

# Acute otitis media

**Acute otitis media** (*otitis media acuta*, OMA) is a purulent inflammation affecting the middle ear. This is the most common disease of the auditory system. It has a rapid, sudden onset and occurs most often in infants and toddlers. It usually occurs as part of a catarrhal viral infection as a secondary bacterial infection of the middle ear.

## Epidemiology

The most common occurrence is **in infants and toddlers**, the incidence decreases with increasing age. **On average, up to 75%** of people experience at least one otitis media. **These inflammations are often bilateral** in young children. The earlier the first inflammation occurs, the greater the frequency of its recurrences. The inflammation is usually **preceded by a viral infection of HCD**, which enters the middle ear through the tube or hematogenously.

## Etiopathogenesis

There is now increasing talk of a combined **viral-bacterial agent**.

The most common pathogens that cause OMA are:

- Viruses: RSV, adenoviruses, influenza viruses A and B ;
- *Haemophilus influenzae* ;
- *Streptococcus pneumoniae* ;
- *Moraxella catarrhalis* ;
- *Streptococcus pyogenes (beta-hemolytic)*, *Staphylococcus aureus*

**An infection** can enter the middle ear cavity in **3** ways:

1. From the nasopharynx by way of the Eustachian tube ;
2. Through a perforated tympanic membrane ;
3. Hematogenously (applicable to some viruses)

## The course of the disease

**The disease typically occurs in 4 stages**

1. **Stage of tubal occlusion:**
  - The Eustachian tube closes with inflammation, changes in the middle ear mucosa and exudation occur. The patient complains of a feeling of ear pressure or pressure in the ear. At this stage, we observe a tympanic membrane with a vascular injection, without a reflex, less mobile.
2. **Stádium exsudace:**
  - The patient's symptoms worsen. The volume of the exudate increases and the eardrum bulges.
3. **Stage of suppuration:**
  - There is a purulent exudate in the middle ear, the eardrum is soaked and arched. The patient's pain is getting worse. At this stage, paracentesis must be performed, otherwise spontaneous perforation will occur. After perforation, pus will flow from the ear and there will be relief.
4. **Stage of reparation:**
  - The exudate is resorbed and the pus stops flowing from the ear. Perforation of the eardrum heals with a scar.



Acute otitis media - otoscopic image



Otitis media acute, stage of reparation

## Clinical symptoms

Clinical signs include: otalgia, otorrhoea, fever, sudden onset of restlessness, anorexia nervosa, vomiting or diarrhea. The main difference between OMA and secretory otitis media (OMS) is that the clinical signs of acute OMS are small.

**Supporting factors of the emergence:**

- **systemic** - leukemia, scarlet fever, measles, cancer, DM, allergies, immune disorders;
- **local** - injuries and blood spurts in the middle ear, perforation of the ear drum, hyperplastic constitution of the

middle ear mucosa, inflammatory changes in the nose and VDN, adenoid vegetation...

### Symptomatology:

- As a rule, it is preceded by a severe catarrh of HCD. We observe a feeling of lying down, a throbbing stabbing pain in the ear, an increased temperature. Depending on the intensity of the infection, spontaneous perforation of the eardrum and discharge occurs within hours or days, and pain relief and a drop in temperature occur immediately. According to the stage, the discharge is divided into serous, mucoid, mucopurulent to purulent. Painful pressure on the tragus is not conclusive evidence.

## Forms of OMA

### OMA simplex

- otitis media itself without other general illness.

### OMA suppurativa

- with purulent discharge,
- in infants and toddlers – stormy, high fevers, restlessness, vomiting, diarrhea → it masks the underlying disease, it contributes to the progression of inflammation to the mastoid sinuses,
- in old age, on the other hand, the symptoms are subdued and the inflammation again progresses to the cells.

→ There is a higher risk of complications in both age groups.

### OMA haemorrhagica - viral infection with hemorrhagic discharge

- in influenza viruses,
- bullae with hemorrhagic secretions form in the ear canal and on the eardrum, the exudate in the middle ear is also hemorrhagic,
- toxic neuritis of n. VIII can occur.

### OMA epitympanalis

- the suppurative focus is epitympanal, bones and mucous algae prevent its spread,
- only the pars flaccida of the tympanic membrane is arched,
- significant ear pain projects into the mastoid process, parietal to occipital,
- there is a high risk of complications.

### OMA suppurativa latency

- in infants and young children, when the eardrum is decontoured, thickened, non-transparent, flat (even in the symptom-free period),
- there is latent purulent content in the middle ear, the causative agent is mainly pneumococcus,
- common cause – resistant strains or incorrect ATB treatment.

## Special forms

- **Myringitis acute** – viral inflammation of the outer surface of the eardrum, we observe bullae on the eardrum otoscopically.
- **Secondary inflammations** – in the course of children's exanthema diseases (inflammation, measles).

## Diagnostics

The diagnosis of OMA is established on the basis **of the clinical picture** (conductive hearing disorder) and otoscopic findings.

- Findings on the eardrum: redness, bulging, loss of reflex, soreness when pressing on the tragus.



Acute myringitis

## Differential diagnosis

- Acute exacerbation of chronic otitis media - larger perforation, the mastoid process is not usually pneumatized.
- Otitis externa – hearing is good, the discharge from the ear canal does smell, but the smell disappears with irrigation.
- Diseases in the surrounding area – tooth decay, diseases of the lower jaw, jaw joint, neuralgia n. V.
- General febrile diseases – pneumonia, typhus.

## Complication

 For more information see *Complications of otitis media*.

- Intratemporal:
  - OMS subacute, later chronic,
  - residues after otitis media – atrophy, atelectasis of the tympanic membrane, calcareous incrustation, perforation,
  - mastoiditis, paresis of n. VII, labyrinthitis, hypacusis perceptiva, petrositis.
- Intracranial:
  - otogenic meningitis,
  - subdural empyema, epidural abscess, brain abscess, thrombophlebitis sinus sigmoidei.

## Therapy

- The goal is to alleviate symptoms, speed up the absorption of secretions, cure conductive hearing loss, minimize relapses,
- **initial stages** – nasal drops, paracetamol (analgesic, antipyretic), acetylcysteine, mucolytics, possibly Otobacid® ear drops (corticosteroid dexamethasone, local anesthetic cinchocaine and disinfectant component) into the ear canal,
- **in the stage of suppuration** – paracentesis, culture of secretions, targeted ATB treatment according to culture, possibly Infaal duo® (fluocinolone and ciprofloxacin),
- in a serious condition – broad-spectrum ATB (amoxicillin, macrolides, cephalosporins),
- for recurrent or complicated otitis – parenteral ATB during hospitalization,
- in case of complications, surgery must be considered.

## Links

### Related articles

- Classification of otitis media
- Chronic otitis media
- Complications of otitis media
- Otitis media recidivans ■ Otitis media secretorica
- Hearing
- Acute tubotympanic catarrh

### Source

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