



## CLINICAL CONSULTATION

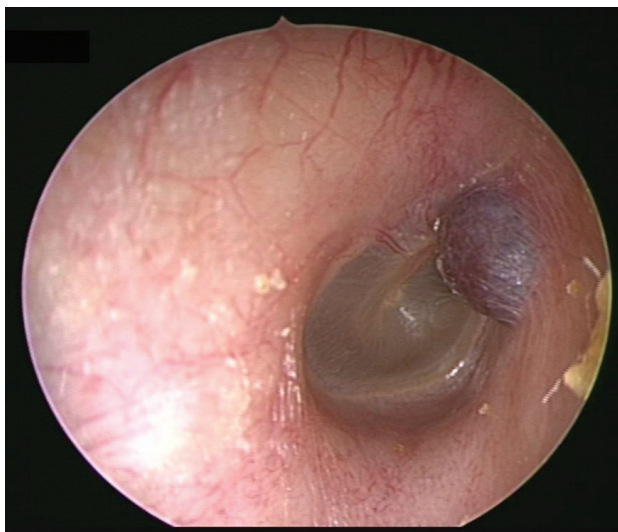
# Symptoms: Unilateral Hearing Loss

By Hamid R. Djalilian, MD

A 45-year-old patient comes in with a history of unilateral hearing loss on his left side. He states that the hearing loss started gradually and, in addition, he has some imbalance. His past medical history is otherwise negative. When examination of the right ear begins, the patient indicates that the problem is in the opposite ear, but it is explained to him that we usually look in both ears. The finding on the examination is seen to the right. The mass is soft and compressible. His audiogram shows a moderately severe sensorineural hearing loss that is flat, with zero percent word discrimination, on the left side.

**What is your diagnosis? See p. 16.**

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Otoscopic image of the patient's external auditory canal.

# Diagnosis: Cavernous Hemangioma of the Bony External Canal

By Hamid R. Djalilian, MD

Continued from p. 14

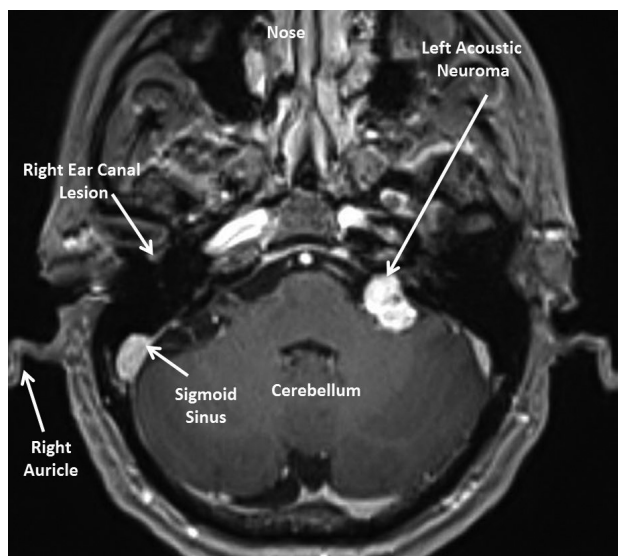
Patients often think that only the side with the complaint needs to be examined or tested. However, we often find interesting pathology on the opposite ear as well. This is especially true when the primary issue is chronic otitis media or cholesteatoma. Most commonly, in those patients, we see significant retraction or early cholesteatoma formation that needs to be addressed in the future—or at least observed. Therefore, it is imperative to examine both ears in all patients.

In the presence of a newly discovered mass in the ear canal, the main question is whether the problem is located superficially in the canal skin or involves structures such as the bony canal. The most practical way to evaluate the extent of an external auditory canal lesion is to obtain a CT scan of the temporal bone without contrast. (A CT of the temporal bones with contrast is rarely indicated; it often exposes the patients to twice the radiation of a noncontrast CT, and the contrast itself can unduly cause issues for patients with chronic kidney insufficiency or those with an iodine allergy.) Once a CT scan is obtained, we can evaluate whether destruction of the canal bone has occurred and whether this may represent a larger underlying problem or is something limited to the skin. As we saw in last month's clinical consultation, a small mass of the external auditory canal could represent a large glomus jugular tumor and may be just the tip of the iceberg. In this case, an MRI was obtained to evaluate the asymmetric sensorineural hearing loss; the mass lesion could be identified on the post-contrast images as a small limited mass. The patient was also found to have a left-sided large acoustic neuroma.

A CT scan was obtained for surgical planning to remove the acoustic neuroma, which provided valuable data on the mass lesion in the right ear. Given the compressibility of the mass and its very soft nature; the non-involvement of the bony canal; and the preponderance of venous blood, which creates the purple-colored appearance, this was diagnosed as a cavernous hemangioma of the bony external canal.

