

Cavernous haemangioma of external ear canal

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Abstract

Objectives: The aim of this study was to document the occurrence of a cavernous haemangioma of the external auditory canal, and to review the literature on this pathology.

Methods: We report the clinical presentation, imaging studies, surgical procedure and histological findings for a cavernous haemangioma of the external auditory canal.

Results: This patient represents the fourth reported case of cavernous haemangioma affecting only the external auditory canal. A cavernous haemangioma of the external auditory canal, not affecting the tympanic membrane, was surgically removed, without post-operative complications.

Conclusions: Cavernous haemangioma of the external auditory canal is a rare otological pathology. Computed tomography imaging is important in order to precisely define and localise the site and size of the lesion. Histological examination is necessary for the correct diagnosis of the pathology.

Key words: Cavernous Haemangioma; External Auditory Canal

Introduction

Haemangiomas are benign, vascular neoplasms which often involve the head and neck region.¹ They typically appear by the age of one year in children and disappear by five or six years of age.² They are classified into two categories: capillary or cavernous. Capillary haemangiomas consist of tightly arranged blood vessels and usually affect the skin, subcutaneous tissue, mucosal surfaces and lips, but can also be found in organs such as the liver, spleen and kidneys.³ Cavernous haemangiomas are less common. They are composed of large, vascular spaces which are usually bigger, less defined and (usually) deeper than those of capillary haemangiomas.³

Cavernous haemangioma of the external ear canal and tympanic membrane is a rare, benign tumour. Only ten cases have been reported in the literature (Medline search from 1972 to 2007).

We describe a case of cavernous haemangioma which affected only the external auditory canal. The lesion was located in the posterior superior zone and caused almost complete blockage of the external auditory canal.

Case report

A 45-year-old woman presented to our department with a five-month history of left-sided hearing loss and aural fullness. External auditory canal examination revealed a purple mass emerging from the supero-anterior portion of the canal, which occluded almost the entire external auditory canal. The mass appeared soft, non-pulsatile and did not blanch on pneumatic otoscopy. The otoscopic appearance of the right ear was normal. Weber testing at 512 Hz was consistent with a left-sided, conductive hearing loss. There was no lymphadenopathy, and the remainder of the head and neck examination was not significant.

Audiometric testing revealed mild to moderate, left-sided, conductive hearing loss.

High resolution computed tomography (CT) scanning without contrast showed a soft tissue mass of approximately 1.5 cm diameter lateral to the tympanic membrane, which filled the left external auditory canal. There was no middle-ear involvement or bone erosion (Figure 1).

Puncture of the lesion with a needle resulted in venous bleeding. Under general anaesthesia, an endaural approach was used to access the lesion. The vascular tumour was based antero-superiorly in the lateral external auditory canal and was not in contact with the tympanic membrane. After creating skin flaps, the tumour was excised en bloc by elevating the lesion from the bony canal, without violating the tympanic membrane. The ear canal skin flaps were replaced, the meatal incision was sutured and the ear plugged with Meroceal (Medtronic Xomed, Jacksonville, FL 32216 USA).

The post-operative period was uneventful. Histological examination revealed the lesion to be composed of large, tortuous, vascular spaces and cuboidal endothelial cells, indicating a cavernous haemangioma (Figure 2).

There was no recurrence three months after the operation.

Discussion

The literature shows that cavernous haemangioma rarely affects only the external auditory canal, as in our case; of the 10 previously reported cases of external auditory canal cavernous haemangioma, only three involved no other site (Table I).

In 1972, Freedman *et al.* reported the first two cases of cavernous haemangioma of the external auditory canal.⁴ Both patients were men, one 50 years old without symptoms and the other 57 years old with otalgia. Neither patient had significant conductive hearing loss and both had normal representation (surgical appearance or anatomy) of the middle-ear spaces.

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FIG. 1

Axial temporal bone computed tomography scan without contrast, showing a 1.5 cm soft tissue mass in the left external auditory canal.

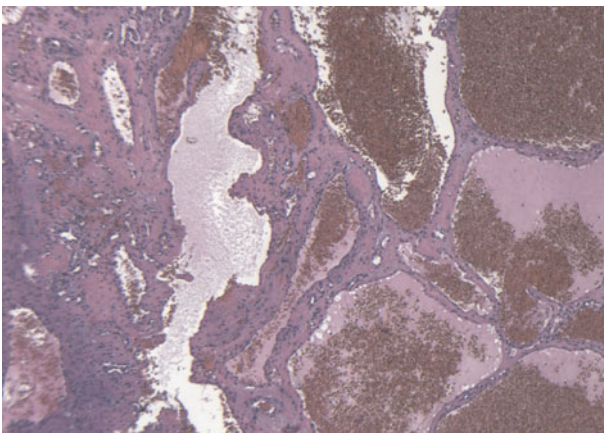


FIG. 2

Photomicrograph showing the typical appearance of a cavernous haemangioma (H&E; × original magnification 200).

In 1983, Andrade *et al.* published the first case of cavernous haemangioma limited to the tympanic membrane, which was found during routine examination of a 59-year-old man.⁵ The benign, vascular neoplasm was excised via an endaural approach.

Also in 1983, Kemink *et al.* reported a case of cavernous haemangioma in a 52-year-old patient with normal hearing.⁶ The sessile mass extended from the posterior external auditory canal onto the tympanic membrane.

In 1987, Hawke and van Nostrand were the first to report a cavernous haemangioma limited to the external auditory canal and arising from the anteroinferior canal wall.⁷ The lesion was easily excised; subsequent bleeding was controlled by cauterisation.

