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Acute Otitis Media

Infections of the middle ear cleft may be acute or chronic. This tutorial covers the basics of acute otitis media. Chronic otitis media (cholesteatoma and perforations) and otitis media with effusion (glue ear) are covered elsewhere.

Definition

Acute infection of the middle ear space.

Aetiology

Otitis media is caused by viruses and bacteria. It is commoner in children due to immunological and anatomical reasons.

The Eustachian tube functions less well in children than in adults due to its anatomical configuration.

When it is narrowed by inflammation the middle ear becomes poorly ventilated and this leads to an effusion within the ear. This effusion is readily colonised by suppurative organisms leading to the classic signs and symptoms.



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Symptoms

- There is often a preceding URTI
- Earache/pain. Often throbbing and may be severe
- Constitutional symptoms – malaise, pyrexia
- Pain increases as pressure builds behind the tympanic membrane. When it bursts through the ear drum, the pain resolves but there is yellow discharge from the ear canal.

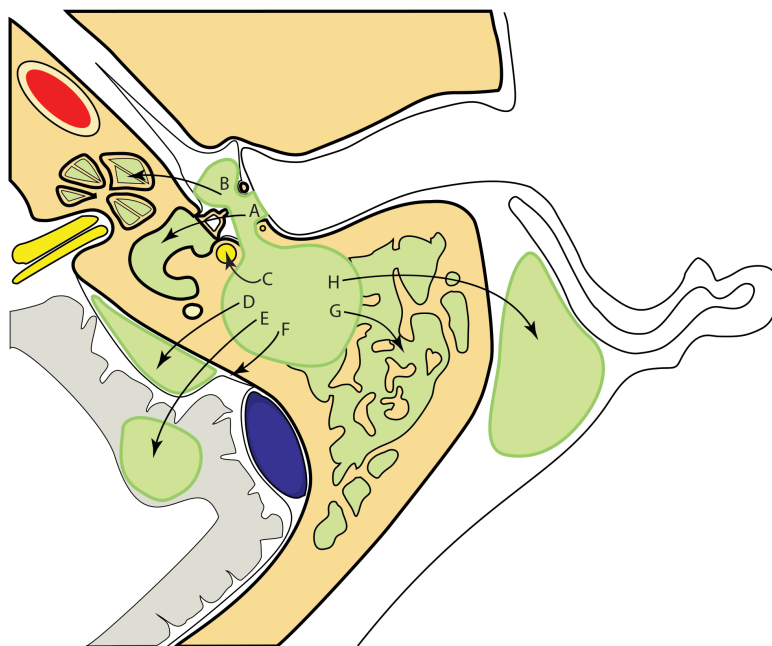
Clinical Findings

- The child is often distressed, due to pain.
- The ear drum is bulging, due to the pressure of the build-up of pus in the middle ear space.
- There may be mucopurulent discharge in the ear canal. This indicates that the ear drum has burst, leaving a perforation.

Complications / red flag symptoms

There are a number of complications that arise from otitis media and they are best understood by considering the anatomy of the region. Infection can spread via pre-existing anatomical tracks, via blood vessels or through anatomical abnormality caused by trauma.

The diagram below shows an axial section through the temporal bone. The pale green area represents an infection in the middle ear cleft. This can be a result of acute or chronic otitis media.



The diagram shows tracking of infection into:

- a. The vestibule – labyrinthitis
- b. The cochlea – sensory deafness
- c. Facial paralysis
- d. Intracranial – extradural abscess
- e. Intracranial – brain abscess
- f. Intracranial – meningitis
- g. Mastoid – mastoiditis
- h. Skin – subperiosteal mastoid abscess

Management

Simple, uncomplicated OM, should be treated in primary care with 5 days of Amoxicillin (if not penicillin allergic) and analgesia – paracetamol / NSAID

If history is suggestive of an infective perforation secondary to OM, ciprofloxacin ear drops can also be given, and the patient should be followed up to ensure that they are healed without complication.

If there are any sign of complications of OM the patient should be admitted and the following management instigated;

- Adopt the ALS principles with an ABCDE approach and perform a thorough examination
- Will require IV Antibiotics, fluid if shocked, analgesia and complete set of bloods, swab ears
- Definitive management will depend upon the complication:
 1. Subperiosteal abscess – needs incision and drainage and a cortical mastoidectomy
 2. Facial paralysis – myringotomy and grommet to drain middle ear infection plus cortical mastoidectomy
 3. Brain abscesses – antibiotics and aspiration or excision of abscess and treatment of the underlying ear complaint