

Otitis externa complicated with chloramphenicol ear drops-induced perichondritis

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Abstract

Otitis externa is a common condition of the ear. It is manifested as narrowing of the lumen owing to the edematous swelling of the ear canal lining. Perichondritis may occur independently or as a complication of the otitis externa. We report a case of perichondritis after using a topical ear drop. Changing the medication provides immediate resolution of the condition.

Introduction

Otitis externa is inflammation of the external ear. It rarely affects the auricle (ear pinna). The predisposing factors are loss of the canal protective mechanism (by cerumen removal) and excessive moisture from water activities (swimming). The moisture elevates the ear canal pH¹ and the condition (increased pH) promotes bacterial growth. Bacterial infection usually affects the external ear canal as it is lined by skin and subject to infections of the skin such as furunculosis or folliculitis, eczema or allergic conditions as well as fungal infections (otomycosis).² The treatment includes aural toilet if there is any discharge and use of antibiotic ear drops. Sometimes ear wick soaked with an antibiotic solution can be applied. This condition is usually treated as outpatient and resolves after a week of antibiotic treatment. This report highlights the case of otitis externa, which is later complicated with perichondritis after the use of chloramphenicol ear drops.

Case summary

A 26-year-old male teacher complained of right ear pain for a month. It was associated with on and off ear discharge. There was no associated reduced hearing, tinnitus or vertigo. This was the first episode. He had no other medical problem.

He sought treatment at the local clinic and was treated with topical ear drops. The condition did not resolve, rather it was accompanied by itchiness. He visited another doctor and was given chloramphenicol ear drops. On the following day, the otalgia worsened as evident from the extension of the reddened area from the ear canal to the pinna. The pinna swelled up and watery discharge was noted. Examination showed that the right pinna was swollen covered with discharge from the affected skin area, especially on the gravity-dependent site of the canal (Figure 1). The external ear canal became narrow due to swelling and tympanic membrane was not visible.



Figure 1. Inflammation in the right auricle with evidence of skin excoriation and discharge from the gravity-dependent skin area. The ear canal was packed with the ear wick.

The patient was diagnosed as having right perichondritis complicated by an allergic reaction to the topical ear drops used for otitis externa. Apart from these, erysipelas and cellulitis are the differential diagnoses. The ear drop treatment was immediately stopped and a medicated (ofloxacin-soaked) ear wick was inserted and intravenous ciprofloxacin was started. Oral antihistamine was prescribed to reduce the itchiness. He was also started on oral amoxicillin/clavulanate. However, soon rashes developed on the chest and upper limbs. The oral antibiotic was changed to ciprofloxacin.

He showed an immediate resolution of symptoms on the first day of admission. The inflammation of the auricle resolved, and after the removal of the ear wick, it was found that the swelling of the canal had reduced. The skin rashes resolved after 2 days. He was discharged on the fourth day of admission with oral ciprofloxacin. A follow-up visit after a week showed a normal external ear condition. The external ear was dry and the intact tympanic membrane was visible.

Discussion

Otitis externa is commonly managed in the outpatient management. However, in certain cases where the condition does not settle after a course of antibiotic ear drops, the patient should be admitted to start on intravenous antibiotic treatment.

Perichondritis is a rare complication of otitis externa. It can also occur in isolation. It refers to an infection or inflammation involving the perichondrium of the external ear. It is commonly used to describe a continuum of conditions of the external ear from erysipelas (infection of the overlying skin), cellulitis (infection of the soft tissue), true perichondritis to chondritis (infection involving the cartilage itself).³ It is more commonly encountered post ear-piercing, especially if the cartilagenous part of the pinna is involved.⁴ Once the cartilage is involved, treatment should be started as soon as possible to avoid disfigurement of the pinna.

If the condition presents or progresses as an abscess, surgical drainage is indicated. In this case, the patient was initially treated with topical chloramphenicol ear drops. After one-day instillation into the ear canal, he started to develop inflammation at the area of contact with the drops. This particular case was managed as perichondritis secondary to contact with chloramphenicol ear drops. A true perichondritis—inflammation of the perichondrium only—usually does not affect the ear lobe because it does not contain cartilage.³ In this case, the lesion involved the ear canal meatus and ear lobe. It was complicated by dermatitis induced by contact with the ear drops used, as evident from the overlying skin involvement in the gravity-dependent area. Commonly,

secondary bacterial infection follows. Therefore, treatment with fluoroquinolone should be commenced.⁵

Perichondritis responds well to fluoroquinolone antibiotic treatment.⁶ The most commonly used drug is ciprofloxacin. Although studies have shown that both oral and intravenous ciprofloxacin reach therapeutic concentrations rapidly in both serum and urine, the intravenous form may be useful for the initial treatment of severe infections. This is due to its rapid distribution in the blood vessels and high tissue concentration at the site of infections.^{7,8}

Chloramphenicol is known to show delayed-type hypersensitivity following topical application.⁹ However, it is associated with low sensitising potential according to animal studies,¹⁰ and only susceptible individuals tend to demonstrate the reaction. Allergic reaction to the eye drops containing chloramphenicol is more commonly reported^{9,10} compared to the ear drops. The reaction can be demonstrated both in vivo by epicutaneous testing and in vitro by lymphocyte transformation test.¹⁰ We did not perform these tests in this case as the diagnosis was made by clinical assessment and resolution of signs after withholding the ear drops and administration of anti-histamines.

Conclusion

Every physician must suspect chloramphenicol contact allergy if the primary lesion worsens after its use of medications. Perichondritis secondary to an allergic reaction must be treated with immediate withdrawal of the medication, commencement of fluoroquinolone and anti-histamines.

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