In 1990, Jackson *et al.* reported a 60-year-old woman with a 'mixed' capillary and cavernous haemangioma in the inferior canal wall.⁸ Her only symptom was a 40 dB conductive hearing loss. The lesion was partly removed for biopsy but recurred after two months and filled the external auditory canal. The tumour was then completely removed. The final diagnosis was 'mixed' haemangioma.

In 2002, Limb *et al.* described the case of a 67-year-old Caucasian woman with a one-month history of tinnitus, hearing loss and aural fullness.⁹ A CT scan showed a mass 1.5 cm lateral to the tympanic membrane. Angiography was used in an attempt to identify the blood supply to the mass, but no identifiable blood vessels were found. The tumour was removed via an endaural approach.

In the same year, Reeck *et al.* documented the case of a 53-year-old man with a three-year history of left-sided hearing loss.¹⁰ A violet mass was found, occupying 20 per cent of the osseous external auditory canal in the medial posterior-inferior portion, which did not affect the tympanic membrane. These authors also used the endaural approach to gain access to the mass.

In 2006, Yang *et al.* reported a 72-year-old woman with a 5 mm diameter lesion of the left external auditory canal, discovered incidentally.¹¹ A transcanal approach was used to remove the lesion.

Finally, in 2007 Magliulo *et al.* reported the first case of a cavernous haemangioma invading the external auditory canal, tympanic membrane and middle-ear space via a small perforation in the tympanic membrane.¹² The lesion was 3 mm in diameter, purple, rounded, well defined and localised in the posterosuperior region of the medial external auditory canal. In this case, an endaural approach was used.

Generally, this pathological condition is found accidentally or is revealed following a history of hearing loss. The differential diagnosis includes high jugular bulb, jugular glomus, attic cholesteatoma, aural polyp, arterovenous malformation and carcinoma of the external auditory canal.¹³ Computed tomography is the best imaging technique with which to evaluate the local features of the mass. Angiography is generally not required, especially when the mass derives from the upper part of the external auditory canal. Histological examination should always be performed, above all to exclude malignancy. Complete excision appears to be curative for benign lesions such as cavernous haemangiomas of the external auditory canal, with only one documented recurrence.⁸

TABLE I

REPORTED CASES OF EXTERNAL EAR CANAL HAEMANGIOMA

Author	Pt age (yrs)	Sex	Lesion location	Pathology
Freedman <i>et al.</i> ⁴	52	M	EAC/TM	Cavernous
Freedman <i>et al.</i> ⁴	57	M	EAC/TM	Cavernous
Andrade <i>et al.</i> ⁵	59	M	TM	Cavernous
Kemink <i>et al.</i> ⁶	52	M	EAC/TM	Cavernous
Hawke & van Nostrand ⁷	55	M	EAC	Cavernous
Jackson <i>et al.</i> ⁸	60	F	EAC/TM/bone	Mixed
Limb <i>et al.</i> ⁹	67	F	EAC	Cavernous
Reeck <i>et al.</i> ¹⁰	53	M	EAC	Cavernous
Yang <i>et al.</i> ¹¹	72	F	EAC/TM	Cavernous
Magliulo <i>et al.</i> ¹²	63	M	EAC/TM/middle ear	Cavernous

Pt = patient; yrs = years; M = male; F = female; EAC = external auditory canal; TM = tympanic membrane

References

- 1 McGill TJI, Forsen JWJ, Mulliken JB. Hemangiomas and vascular anomalies of the head and neck. In: Cummings CW, ed. *Otolaryngology Head and Neck Surgery*. St. Louis: Mosby, 1998;66–80
- 2 Rice DH, Betsakis JG. *Surgical Pathology of the Head and Neck*. Philadelphia: Lippincott Williams & Wilkins, 1999; 168–9
- 3 Robbins SL, Vasi Sanguigni CR. *Le Basi di Anatomia Patologica Piccin* [in Italian]. Padova Italia, 2000;622–3
- 4 Freedman SI, Barton S, Goodhill V. Cavernous angiomas of the tympanic membrane. *Arch Otolaryngol* 1972;**96**: 158–60
- 5 Andrade JM, Gehris CW Jr, Breitenecker R. Cavernous hemangioma of the tympanic membrane: a case report. *Am J Otol* 1983;**4**:198–9
- 6 Kemink JL, Graham MD, McClatchey KD. Hemangioma of the external auditory canal. *Am J Otol* 1983;**5**:125–6. PMID: 6650669
- 7 Hawke M, van Nostrand P. Cavernous hemangioma of the external auditory canal. *J Otolaryngol* 1987;**16**:40–2
- 8 Jackson CG, Levine SC, McKennan KX. Recurrent hemangioma of the external auditory canal. *Am J Otol* 1990;**11**:117–18
- 9 Limb CJ, Mabrie DC, Carey JP, Minor LB. Hemangioma of the external auditory canal. *Otolaryngol Head Neck Surg* 2002;**126**:74–5
- 10 Reeck JB, Yen TL, Szmit A, Cheung SW. Cavernous hemangioma of the external ear canal. *Laryngoscope* 2002;**112**:1750–2
- 11 Yang TH, Chiang YC, Chao PZ, Lee FP. Cavernous hemangioma of the bony external auditory canal. *Otolaryngol Head Neck Surg* 2006;**134**:890–1
- 12 Magliulo G, Parrotto D, Sardella B, Della Rocca C, Re M. Cavernous hemangioma of the tympanic membrane and external ear canal. *Am J Otolaryngol* 2007;**28**:180–3
- 13 Wackym PA, Friedman I. Unusual tumors of the middle ear and mastoid. In: Jackler RK, Driscoll CLW, eds. *Tumors of the Ear and Temporal Bone*. Philadelphia: Lippincott, Williams & Wilkins, 2000;138–9

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