## HEMANGIOMAS: TO TREAT OR NOT TO TREAT?

Hemangiomas are benign tumors or abnormalities of blood vessels. They have been generally divided into two categories: capillary hemangiomas and cavernous hemangiomas. Capillary hemangiomas are benign tumors of the blood vessels that often present at a very young age and go through a proliferative stage when the child is young. They are superficial, flat with the skin, and red in appearance. They tend to blanch with pressure. Most commonly, these are discovered in the head and neck and present during the first three months of life. They generally

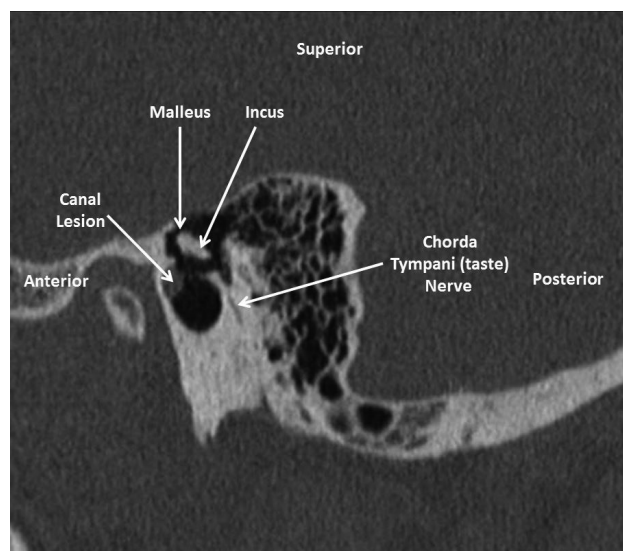


**Figure 1.** Axial post-contrast MRI of the patient, demonstrating a small enhancement (white area) in the anterior superior external auditory canal. The large acoustic neuroma on the opposite side can be seen.

enlarge over the next year and a half and then gradually go away with time. By the age of 3 years, approximately 30 percent of capillary hemangiomas have disappeared and by age 9, approximately 90 percent have disappeared. Cavernous hemangiomas, on the other hand, are vascular malformations with enlarged blood vessels that contain blood within them. These generally grow with the child until the age of 18 years, then stay unchanged forever. Sometimes, bleeding can occur within the cavernous hemangioma that can lead to its enlargement.

Capillary hemangiomas are generally treated conservatively, as most will involute with aging. Intervention is contemplated only when the rapid growth of the capillary hemangioma interferes with vision or with the growth of cartilage around the nose or the ear. In very young children, blockage of vision even for just a few days can lead to a loss of optic nerve development. This is quite unlike the auditory system, in which a temporary decrease in hearing does not lead to a permanent loss of normal function. There is some evidence, however, that prolonged loss of auditory function on one side, such as with congenital atresia, can lead to central changes at the brain level. The treatment of capillary hemangiomas involves injection of steroids into the lesion, as well as the use of oral beta blocker medications such as propranolol, which help with involution of the lesion.

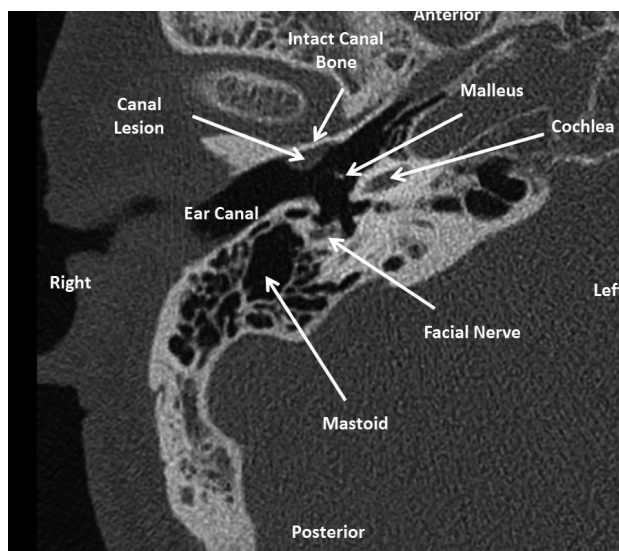
Cavernous hemangiomas of the external auditory canal are rare. Cavernous hemangiomas are generally treated only for cosmetic purposes, and treatment is reserved for times




**Figure 2.** Axial CT scan of the temporal bone demonstrates no involvement of the external auditory canal bone.

when the lesion creates significant deformity, or because of patient preference. Although surgical resection of the lesion is possible, minimally invasive techniques such as percutaneous laser therapy have been used for these patients with good success.

In this patient, the acoustic neuroma was surgically treated with a retrosigmoid approach. The patient's preoperative hearing was nonuseful, given the 0 percent word discrimination.



**Figure 3.** Sagittal CT scan of the temporal bone on the right side demonstrates the lesion and its close relationship to the ossicles.

This was unchanged after surgery. Because cavernous hemangiomas do not grow, it has been observed over the past year and has not shown any change. The patient's yearly MRI to evaluate the surgical resection of the acoustic neuroma has shown that the mass has been stable over this time. Given that this is the patient's only hearing ear, we would generally try not to perform surgery on it. 

## iPad Only!

### FIVE BONUS VIDEOS: SEE THE SYMPTOMS

Read this month's Clinical Consultation case, and then watch the accompanying videos from Hamid R. Djalilian, MD, to review the patient's imaging for yourself.

The first video shows an otoscopy of the patient's external auditory canal.

The second video presents an axial post-contrast MRI of the temporal bone demonstrating the full extent of the mass, as well as the acoustic neuroma.

The third video is an axial CT of the temporal bones showing the small lesion in the external auditory canal and the rest of the anatomy of the temporal bone.

The fourth video shows a sagittal CT of the temporal bones without contrast, demonstrating the mass lesion and its relationship to the ear canal and the ossicles.

The fifth video, a coronal CT of the temporal bones, demonstrates the proximity of the lesion to the lateral process of the malleus.

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