

## Chronic suppurative otitis media

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Chronic suppurative otitis media (CSOM) is a stage of ear disease in which there is chronic infection of the middle-ear cleft, i.e. the eustachian tube, middle ear and mastoid, and in which a non-intact tympanic membrane (e.g. perforation or tympanostomy tube) and discharge (otorrhoea) are present.<sup>1</sup> The perforation can result as a complication or as sequelae of acute otitis media, trauma or extrusion or removal of a tympanostomy tube.<sup>1</sup> Prevalence surveys, which vary widely in disease definition, sampling methods and methodological quality, show that the global burden of illness from CSOM involves 65 - 330 million individuals with draining ears, 60% of whom (39 - 200 million) suffer from significant hearing impairment.<sup>2</sup>

### Clinical picture

Patients with CSOM may consult a doctor with one of the following:<sup>2</sup>

- a newly discharging untreated ear
- a persistently discharging initially treated ear
- a recurrently discharging ear
- a discharging ear with headache, fever, dizziness and other danger signs, or
- a dry, perforated eardrum with hearing loss.

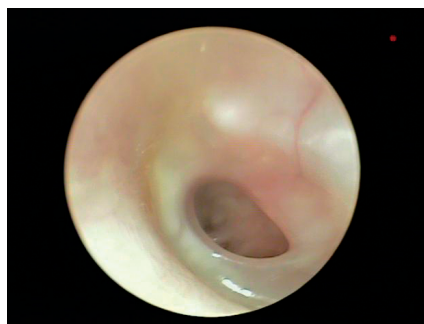


Fig. 1. Central perforation.

The first two conditions can be treated at primary care level, with dry ear mopping and appropriate topical antimicrobials. A swab can be taken to confirm the organisms involved. Referral for specialist treatment is indicated in cases of suspected complications, cases not responsive to treatment or cases of hearing loss (Fig. 1).

### Microbiology

The organisms involved differ from those implicated in acute otitis media and include aerobic organisms, predominantly *Staphylococcus aureus* and *Pseudomonas aeruginosa* (*Proteus* spp. in a local study) as well as anaerobic organisms of which *Peptostreptococcus* spp. occur most commonly.<sup>3</sup>

### Treatment

The aims of treatment are to clear up the otorrhoea, close the tympanic membrane perforation, improve the hearing loss and prevent complications. In a Cochrane review undertaken in 2005, it was found that topical antibiotics are more effective in treating discharging ears with an underlying perforation than either systemic antibiotics or topical antiseptics.<sup>4</sup> The introduction of quinolone eardrops in 1998 heralded a new era in ototoxic treatment, largely replacing gentamycin-containing drops with their well-known ototoxic potential.<sup>5</sup> Surgery is often needed.

### Cholesteatoma

Cholesteatoma is a destructive lesion consisting of keratinising stratified squamous epithelium in the middle ear and/or mastoid. It should be suspected in cases of offensive otorrhoea, cases not responding to appropriate treatment and in those with complications. The definitive treatment for cholesteatoma is surgical, the extent of disease dictating the type of procedure indicated.

### Complications

Although complications have decreased since the introduction of antibiotics early in the 20th century, they continue to occur, and can be lethal if they are not identified and treated properly.

### Extracranial complications

Subperiosteal abscess, also referred to as acute mastoiditis, is the most common complication of CSOM and can occur with or without the presence of a cholesteatoma. The abscess occurs over the mastoid cortex when the infectious process within the mastoid air cells extends into the subperiosteal space. The diagnosis of a subperiosteal abscess is often made clinically. Commonly, the patient will present with systemic symptoms, including fever and malaise, along with local signs, such as a protruding auricle that is laterally and inferiorly displaced, and the presence of a fluctuant, erythematous, tender area behind the ear. A CT scan might be indicated to evaluate the extent of the disease and help in therapeutic planning, exclude intracranial complications or confirm the diagnosis in uncertain cases.<sup>6</sup> Treatment includes incision and drainage of the abscess in conjunction with intravenous antibiotics as well as ear toilet and topical treatment. Whether or not a cortical mastoidectomy should be performed in all cases is controversial. Surgery would certainly be indicated in patients with underlying cholesteatoma, but this may be delayed (Fig. 2).

