# RELEVANCE OF THE ISSUE OF DIAGNOSIS OF INFLAMMATORY DISEASES OF THE PHARYNGEAL TONSIL

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**Abstract:** Chronic inflammation of the middle ear is a highly prevalent disease. Dangerous consequences of chronic suppurative otitis media (CSOM) include hearing loss and the development of complications associated with the spread of the pathological process to the inner ear and even into the cranial cavity.

**Keywords:** chronic suppurative otitis media, children, review, diagnostics.

Due to the increasing number of complications of CSOM caused by disease exacerbations, objective assessment of the condition of middle ear structures affected by chronic inflammation has become extremely important. Initially, it is necessary to obtain detailed medical history and complaints. In the history of children suffering from CSOM, there are usually frequent episodes of acute respiratory infections complicated by acute and recurrent otitis media, as well as various pathologies of the nasal cavity and nasopharynx.

In most cases, patients with chronic middle ear pathology consult an otorhinolaryngologist because of ear pain, periodic or persistent purulent discharge from the ear, and hearing loss, that is, during an exacerbation of the disease. In the presence of mucositis, the disease course is often accompanied by constant scant mucous discharge, while during exacerbation the nature of the discharge changes. During exacerbation, meso- and epimesotympanitis are characterized by abundant purulent discharge, whereas in epitympanitis the symptoms are less pronounced. The presence of cholesteatoma is accompanied by purulent discharge with an unpleasant ichorous odor. A child may experience pain or a feeling of heaviness in the postauricular region, tinnitus, pulsation in the ear, headache, and possible dizziness. Meningeal and focal neurological symptoms are indicative of an already developing intracranial complication of CSOM exacerbation and require immediate hospitalization.

However, due to behavioral characteristics in children, particularly at a younger age, and possible parental inattention, obtaining a complete clinical picture of the history and complaints during examination can be difficult. Therefore, more effective and easily applicable diagnostic methods are currently required.

Most authors consider otoscopy to be the primary screening method for diagnosing CSOM. Previously, the otorhinolaryngologist’s tools were limited to a head mirror and ear funnel, which did not allow full assessment of the otoscopic picture.

Advances in medical technology have introduced magnifying otoscopes and operating microscopes into routine practice, enabling detailed visualization of the tympanic membrane. High-tech equipment makes it possible to accurately determine the location and size of tympanic membrane perforations or retraction pockets and assess the condition of defect margins (inversion, epithelialization). In cases of large perforations, it allows evaluation of the mucosa of the tympanic cavity, detection of mucositis, granulations or polyps, examination of the ossicular chain and labyrinthine windows, diagnosis of cholesteatoma, suspicion of destructive processes, and determination of the character of middle ear discharge (mucous or purulent), including signs of fungal infection.

A.A. Mironov (2011) and Dementieva N.F., Shilenkov A.A., Kozlov V.S. (2010) described detailed examination of the external auditory canal, tympanic membrane, and middle ear structures using endoscopic techniques with rigid endoscopes at viewing angles of 0°, 30°, and 45°. Endoscopic examination of the nasal cavity and nasopharynx is also performed to exclude nasal septal deviation, determine the degree of adenoid hypertrophy, assess the condition of nasopharyngeal lymphoid tissue and the pharyngeal opening of the auditory tube, and identify other pathologies.

A review of the scientific literature shows that most diagnostic issues in CSOM concern determining the form of the lesion and predicting the disease course. Initially, this problem was addressed using X-ray imaging of the temporal bones in the Schüller and Mayer projections. However, A.Yu. Ivoylov (2011) states that classical radiological methods still used in clinical practice do not meet modern otological requirements due to insufficient information regarding the nature and extent of the pathological process.

Since the 1990s, radiological diagnostics have significantly expanded with the introduction of computed tomography (CT). This method provides highly detailed images of the temporal bone comparable to anatomical sections. According to E.I. Zelikovich (2005), CT of the temporal bone allows evaluation of structures inaccessible to visual inspection and is a noninvasive, morphologically, topographically, and clinically accurate diagnostic method, especially in children. CT can determine anatomical features (anterior position of the sigmoid sinus, low position of the middle cranial fossa floor, high jugular bulb), the condition of the facial nerve canal, inner and middle ear structures (presence of pathological substrate, integrity of the ossicular chain), and detect destructive changes in the walls of the tympanic cavity and antrum.

M.M. Polunin (2012), in an innovative study, clarified the topographic and anatomical relationships of temporal bone structures in children of different age groups by comparing dissection results with CT scans of temporal bone specimens, thereby improving the effectiveness and safety of ear surgeries. V.V. Vishnyakov et al. (2014)

described the use of cone-beam CT in the diagnosis of CSOM, noting its rapid performance and relatively low radiation exposure. However, E.V. Garov et al. (2012) argue that direct densitometric methods make it difficult to determine the exact nature of pathological substrates (cholesteatoma, fibrosis, granulations, exudate, pus, cholesterol granuloma), allowing only indirect assumptions based on secondary tomographic signs.

Magnetic resonance imaging (MRI) enables assessment of soft tissue structures. O.V. Karneeva et al. (2011) emphasize that MRI is preferable in pediatric practice due to the absence of ionizing radiation, unlike CT. Different MRI sequences (DWT1, T2, EPI DWI, non-EPI DWI) are useful for detecting cholesteatoma and its recurrences. CT or MRI of the brain is particularly valuable when intracranial complications are suspected, especially in vascular mode for detecting sigmoid sinus thrombosis.

Additionally, audiological evaluation is mandatory in patients with CSOM. A.L. Guseva (2007) identified mixed hearing loss in 92.7% of patients with epitympanitis and 80.0% of patients with epimesotympanitis, and conductive hearing loss in 72.0% of patients with mesotympanitis.

An interesting diagnostic method proposed by V.P. Shpotin (2013) involves determining ferritin levels in patients with CSOM. Ferritin, an iron-storage protein first described in 1937, exists in tissue and serum forms and is considered a marker of tissue destruction. In a study of 70 patients, ferritin levels were measured in middle ear exudate obtained by lavage, blood serum, and tissues removed during sanitizing surgery. Elevated ferritin levels were associated with prolonged disease and increased when inflammation spread beyond the mucosa with temporal bone destruction, allowing diagnosis and prognosis of complications.

Another noteworthy method, developed by V.I. Sambulov (2003), is a noninvasive technique for diagnosing cholesteatoma based on crystallographic examination of saliva in children with CSOM. Additionally, Anyutin R.G. et al. (2001) proposed assessing treatment effectiveness during CSOM exacerbation by measuring the difference between tympanic and axillary temperatures. Measurements were repeated 5–7 days after treatment initiation; effective therapy was associated with a decrease in temperature difference.

Despite the large number of new high-precision diagnostic methods available for various forms of CSOM, the scientific literature lacks a clearly formulated algorithm for diagnosing disease exacerbations in children.

Thus, it is currently necessary to expand understanding of CSOM in children and modern methods of its diagnosis and treatment.

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