Chronic Suppurative Otitis Media

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Chronic suppurative otitis media is an inflammation of the mucosal lining of the middle ear and mastoid. The disease can be divided into non-specific (chronic suppurative otitis media without cholesteatoma and chronic suppurative otitis media with cholesteatoma) and specific (tuberculosis and syphilis).

Chronic suppurative otitis media without cholesteatoma

This is the residue of an acute suppurative infection usually acquired in infancy or early childhood. Lack of treatment, immunodeficiency and re-infection (either from the nasopharynx or the perforation) allow active infection to persist or recur. In the early stages of the infection organisms such as S. pneumoniae, H. influenzae and M. catarrhalis are present. If resolution does not occur the middle ear becomes colonised by secondary invaders like P. aeruginosa and S. aureus.

Pathology

The perforation of the tympanic membrane can have any size or shape. The ossicular chain is often disrupted due to erosion of the ossicles. Areas of normal pavement cell epithelium may be replaced by columnar secreting (goblet) cells, either by metaplasia or by extension of the mucosa from the Eustachian tube.

Clinical features

- **Discharge**: mucoid, often scanty and usually intermittent but becoming purulent and foul smelling during exacerbations and in the presence of secondary invaders (P. aeruginosa).
- **Deafness**: Usually conductive in type. The degree varies with the size and position of the perforation and whether the ossicular chain is affected. A sensorineural component may also be present.

Treatment

Aural toilet should be performed meticulously under direct vision. Controlled suction under the operating microscope is preferred although a headlight and dry cotton swabs can also be used. A pus swab for MCS can be taken during toilet.

Topical antibiotics are given if the infection is active and. P. aeruginosa should also be covered in the antimicrobial spectrum of the selected drug.

Consider possible ototoxicity of the aminoglycoside antibiotic drops [11.2] and the safety of the quinolones (ofloxacin [15.1] and ciprofloxacin [11.2] drops). The latter drugs are preferred. Systemic antibiotics may be added if indicated (to cover P. aeruginosa). Refer to an ENT specialist for evaluation after completion of treatment.

Chronic suppurative otitis media with cholesteatoma

Aural cholesteatomas are epidermal inclusion cysts of the middle ear or mastoid. They contain the desquamated debris (principally keratin) from their keratinising, squamous epithelial lining.

Pathology

It is generally accepted that cholesteatomas may be congenital or acquired. Squamous epithelium invades and expands within the middle ear. Because cholesteatomas contain keratin debris enclosed in a tissue space, they are subject to recurrent infection (P. aeruginosa or Bacteroides sp.).

Cholesteatomas produce metabolites and cytokines that increase the number and activ-
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Respiratory Diseases

ity of osteoclasts, leading to bone resorption and erosion. As they enlarge, they lead to severe destruction of the middle ear and surrounding structures.

Clinical features

- **Deafness:** Usually conductive, but as the disease progresses the inner ear can also be affected.
- **Malodorous otorrhoea:** Noticed in varying amounts after secondary infection.
- **Perforation:** Situated either in the pars flaccida or marginally in the posterosuperior quadrant of the pars tensa. Adherent flakes or crusts on the tympanic membrane may hide perforations. Keratin may be visible as pearly white sheets. Granulations may be found.

Treatment

- Always refer to an ENT specialist.
- Aural toilet and antibiotics (topical or systemic) for infected cholesteatomas.
- Conservative: When no complication is suspected and if cholesteatoma is small and accessible, recurrent toilet and inspection can be considered.
- Surgery.

Complications of suppurative otitis media

Suppurative otitis media becomes complicated when the infection ceases to be confined only to the mucosal lining of the middle ear and mastoid and spreads into or beyond the containing walls. The earliest complication therefore is an infection of bone. The classical infection of bone is acute coalescent mastoiditis: a breakdown of the bony part of the mastoid air cell walls with conversion of the mastoid process into an acute empyema.

Spread of infection through and beyond the bony confines of the middle ear cleft has grave consequences owing to intimate anatomical relationship with vital structures.

Superiorly, the cleft is separated from the middle cranial fossa only by a thin plate of bone; posteriorly, from the posterior cranial fossa and lateral sinus by a slightly thicker plate of bone.

Medially the round and oval windows offer access to the labyrinth, which, once infected, may allow spread intracranially via the internal auditory meatus.

Complications are usually not common. They are more likely to occur during acute exacerbations of chronic suppurative otitis media with cholesteatoma.

Apart from the three major conditions of brain abscess, meningitis and venous sinus thrombophlebitis, other recognized and formidable complications of chronic suppurative otitis media are extradural abscess, subdural abscess, otitic hydrocephalus, mastoiditis, petrositis, labyrinthitis and facial paralysis.

Specialist referral is both mandatory and urgent when there is any suggestion of development of complications.

Clinical features to look for are: post auricular swelling or abscess, onset of pain in a chronic discharging ear, onset of balance problems, facial palsy, headaches or focal neurological signs.

Summary

Otitis media is one of the most common diseases of childhood and the most frequent disease managed with antibiotics in children.

Acute or recurrent infection of the middle ear may result in a permanent perforation of the tympanic membrane and chronic suppurative otitis media.

Aural cholesteatomas are epidermal inclusion cysts of the middle ear or mastoid. The expansion of cholesteatoma may result in erosion of surrounding structures, which may result in local and intracranial complications.

The widespread use of antibiotics has decreased the incidence of complications. With the emergence of antibiotic-resistant bacteria complications will be seen more frequently. The key to diagnosis is a high level of suspicion.

The primary care physician can manage acute exacerbations of chronic suppurative otitis media with or without cholesteatoma before referral to an ENT specialist. If any suggestion of a complication, refer urgently to a specialist.
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References


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Aetiology

While the that may be actually at most common well for im with the health although the unusual organism include

- Streptococcus
- Haemophilus
- Respiratory
- Atypical pneumonias
- Legionella