
4	Wan et al, 2012	<p>A 78-year-old male with a medical background characterized by recurring otorrhoea over a period of six months presents with symptoms predominantly affecting the right ear. Upon examination using otoscopy, it was observed that the affected area appeared pink and felt soft to the touch. Additionally, a mass measuring approximately 0.5×0.7 cm was detected on the outer side of the right external auditory canal (EAC), although the patient reported no pain associated with this condition. A CT scan was performed, revealing the presence of a soft lesion measuring 0.5×0.5 cm within the right EAC, with no indication of any bone erosion. Subsequently, histopathological analysis confirmed the diagnosis of ceruminous adenoma</p>	<p>Transmeatal approach with total removal</p>		<p>After the initial surgical intervention, a follow-up assessment was conducted approximately 27 months later to evaluate the patient's condition. Encouragingly, the medical examination did not reveal any signs or indications of recurrence. This positive outcome suggests that the treatment approach undertaken effectively addressed the underlying issue, leading to a sustained resolution of the patient's condition. The absence of recurrence over the course of the 27-month period signifies the success of the surgical procedure in eliminating any</p>
5	Siti et al, 2021	<p>A 34-year-old female presented with a gradual deterioration in her hearing ability specifically in the right ear, which had been progressing for a period of two years. Alongside the hearing loss, she also experienced persistent non-pulsatile tinnitus. During an otoscopic examination of the right ear, a noticeable mass originating from the superior wall of the external auditory canal (EAC) was detected. The characteristics of the mass included a lobulated appearance, non-pulsatile behavior, and an absence of blood.</p> <p>To further investigate the condition, a CT scan was performed, revealing the presence of a soft mass within the EAC measuring</p>	<p>Resection tumor with postaural approach</p>		<p>Not there is recurrence</p> <p>1 year follow-up</p>

DISCUSSION

Ceruminous adenoma is a rare case, according to Aleksandra et al, the incidence of ceruminous adenoma is <1% in the age group of 50-60 years. This is consistent with our case, a 56 year old woman. Uzdán et al stated that there was no gender and ethnic predilection for ceruminous adenomas.^{2,4}

Our patient complained of a lump in the right ear canal that was getting bigger with hearing loss and otalgia. According to George et al the most frequent symptoms of ceruminous adenoma are hearing loss, otalgia, otorrhoea and rarely causes facial nerve paresis.⁵

In our case based on otoscopy found mass covers the anterior EAM on palpation was soft and adheres to the skin. George et al reported in his case mass in the outer third of the left inferior wall EAC, Khabti *et al* reported in his case a soft mass of skin that filled the postero-inferior half of EAC.^{5,6} Based on CT scan our case shown eroded of the petrous part, whereas in the cases reported by Siti *et al*, Wan et al, Khabti *et al*, Himanshu *et al*, George *et al* did not found erosion of the petrous bone.⁵⁻¹⁰

Our patients undergo surgery management resection and anterior petrosectomy combine subtemporal and endaural approach because the tumor eroded the petrous part. George *et al*, Khabti *et al*, Himanshu *et al*, Wan *et al* and Siti *et al* performed temporal bone resection with various approaches like endaural, postaural transmeatal however not included anterior petrosectomy with subtemporal approach because there was no extension of the tumor to the petrous bone.

5-9 In conclusion ceruminous adenoma is a rare skin gland tumor, affecting the age of 50-60 years, The clinical presentation varies so it is difficult to diagnose, these tumors are easy to recurrent and to distinguish benign and malignant tumors only based on histopathological examination. The treatment is complete removed without leaving any residual disease, in order to prevent recurrence. Ceruminous Adenoma is benign tumor but could be extended to the petrous bone. For this reason, surgery management is carried out with a subtemporal approach because the exploration must reach to the petrous bone.

REFERENCE

1. Masafumi Ohki, Shigeru Kikuchi. Apocrine Adenoma of the External Auditory Canal with Pseudoepitheliomatous Hyperplasia. Case report of Otolaryngology, Volume 2019; doi.org/10.1007/s12105-018-0909-3
2. Uzdán uz, Ayca tan, Onur celik. Seruminosa adenoma mimicking otitis externa : Medical case report .2018; (6): 1-4
3. P.M.Spielmann, S.McKean. Surgical management of external auditory canal lesions. The Journal of Laryngology & Otology (2013), 127, 246–251
4. Aleksandra Kłodawska, Katarzyna Amernik, Ewa Jaworowska. Rare seruminosa gland originated tumor of the external auditory canal : a case report. Adult and Children Otolaryngology and Laryngological Oncology Department in Szczecin. 2018.
5. George Psillas, Argyrios Krommydas, Georgia Karayannopoulou. Seruminosa Adenoma of the

External Auditory Canal: A Case Report with Imaging and Pathologic Findings. 2015.

6. Khabti Almuhanna, Renad Alkadi. Seruminosa Gland Adenoma of External Auditory Canal- A Case Report.2016.
7. Himanshu Varshney, Vivek Taneja, M.K.Taneja. Seruminosa gland adenoma: A case report . Indian Journal of Otology. 2014;(1):1-3.
8. Wan-Qin Shen, Ke-Jia Cheng, Yang-Yang Bao. Expression of Glut-1, HIF-1 α , PI3K and p-Akt in a case of seruminosa adenoma. Shen et al. Head & Neck Oncology 2012, 4:18
9. Siti Sarah, Asma Abdullah, Suria Hayati. Seruminosa adenoma :A rare mass that impair hearing. Medeni Med J. 2021;36:270-5.
10. Priyadharsini Nagarajan. Ceruminous Neoplasms of the Ear. Head and neck pathology.2017; doi.org/10.1007/s12105-018-09

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