# Resistant Otitis Externa

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# Chronic otitis externa

- Manifestations of otitis externa lasting longer than three months, or more than four attacks of otitis externa per year, are designated as chronic otitis externa.

- This may result from inadequately treated acute otitis externa, although 15% of cases of acute otitis externa heal within 10 days , but the cause usually lies elsewhere

- The clinician should reassess the patient who fails to respond to the initial therapeutic option within 48 to 72 hours to confirm the diagnosis of diffuse AOE and to exclude other causes of illness.
- Chronic otitis externa often fails to respond to treatment administered for several weeks.
- Chronic inflammation causes progressive fibrosis of the ear canal

# CHRONIC OTITIS EXTERNA

- OE is characterized by pruritus, usually mild discomfort, and aural fullness.
- The clinical findings have been defined as a secretory, or wet type, and a dry, or squamous type. The ear canal is often mildly to moderately erythematous, with scant clear discharge
- The course can wax and wane, however, and periodic aggressive treatment may be necessary

# microbiology

- There is overlap in the organisms responsible for AOE and COE.
- Pseudomonas and Staphylococcal species are often identified in COE; however, gram-negative isolates such as Escherichia coli and Enterococcus can be present.
- Similarly, fungal organisms are more likely to be a source of COE.

# Predisposing factors

- Anatomical factors
- Skin diseases
- Environmental factors
- Trauma
- Systemic diseases
- Endogenous factors
- Other factors

# Anatomical factors

- stenosis of the external auditory canal
- Exostoses of the external auditory canal
- Heavy coverage of the external auditory canal with hair

# skin diseases

- Eczema
- Psoriasis
- Seborrhea
- Neurodermatitis
- Other inflammatory diseases of the skin

# Environmental factors

- High humidity of the ambient air
- High ambient temperature

# trauma

- Manipulation/ excoriation
- Cerumen removal and aural toilet habits
- Hearing aids
- Earplugs
- Foreign bodies

# Systemic diseases

- Metabolic diseases
- Diabetes mellitus
- Immunosuppression
- allergies
- autoimmune disorders

# endogenous factors

- Lack or over - production of cerumen
- Sweating

# other factors

- Water in the ear canal / swimming
- Irritants (soap, shampoo, etc.)
- Radiation
- Chemotherapy
- Purulent otitis media
- Prior surgery of the external ear canal
- Stress
- topical treatments used in and around the ears

# Treatment

- The goals of treatment are to return the skin of the ear canal to its original, normal state and to promote the production of cerumen.
- All potential irritants, such as shampoo or soap, should be kept away from the ear, and the ear canal should be kept dry.
- The treatment of underlying illnesses, such as skin diseases or auto - immune disorders, is the basis of therapy.

# TX

- Only a few randomized controlled trials on drug therapy for chronic otitis externa have been carried out, generally on a mixture of patients with acute or chronic otitis externa, so that no explicit recommendations can be derived for the treatment of chronic otitis externa as a distinct entity.
- Treatment of COE is focused on reducing the inflammation of the canal, removing any inciting factors, and evaluating for any systemic conditions that may contribute to inflammation.

# Tx

- The goal of topical treatment is to suppress chronic inflammation.
- In case of an acute exacerbation, topical antibacterial or antifungal drugs may be needed.
- Swabbing for culture, to exclude bacterial or fungal infection as the cause, is recommended.
- The application of strips soaked in alcohol or corticosteroid solution can locally lessen edema.

- Acetic acid is comparably effective to antibiotic or corticosteroid drops after 7 days of treatment, but significantly less effective if treatment is needed for 2–3 weeks
- Oral corticosteroids can be effective in cases resistant to other forms of treatment or with acute breakthroughs.
- Local treatment with tacrolimus has been described as well

# Tx

- In the case of fungal infection, removal of the superficial dead skin layer is also recommended, followed by application of a topical antifungal preparation.
- Acidification of the EAC is effective in fungal OE, and topical treatment will cure most cases; however, recurrence rates are high.
- Clotrimazole 1% solution (Lotrimin) is available over the counter and provides broad-spectrum antifungal activity. Cresylate otic and ketoconazole ointment are effective as well.

# Tx

- An alternative treatment is to paint the canal and tympanic membrane with dyes that possess antifungal properties (e.g., gentian violet).
- Persistent Aspergillus infections associated with considerable canal edema or infections failing to respond to topical treatment may require the administration of oral itraconazole.
- Virtually all cases of fungal OE can be quickly resolved by debridement of the canal and then filling the canal with a combination cream—clotrimazole and betamethasone (Lotrisone). The cream is loaded into a 3-mL syringe and passed through an angiocath into the ear canal

# Tx

- Contact or allergic dermatitis should be treated by eliminating the offending agent, debridement, and the administration of a topical corticosteroid solution.
- Chronic granular OE can be difficult to treat. This is most frequently seen in individuals who are dependent on their hearing aids.
- Minimizing or alternating hearing aid use is crucial to the success of the treatment regimen. Culture of the ear for bacteria and fungi may provide evidence of the causative organisms.

# Tx

- Repeated debridement, cauterization of the granulations, and filling of the canal with topical antibiotic or antifungal creams can be effective.
- Topical gentian violet may also be effective at drying the ear canal and eliminating the chronic infection.
- Surgical therapy may be required for cases resistant to medical management and office-based procedures

# Tx

- In patients with long-standing inflammation of the ear canal that does not respond to traditional treatments using ototopical agents, we have found that filling the ear canal with a mixture of equal parts of bacitracin and polymyxin ointment, clotrimazole cream 1%, and betamethasone 0.05% can be highly effective.
- This mixture (antibiotic, antifungal, and steroid) is inexpensive and is easily instilled using a syringe and an 18-gauge angiocatheter tip.
- The ointment can be debrided after 1 week and reapplied as needed.

# Tx

- As with many chronic or recurrent infections, there is emerging evidence of the role of biofilms in OE, and novel treatment strategies have been proposed to dissolve or remove these biofilms. However, these treatments remain experimental

# Cleansing the ear canal

- Atraumatic cleansing of the ear canal consists of the removal of cerumen and exudate; the exudate may contain toxins (e.g., Pseudomonas exotoxin A ) that sustain the inflammatory process and limit or prevent the efficacy of topical drugs.
- Cleansing should be performed by an experienced otorhinolaryngologist under microscopic vision with suction or an aural hook.
- Patients should not clean their own ears with cotton swabs, because microtrauma encourages bacterial invasion.

# Instructions for patients

- If possible, get someone to put the drops in the ear canal for you.
- Lie down with the affected ear up. Put enough drops in the ear canal to fill it up.
- Once the drops are in place, stay in this position for 3 to 5 minutes. Use a timer to help measure the time. It is important to allow adequate time for the drops to penetrate into the ear canal.
- A gentle to-and-fro movement of the ear will sometimes help in getting the drops to their intended destination. An alternate method is to press with an in/out movement on the small piece of cartilage (tragus) in front of the ear.

- You may then get up and resume your normal activities. Wipe off any excess drops.
- Keeping the ear dry is generally a good idea while using ear drops.
- Try not to clean the ear yourself as the ear is very tender and you could possibly damage the ear canal or even the eardrum.
- If the drops do not easily run into the ear canal, you may need to have the ear canal cleaned by your clinician or have a wick placed in the ear canal to help in getting the drops into the ear canal.
- If you do have a wick placed, it may fall out on its own. This is a good sign as it means the inflammation is clearing and the infection subsiding.
- Do not remove the wick yourself unless instructed to do so

# Thanks for Your Attention