Symptom: Plugged Ears

By Hamid R. Djalilian, MD

A 42-year-old male comes to the office with a complaint of recurrent ear plugging. He states that whenever he gets water in his ear, his ears get plugged. He's been surfing since he was 10 years old, going every day when he was younger, but he now surfs once or twice a week. Every time the patient enters the ocean to surf, he experiences blockage of the ear canal.

The blockage can sometimes last for several days or weeks. The patient has tried using over-the-counter swimmer's ear drops but has had no improvement. He often has to go to his doctor to have that ear suctioned or flushed to clear the canal, and he has had multiple infections in the same ear. You look in the ear canal and see the ear canal.

What is your diagnosis? See p. 6.

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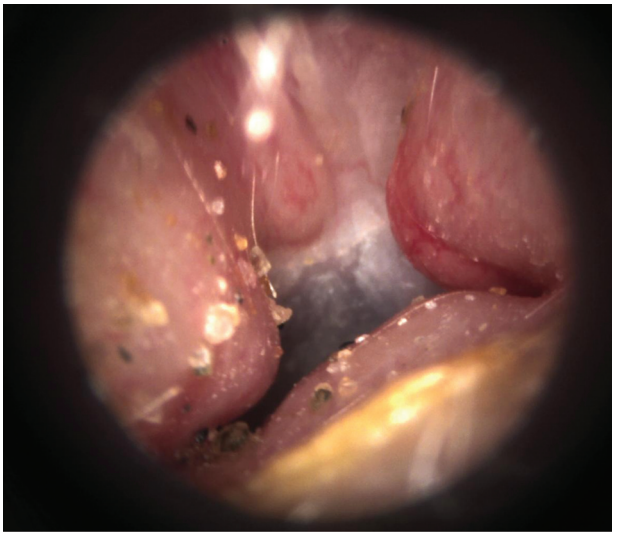

This is the otoscopy image of the patient's external auditory canal.

Diagnosis: Exostoses

By Hamid R. Djalilian, MD

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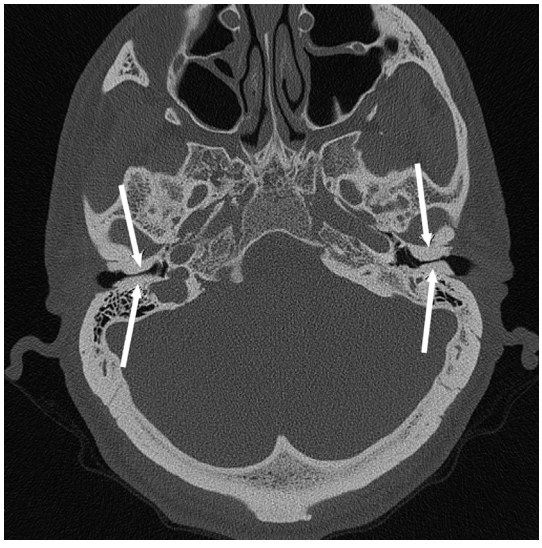
Ear blockage associated with water intrusion into the external auditory canal is not uncommon. Most often, people just shake their heads, and the water drains out of the ear. The surface tension of water is such that water may not easily come out of narrow spaces, however. The external auditory canal can narrow because of cerumen, cartilaginous collapse, collapse of the temporomandibular joint posterior wall and condyle herniation, or benign or malignant neoplasms.

The lesions seen in this ear canal are hard in consistency on gentle palpation and bony in origin. There are two bony pathologic entities that occur in the external auditory canal: exostoses and osteomas. Exostoses are a benign growth of bone that originates in the periosteum. They are generally multiple in number, occur in both ears, and are the result of chronic exposure to cold water and wind. In fact, 73 percent of active surfers have been found to have exostoses. This patient is one of them.

Osteomas, which technically are considered benign tumors, are usually singular lesions that grow at the bony–cartilaginous junction of the external auditory canal or the suture lines of the bony external auditory canal. Pathologically, osteomas have a disorganized appearance of bony growth, and they typically have a fibrovascular core. These lesions are not associated with exposure to cold water or air.

Osteomas also can occur along the bony external auditory canal close to the tympanic membrane, most commonly appearing superiorly as a pearl-like lesion. The best way to confirm that these pearl-like lesions are osteomas is to palpate them very gently using a blunt instrument under microscopy. These lesions can be quite tender, and the patient must be warned before palpation.

Imaging or biopsy generally is not necessary for the diagnosis of osteomas or exostoses. Patients with these lesions can go for many years without requiring treatment.



This axial CT image of a different patient's external auditory canal shows exostoses abutting the tympanic membrane (arrows).

This sagittal CT image shows multiple exostoses (arrows) in different quadrants of the above patient's ear canal.

SURGICAL INTERVENTION

When keratin debris or water blockage starts to cause recurrent infections or blockage of the external auditory canal, surgical therapy is undertaken. Surgery for these lesions usually can be accomplished with a transcanal approach. The skin of the external auditory canal is separated from the bone, and the bone is removed using a high-speed drill or osteotomes (chisel). Previously, the surgeries were performed with a postauricular approach and high-speed drill. Surgery in inexperienced hands can lead to a higher chance of facial nerve paralysis or hearing loss. With the advent of dedicated monitoring, the risk to the facial nerve has fallen substantially.

Although it appears uncomplicated, the surgery for significant obstruction from exostoses is a difficult operation because of the surgeon's inability to see the tympanic membrane for a significant portion of the procedure. This type of operation is most commonly performed in areas where many people surf, such as California, Australia, Brazil, Spain, and Portugal. These areas are places where people can enjoy outdoor water sports for the entire year.

In areas where there is a cold climate in the fall and winter, it usually is not possible for people to be in open bodies of water for a significant portion of the year. Exostoses occasionally can be seen in colder climates in those who swim in rivers or lakes. It has been postulated that exostoses occur only in people who start having water exposure during the years when growth takes place, but this claim has not been substantiated.

Medical treatment of patients with recurrent blockage from exostoses is gentle suctioning and use of topical antibiotic drops. A combination of alcohol and vinegar can sometimes be used to flush the ear intermittently to prevent blockage. Irrigation of the ear with pressure in the presence of a blockage is not recommended as significant pressure at the tympanic membrane can potentially cause perforation.