



CLINICAL CONSULTATION

Symptom: Itchy Ear

By Hamid R. Djalilian, MD

A 55-year-old woman presents with a history of chronic itching of the ear and intermittent drainage. The drainage episodes generally do not respond to antibiotic ear drops, which she has been on for the past six weeks. Oral antibiotics haven't helped, either. Her primary care physician attempted to flush the ear, but that only made the symptoms worse.

The patient has not had previous surgery or trauma to the head or ear, she said. She's worn earplugs at night for the past two months because of recent noise in her neighborhood.

Her past medical history is significant for diabetes, for which she takes oral medication. The examination of her ear is shown on the right.

What is your diagnosis? See p. 10.

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This is the view of the patient's ear on otoscopy.

Bonus Video!

iPad EXTRA: SEE THE OTOSCOPY

Read this month's Clinical Consultation case, and then watch the accompanying video from Hamid R. Djalilian, MD, to see the patient's symptoms for yourself. This exclusive feature is only available in the September iPad issue.



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Diagnosis: Fungal Otitis Externa

By Hamid R. Djalilian, MD

Continued from p. 8

The skin of the external auditory canal is unique. The medial two-thirds of the ear canal is bony, and this bony skin is very thin, measuring about 30 to 50 microns thick. The skin also lacks hair and other typical features, such as sweat glands, sebaceous glands, and cerumen glands.

The ridges that usually hold the skin to the periosteum, or bony covering, are absent in the skin lining the bony portion of the ear canal. This absence makes the skin loosely adherent to the underlying periosteum and prone to injury and separation during aggressive cerumen removal or otoscope speculum placement.

The skin's lack of a subcutaneous fat layer and its loose adherence to the periosteum also make pain more likely during manipulation of the ear canal. Therefore, it is of the utmost importance that the tips of the otoscope or other instruments do not put too much pressure on the skin, which can crush the area and create tremendous pain for the patient.

In an attempt not to hurt the patient, the inexperienced student generally picks the smallest speculum to insert in the ear. When looking for the tympanic membrane, however, the student ends up pushing the tip against the bony skin, causing more pain in the process.

The skin over the cartilaginous canal is thicker than the skin over the bony canal and has hairs, sebaceous (fatty) glands, ceruminous glands, and a subcutaneous fat layer.

The cartilaginous skin, which is more adherent to the cartilage than the skin of the bony canal is to the periosteum, is the primary area involved in pruritic ear disease.

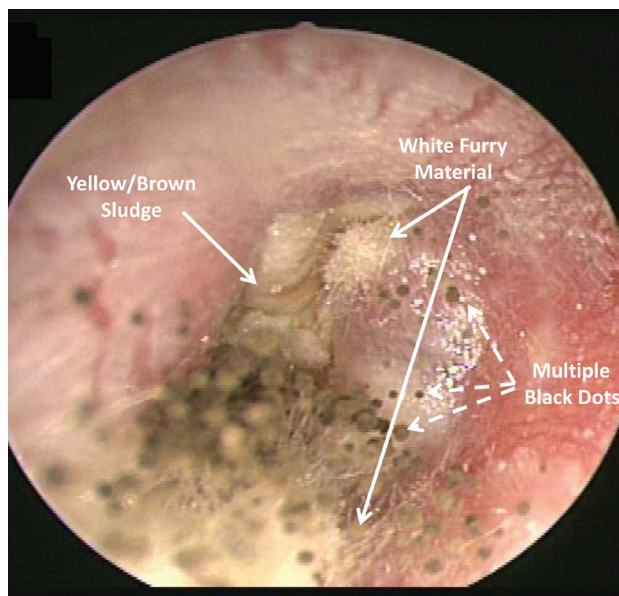
Patients with diabetes are generally more likely to develop fungal or bacterial otitis externa, primarily due to a loss of acidity in the cerumen.

INFLAMMATORY SOURCES

Chronic itching of the ear most commonly results from a chronic inflammatory process of the ear canal.

The inflammation can be allergic in nature, caused by hearing aid casing material, earplugs, or nickel in jewelry piercing the tragus.

Allergic inflammatory changes in the ear are mainly associated with delayed-type hypersensitivity reactions to preservatives in shampoos or conditioners (*Laryngoscope* 2006; 116[10]:1809-1812), which usually occur several days after exposure to the initial insult or after repeated contact with it.



This deeper view of the patient's ear canal on otoscopy demonstrates two areas of white furry material, a multitude of black dots, and sludgy yellow-brown material.

Infectious causes of chronically pruritic ears include acute or chronic fungal infections of the ear canal. Rarely, systemic skin conditions, such as psoriasis, can involve the external canal skin, leading to itching.

Patients with diabetes are generally more likely to develop fungal or bacterial otitis externa, primarily due to a loss of acidity in the cerumen, which reduces protection against fungal elements in the ear canal and probably changes the bacterial flora that normally lives on the skin surface.

THREE FEATURES

This patient had acute fungal otitis externa. Her significant itching is due to the skin's local immune reaction to the fungal elements.

There are three features of fungal otitis externa: white furry material, black dots, and sludgy yellow-brown debris. The third feature is generally appreciated during suctioning, when most of the canal debris comes out as one large portion of yellow-brown sludge. Any one of these three elements can be present in the condition.

Acute fungal otitis externa should not be confused with the presence of saprophytic fungi, which are opportunistic fungi that grow on the surface of the cerumen and do not cause infection. Saprophytic fungi are more commonly seen in people with diabetes or chronic mastoid cavities. The presence of these opportunistic fungi can be distinguished from that of

infectious fungi by lifting the cerumen and noting the normal skin underneath it.

Fungal otitis externa generally occurs in the setting of a couple of events. The first is significant humidification of the ear, which can be from earplug or hearing aid use, wet ear in obese patients, or water that sits in the ear canal after swimming or bathing. This dark, humid, and warm environment is ideal for the growth of fungi or bacteria.

The second element is a loss of cerumen—the barrier that protects the skin. This loss can occur due to patients' use of cotton-tipped applicators or other tools to remove cerumen or scratch their ears, or it can happen functionally in patients with diabetes, whose cerumen is less protective because it lacks acidity.

TYMPANIC MEMBRANE STATUS

Treatment of fungal otitis externa includes thorough removal of the fungal debris to minimize the fungal burden and to dry and acidify the ear. This procedure is best performed with suction under magnification from an otoscope or microscope. Using water to flush the ear will only worsen the problem.


Topical therapy choice depends on the status of the tympanic membrane. Patients with an intact tympanic membrane benefit from a 10-day course of flushing the ear canal with alcohol and vinegar in a 9-to-1 mixture three times daily. This mixture can be prepared by putting two tablespoons of white distilled vinegar in a small bottle of over-the-counter isopropyl (rubbing) alcohol.

The patient must warm the mixture in his or her hand a bit and use a bulb syringe (baby nasal syringe) to flush the mixture and point it upward in the ear canal. The patient also needs to place a towel on his or her shoulder to catch the mixture and debris.

In patients with a tympanic membrane perforation, alcohol and vinegar cannot be used. If the integrity of the tympanic membrane cannot be established, it is best to avoid the alcohol-vinegar combination.

Using three drops of clotrimazole solution three times daily for 10 days generally will help patients with an open middle ear because the solution is not ototoxic.

I place boric acid powder and nystatin/triamcinolone cream in the ear

canal in the office after cleaning and have the patient start the drops or irrigation two days later. This approach helps reduce the significant itching. 

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