

EMERGENCY DEPARTMENT CLINICAL PRACTICE GUIDELINES

Bacterial otitis externa

SEE ALSO: Fungal otitis externa, skull base osteomyelitis, cholesteatoma

DESCRIPTION – Inflammation of all layers of ear canal epithelium secondary to bacterial infection

HOW TO ASSESS:

Red Flags:

- Consider skull base osteomyelitis or neoplastic aetiology if:
 - Symptoms persisting despite management
 - Longstanding severe pain out of proportion with signs
 - Associated cranial nerve signs, e.g. facial nerve palsy
 - History of diabetes
- If inflammation involves pinna, consider pinna cellulitis or perichondritis
- If immunodeficiency present, more aggressive management may be required

On History:

- Otorrhoea
- Otalgia
- Pruritus of the ear canal
- Decreased hearing
- Risk factors: humidity, swimming, local trauma (use of cotton buds, hair pin etc., hearing aids), diabetes

On Examination:

- Oedematous, inflamed ear canal - diffuse or localised (think of furuncle if localised swelling)
- Pain on pulling pinna
- Tenderness on otoscopy
- Purulent otorrhoea
- No evidence of fungal disease in ear canal, e.g. spores or hyphae

On Investigation:

- Microbiology swab if not resolving after initial presentation and treatment

Acute Management:

1 Intact tympanic membrane and ear canal patent

- Aural toilet
- Sofradex[®] or Otodex[®] ear drops (framycetin sulphate 5mg/mL, gramicidin 0.05mg/mL, dexamethasone 0.5mg/mL) 3 drops TDS for 5 days, in moderate to severe cases
- Oral analgesia e.g. paracetamol, ibuprofen
- General practitioner review after 5 days

2 Tympanic membrane perforation present

- Aural toilet
- Ciproxin HC[®] ear drops (ciprofloxacin hydrochloride 2.3mg/mL, hydrocortisone 10mg/mL) 3 drops TDS, for 5 days. Ciproxin HC[®] can cause stinging in some individuals with tympanic membrane perforation. Consider use of ciprofloxacin 3mg/mL ear drops in this scenario.
- Outpatient review after 5 days
- If improved, general practitioner review after further 5 days

3 Canal occluded due to oedema

- Aural toilet
- Insert Pope ear wick or 1 cm strip of ribbon gauze to act as wick into external auditory canal. Saturate wick with 5 drops Sofradex[®] or Otodex[®] ear drops. Then continue with 3 drops TDS for 5 days
- Oral analgesia, e.g. paracetamol, ibuprofen. Dexamethasone 8mg po/IM/IV, stat. can also be helpful in managing pain and reducing canal oedema in adults
- Acute ENT Clinic review after 2-3 days to remove wick/ribbon gauze
- If improvement and tympanic membrane seen, general practitioner review after further 5 days
- If canal is still occluded due to oedema, replace wick/ribbon gauze and review in 2 days

In all cases, if persistent symptoms/signs perform microbiology swab, aural toilet and review for revision of topical therapy.

Note: Systemic antibiotics are not indicated unless there is evidence of co- existing pinna cellulitis, perichondritis or otitis media

Follow up:

- Urgent ENT opinion, if red flags
- Arrange ENT review if symptoms persist despite above management regimen or if tympanic membrane perforation persists beyond 3 months

Discharge instructions:

- In order to reduce water entering the affected ear, advise patients to insert cotton wool into the ear covered by Vaseline[®] prior to showering. Blu Tack[®] is a good alternative. Advice against swimming until the ear infection has resolved and has been cleared by clinical examination.
- Advise against inserting foreign objects into the ear canal e.g. cotton bud/hair pin as these can traumatise the ear canal skin

Additional notes

There are controversies in the management of otitis externa when a tympanic membrane perforation is present. In particular, only ciprofloxacin ear drops are licensed in this scenario, owing to the potential for ototoxicity with other preparations.

When the tympanic membrane is not visible owing to canal oedema, the possibility exists for there to be an underlying perforation. In this scenario, some clinicians prefer to prescribe ciprofloxacin ear drops rather than products containing aminoglycoside antibiotics such as Sofradex[®]. However, others support the use of the latter when applied onto a Pope ear canal wick, as transmission to the middle ear is minimal.

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Review date:

16/01/2019

Evidence Table

Author/s	Title	Source	Level of Evidence (I – VII)	Comments
Kaushik, V., T. Malik, et al. (2010).	"Interventions for acute otitis externa."	<u>Cochrane Database Syst Rev(1): CD004740.</u>	I	
Macfadyen, C. A., J. M. Acuin, et al. (2006).	"Systemic antibiotics versus topical treatments for chronically discharging ears with underlying eardrum perforations."	<u>Cochrane Database Syst Rev(1): CD005608.</u>	I	
Rosenfeld, R.M. et al. (2014).	"Clinical Practice Guideline: Acute Otitis Externa."	<u>Otolaryngology– Head and Neck Surgery 150(1S) S1-S24</u>	II	

The Hierarchy of Evidence

The Hierarchy of evidence is based on summaries from the National Health and Medical Research Council (2009), the Oxford Centre for Evidence-based Medicine Levels of Evidence (2011) and Melynck and Fineout-Overholt (2011).

- I** Evidence obtained from a systematic review of all relevant randomised control trials.
- II** Evidence obtained from at least one well designed randomised control trial.
- III** Evidence obtained from well-designed controlled trials without randomisation.
- IV** Evidence obtained from well designed cohort studies, case control studies, interrupted time series with a control group, historically controlled studies, interrupted time series without a control group or with case series.
- V** Evidence obtained from systematic reviews of descriptive and qualitative studies.
- VI** Evidence obtained from single descriptive and qualitative studies.
- VII** Expert opinion from clinician, authorities and/or reports of expert committees or based on physiology.