



Optimization of Conservative Treatment of Chronic Purulent Otitis Media

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Received 2nd Jul 2022,
Accepted 3rd Aug 2022,
Online 30th Sep 2022

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Abstract: Chronic inflammatory diseases of the middle ear occupy one of the central places in otorhinolaryngology and, in addition to medical, are of great social importance. This is due to the fact that these diseases are not only one of the most common chronic diseases of the ENT organs, but also one of the main causes of hearing loss and severe intracranial complications that threaten the life of the patient. The prevalence of chronic suppurative otitis media still remains high - 13.7-20.9 per 1000 population and does not tend to decrease. Among the causes of high degree of hearing loss, the share of chronic suppurative otitis media and their consequences - adhesive otitis media accounts for up to 18.5%, and in the structure of the population seeking hearing aid - 23-24%, respectively.

Key words: epitympanitis, attic, retrotympanic air space.

Diseases of the middle ear, being one of the main sections in otorhinolaryngology, are constantly in the focus of attention of clinicians and researchers. This made it possible over the past 2-3 decades to create a fundamentally new methodological base in the field of otiatry, open up new opportunities in diagnosis and surgical treatment of patients. received a special impetus for development microsurgery of the middle ear, in which sanitizing interventions are combined with functional. Along with the active study of pathomorphology, morphogenesis and local mucosal immune responses in chronic inflammation, a special place occupies the development of types of reconstructive interventions and their clinical evaluation functional efficiency.

Etiology and pathogenesis of chronic purulent otitis media.

Chronic suppurative otitis media usually results from previous acute otitis media. It develops only with a combination of three factors: the presence of an infectious agent, a decrease in general and local protective mechanisms and dysfunction of the auditory tube. In this case, the nature of the microflora is of great importance. wide and often unjustified use of powerful antibacterial agents in recent years led to a significant change in the nature of the microflora in chronic purulent otitis media. to replace hemolytic streptococcus, which dominated before, pathogenic antibiotic-resistant staphylococcus came, also found more often in microbial associations. Significantly more often Gram-negative flora is also sown: *Proteus vulgaris* (18-21% of cases), *Escherichia* and *Pseudomonas aeruginosa* (in 16-43%

of cases). characteristic feature otitis media of this etiology is thickening and hyperplasia of secretory elements mucous membrane of the middle ear often with deep destructive changes ear tissues, the role of anaerobes has noticeably increased, which is explained by violations air circulation and a decrease in the partial pressure of oxygen in the resulting closed cavities of the middle ear.

The development and nature of the course of inflammatory pathology are related structural features of the middle ear, consisting in the presence in the epitympanic space of many bridges and narrow spaces formed by folds mucous membrane. The function of the latter is to maintain balance and cushioning excess movements of the malleus head and incus body, which suspended by tendons and ligaments. In the inflammatory process of the mucosal foldshells can completely cover the narrow fistulas of the diaphragm separating the attic from mesotympanum. In such cases, due to the difficult outflow of exudate, inflammation (epitympanitis) takes on a protracted character, and the lack of ventilation of the posterior sector middle ear (attic and retrotympanic airspace) contributes to development of cholesteatoma. In this case, inflammation in the mesotympanum can be unexpressed or even absent.

In response to intratympanic vacuum, which always occurs during dysfunction of the auditory tube, the tympanic membrane retracts, narrowing already narrow passages of communication, transudation and exudation of fluid occur, at first serous (serous-bloody), and then mucous. Prolonged auditory dysfunction tube leads to the development of persistent retraction or the entire tympanic membrane or local retraction pockets in the attic due to thinning of the tympanic membrane due to stretching and malnutrition of the fibrous layer. Retraction posterior segment of the tympanic membrane sometimes imitates perforation, as thinned, devoid of a fibrous layer, the membrane is in contact with the promontorium, enveloping auditory ossicles and deeply invaginating under the tympanic annulus.

Pathomorphology of chronic otitis media

An important feature of the structure of the mucous membrane of the middle ear is its unequal "armament" depending on localization in relation to tympanic mouth of the auditory tube. This is manifested by the difference in the thickness of the mucosa membranes, the height of the ciliated epithelium, the number of goblet cells in it, the width of the lymphoid-plasmacytic barrier. These structures are the least presented in the retrotympanic regions, where inflammation quickly acquires the nature of the purulent due to the low protection of the bone walls of the thin mucosa shell with a poorly developed mucociliary system. Best mucociliary the system is developed near the mouth of the auditory tube (meso- and hypotympanic sections tympanic cavity), where inflammation proceeds as catarrhal or catarrhal-purulent.

The main morphological manifestations of chronic suppurative otitis media are well known, since they are based primarily on morphological data research of operational material. This is caries of bone formations, growth granulation tissue, scarring of the mucous membrane, epidermization of cavities middle ear, development of cholesteatoma. Of particular interest is the comparison of pathological changes atticoantral and mesotympanic parts of the middle ear, which can serve as morphological substantiation of the clinical division of chronic purulent otitis media for epitympanitis, mesotympanitis and epimesotympanitis.