Other extracranial complications include Bezold's abscess, labyrinthine fistulae,



Fig. 2. Acute mastoiditis.

## More about...

facial nerve paralysis and petrous apicitis (Gradenigo's syndrome).<sup>6</sup>

### **Intracranial complications**

Meningitis is the most common intracranial complication of acute and chronic otitis media. Signs that should increase the suspicion of an intracranial complication include persistent or intermittent fever, nausea and vomiting, irritability, lethargy, or persistent headache. Ominous signs virtually diagnostic of an intracranial process include visual changes, new-onset seizures, nuchal rigidity, ataxia, or decreased mental status. If any of these suspicious or ominous signs occur, immediate treatment and further work-up are critical. Broad-spectrum antibiotics, such as third-generation cephalosporins, should be administered while diagnostic tests are ordered and arranged. A contrasted CT scan or an MRI will show characteristic meningeal enhancement and rule out additional intracranial complications known to occur in up to 50% of these cases. In the absence of a significant mass effect on imaging, a lumbar puncture should be

performed to confirm the diagnosis and to allow for culture and sensitivity testing.<sup>6</sup>

Other intracranial complications are brain and epidural abscesses, lateral sinus thrombosis and otitic hydrocephalus.<sup>6</sup>

References available at [www.cmej.org.za](http://www.cmej.org.za)

### **Management of acute bacterial rhinosinusitis**

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Rhinosinusitis is one of the most common conditions presenting to clinicians worldwide, and can potentially have an enormous and a devastating socioeconomic impact.<sup>1-7</sup> The majority of infections are viral in origin, and acute bacterial infection occurs in only 0.5 - 2% of cases.<sup>1-5</sup> The dilemma and diagnostic challenge are therefore to distinguish acute viral rhinosinusitis (AVRS) from acute bacterial rhinosinusitis (ABRS).

### **Definition**

Acute rhinosinusitis (ARS) is defined as symptomatic inflammation of the nasal cav-

ity and paranasal sinuses of less than four weeks' duration. Inflammation of the paranasal sinuses rarely occurs without associated inflammation of the nasal mucosa, and the preferred term is rhinosinusitis.<sup>1-7</sup> As the focus of this review is ABRS, please see the reference list – an excellent source for definitions of subacute, chronic and recurrent ARS and any related inquiry.

### **Pathophysiology<sup>1-8</sup>**

Whatever the insult, the underlying problem is sinus ostial obstruction. This is usually due to a preceding viral infection. However, a number of host and environmental factors may predispose an individual to the development of ABRS (Table 1).

AVRS occurs via direct contact with the nasal mucosa or conjunctiva, with symptom onset within approximately 24 hours. Most commonly, rhinovirus, influenza and parainfluenza viruses are implicated. Thereafter, infection spreads contiguously or systemically to the paranasal sinuses. Positive intranasal pressures, as generated during nose blowing, are believed to play a role.

Inflammation ensues that results in nasal hypersecretion, mucosal oedema, increased vascular permeability and impaired mucociliary clearance with transudation of fluid into the sinuses and nasal cavity. This in turn leads to impaired drainage and

**Table 1. Factors that may predispose to the development of ABRS**

<b>Host:</b> Immotile cilia syndrome/ciliary dyskinesia Cystic fibrosis Immunodeficiency (congenital/acquired) Allergy Anatomical abnormalities, e.g. severe septal deviation/spurs, nasal polyps, neoplasms, concha bullosa, paradoxically bent turbinates
<b>Environmental:</b> Infectious agents (viral/bacterial/fungal) Irritants: tobacco smoke, noxious chemicals
<b>Iatrogenic/traumatic:</b> Nasal packing Surgery Nasogastric tube Barotrauma Medications Foreign bodies