Sore ear

Aug 8, 2017 | 0 | ent,onthepods

Otalgia is a common symptom seen in general practice, emergency departments and otolaryngology clinics. Joel Hardman explores how to assess and manage presentations of a sore ear, mainly acute otitis media and otitis externa.

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About Dr Joel Hardman

Dr Joel Hardman graduated medicine from the University of Sydney in 2010. He completed his internship and residency at Westmead Hospital, NSW. Joel has completed two years as a Senior Resident Medical Officer/Unaccredited General Surgery and two years in Ear Nose and Throat Surgery. Joel completed his Masters in microRNAs in papillary thyroid cancer at the University of Sydney in 2016 and is currently the Ear Nose and Throat Senior Resident Medical Officer at Royal Prince Alfred Hospital.

Sore ear

With Dr Joel Hardman, Ear Nose and Throat SRMO, Royal Prince Alfred Hospital, Sydney, Australia

Introduction

Otalgia is a common symptom seen in general practice, emergency departments and otolaryngology clinics. Approximately 4% of general practitioner (GP) encounters are solely for ears.
When assessing a sore ear it is important to determine the exact location of the pain – is it stemming from the external ear, ear canal or middle ear? Additionally, a sore ear can represent a manifestation of a systemic process. A pathology of another structure in the head and neck can result in secondary otalgia.
This podcast discusses how best to assess and manage presentations of acute otitis media vs otitis externa. Otitis media is an infection or inflammation of the middle ear. It is defined as an acute onset of otalgia with a bulging or erythematous tympanic membrane. Otitis externa is an infection of the external ear canal. It is defined as otalgia with an erythematous inflamed external ear canal.

Case

You are a doctor in the Emergency Department. A 50-year-old female presents with a two-day history of worsening right ear pain.

1. What is your initial approach?

- Thorough history and examination – determine where the ear pain is arising from
- Consider that most often you will see otitis externa in the adult population, whereas otitis media is more common in children

2. Outline your assessment approach by the bedside

- **History**
    - How long has the pain been present?
    - Determine the nature of the pain
    - Is there any discharge coming from the ear?
    - Any previous similar episodes?
    - Any previous treatments the patient has tried?
    - Has there been any trauma to the ear including blunt force trauma? Are there any cotton buds or instruments in the ear in an attempt to clean it?
    - Do they have any associated hearing loss?
    - Assess for any relevant comorbidities: diabetes, immunosuppression?
    - Has the patient had any previous radiation to the head and neck? This predisposes to otitis externa
    - Does the patient regularly wear hearing aids? The patient will present without them in because of the pain
- **Examination**
    - Look at the ear first without touching
        - With otitis externa the patient will feel pain as soon as the ear is touched – be careful
        - Is there any erythema or swelling (around the ear, within the pinna, in the external canal)?
    - Assess for hearing loss – Rinne and Weber's test
    - Otoscopy
        - Carefully advance the otoscope into the external ear canal
        - Visualise the extent of the canal looking at the tympanic membrane taking note of its colour, if there is any fluid behind the membrane (air fluid level/bubbles/bulging), inflammation or any evidence of scarring (white patches)
        - Valsalva maneuver watching for any movement of the tympanic membrane – in a normal ear the tympanic membrane will move, in otitis media the eardrum doesn't move
        - Note: in otitis externa the patient will usually not allow you to advance the otoscope very far due to the pain

    - Eliciting pain when putting pressure on the tragus is a sign suggestive of otitis externa
- **If pus or exudate is discovered in the ear canal, how do you differentiate between otitis externa or a perforated tympanic membrane from otitis media?**
    - In otitis externa there is commonly infected debris in the ear canal, often it has a white, waxy appearance
    - If there is discharge from a perforated ear drum, typically the exudate appears more like fluid or pus
    - The Valsava maneuver may visualise pus bubbling through tympanic membrane in otitis media
- **Are there any risk factors for a malignant cause of otitis externa?**
    - Otitis externa can spread and involve the peri-auricular area – a serious complication of this is malignant otitis externa which is osteomyelitis of the ear canal around the temporal bone
        - "Malignant" here means osteomyelitis, rather than a tumour or cancer
        - Typically seen in middle-age to elderly patients who have poorly-controlled diabetes
        - The most common infective agent is *Pseudomonas* followed by a *Staph* species
- **Are there any serious complications of otitis media?**
    - The most serious complication is mastoiditis
        - Caused by untreated otitis media spreading to the mastoid air cells that sit behind the ear
        - This complication can become an emergency as the infection can spread to posterior cranial fossa resulting in intracranial complications
    - Examination findings:
        - Inflammation behind the ear, erythema and tenderness at the mastoid tip
        - The ear will also appear pushed forward creating an asymmetrical appearance
    - Fortunately, with treatment it is very uncommon

3. Investigations for a sore ear

- In mild to moderate cases of otitis media or otitis externa, investigations are not warranted
    - Treatment would be empirical and you would monitor for response
- For severe cases of otitis externa take a swab of the ear canal – to help direct antimicrobial therapy

- If you are concerned about systemic complications, check serum inflammatory markers to assess effectiveness of treatment over time
- For concerns regarding serious complications such as mastoiditis, consider radiological studies – CT temporal bones or bone/gallium scans for malignant otitis externa

4. Management for a sore ear

- **Otitis externa**
    - Empirical therapy first
        - Commence on topical antibiotic treatment such as ciprofloxacin or Sofradex
        - Sofradex is a combination antimicrobial with steroid
        - Regime: 3drops TDS and then review
        - Consider review in an ENT clinic for severe cases
    - Oral antibiotics are only indicated if there are concerns of infection outside of the ear canal or the patient is immunosuppressed or has poorly controlled diabetes
    - For severe cases where the ear has closed over from significant oedema, it is helpful to insert a wick
        - A wick allows ear drops to penetrate the length of the canal and also stents open the canal
        - Insertion is usually very painful for the patient – important to warn them about the pain
        - Position the patient on their side whilst using crocodile forceps to insert the entire length of the wick into the canal quickly
        - Adding an antibacterial ointment to the wick can help facilitate the insertion
        - The wick will expand like a sponge in the ear and if the treatment is working well the ear canal's oedema will reduce
    - With otitis externa it is also important to try and clear the debris – this helps facilitate the antimicrobials to reach the skin
        - Micro-suckers (attached to wall suction) can help clear debris
        - If any concerns from junior medical staff, call the ENT on-call to facilitate this cleaning
    - Advice for the patient:
        - Maintain dry ear precautions – avoid swimming, use an ear plug when showering
        - Encourage regular pain relief
- **Otitis media**

- For the majority of patients, with simple and uncomplicated otitis media
    - You would not prescribe antibiotics
    - Manage with analgesia
- If symptoms are not improving in 48 hours, then prescribe an antibiotic such as amoxicillin
- For those with penicillin allergies, prescribe cefuroxime or Bactrim
- ENT consults are not generally required for otitis media
    - Patients with chronic infections or those who develop otitis media with persistent effusions should follow up with an ENT surgeon
    - Children who have trouble with language and speech should also be referred
- Advice for the patient:
    - Infections do get better
    - Keeping the ear dry is best
    - Encourage analgesia to manage the pain
    - With severe cases come back for a review with an ENT surgeon or GP

Take home messages

- Otitis externa and otitis media is well managed with empiric therapy as an outpatient
- However, if any concerns or you think this is a more complicated case, ask the hospital's ENT team for advice

Reference

- Harrison E, Cronin M.Otalgia.Australian Family Physician. 2016;45(7);493-7 (Available at: http://www.racgp.org.au/afp/2016/july/otalgia/)

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