Clinical picture and diagnosis

Diagnosis of chronic suppurative otitis media is simple. It is based on complaints of the patient (frequent or persistent discharge from the ear of purulent or mucopurulent character, sometimes moderately severe pain in the ear and headache on the side of the affected ear, a feeling of aches or pressure in the ear, hearing loss, sometimes noise in it); anamnestic, information (cause of the disease, duration him, remissions, treatment in the past, etc.); otoscopic picture. With otoscopy you can detect a different amount of discharge (from small to abundant, viscous or liquid purulent discharge, sometimes with an unpleasant odor, characteristic for a carious process or suppurated cholesteatoma)

and a defect in the tympanic membranes. Often the handle of the malleus and the lateral wall of the attic are partially or completely absent (destroyed by the carious process). Can be determined granulations emanating from the side of the lateral wall of the attic or the medial wall tympanic cavity. It is often possible to observe the retraction of the preserved part eardrum.

Recent practice shows that the division of chronic middle otitis media into epitympanitis and mesotympanitis can be assessed as conditional, since it cannot serve as a starting point in the treatment tactics of clinicians. Currently the clinical course of purulent otitis media has changed a lot. Rare steel meet rapidly flowing otitis media with profuse purulent discharge, with polyps and large growths of granulation tissue, as well as otitis media with (sub)total destruction of the auditory ossicles and the tympanic membrane. In addition, at chronic purulent mesotympanitis much more often than before, has become a carious process in the attic-antral region, cholesteatoma and fistula of the semicircular canal. This is explained, first of all, by the changed nature of the microbial flora in chronic inflammatory diseases of the middle ear.

One of the main symptoms of chronic suppurative otitis media is hearing loss. The level of hearing loss can be variable. When purulent discharge (exacerbation of the process), it sometimes improves (screen version of one labyrinth windows) or worsens (blockage of both labyrinth windows with exudate or edematous mucous membrane), but over time, hearing acuity gradually decreases. And only rarely can hearing remain little changed.

Vestibular disorders in chronic suppurative otitis media found in about 14% of patients. They may vary in degree severity - from significant to mild. Causes of vestibular dysfunctions can be erosion (fistula) of the bone capsule of the labyrinth, intoxication through the secondary membrane (cochlear window membrane) and endolymphatic secondary hydrops. Vestibular dysfunction dependent on chronic labyrinth intoxication products of inflammation, manifested by mild or paroxysmal dizziness with unstable equilibrium. In such cases, it is necessary to differential diagnosis with VIII nerve neurinoma, arachnoiditis cerebellopontine angle, Meniere's disease, vascular disorders in the system vertebrobasilar basin.

Treatment

On the issue of therapeutic tactics in chronic inflammatory diseases middle ear in the last 1.5-2 decades, an unambiguous approach has developed: surgical treatment is subject not only to chronic purulent epitympanitis, as was considered before, but a significant part of the relatively benign flowing mesotympanitis. Practice shows that conservative measures as an independent method of treatment of chronic purulent mesotympanitis, does not provide stable sanitation of the purulent focus and justifies itself only in rare cases. This is explained by the fact that a long-term inflammatory process leads to the formation of non-aerated pockets, which, on the one hand, supports inflammatory-hypertrophic process, and on the other hand, leads to the development irreversible changes in the middle ear with persistent hearing impairment.

In addition, in a chronic inflammatory process, it is often disturbed, as noted us above, drainage of the cellular system of the mastoid process due to aditus block granulation or scar tissue. For this reason, direct drug effect on the lesion is difficult, and long-term use antimicrobial drugs forms the resistance of pathogenic microflora persisting in the cavities of the middle ear. Because normal functioning, and even more so the restoration of the epithelial cover of the ear in the form respiratory epithelium is possible only in the air, for this reason alone each patient with long-term inflammation of the middle ear should considered as a potential candidate for surgical treatment. However, in connection with the fact that, until now, adequate surgical methods of treatment chronic otitis, for a number of reasons have not received proper distribution, conservative treatment for this pathology remains dominant.

Conservative measures include a number of therapeutic methods impact on three main etiopathogenetic factors: virulence microflora, the state of general and local immunological reactivity, auditory tube dysfunction. Although patients with chronic suppurative otitis media, as usually need general and local treatment, the therapeutic effect is mainly depends on the latter. Favorable outcome of the disease with any method of treatment possible only in the presence of free nasal breathing and the absence of foci infections in the upper respiratory tract.

Of exceptional importance in the complex of local therapeutic measures has a thorough removal of pathological contents from the middle ear. This is achieved with copious secretions by washing the ear with warm with an antiseptic solution or with the help of suction, with scanty secretions – dry method (with cotton wool wound around the probe). Already one thorough exudate removal, which sometimes it is necessary to carry out repeatedly during the day, can contribute to normalization of the mucous membrane.

However, often this procedure is not enough, therefore, they are prescribed antiseptic preparations in the form of ear drops, aerosols or solutions for ear rinsing. For this purpose, 1% has recently become widely used dioxidine solution.

To reduce vascular permeability, leukocyte migration and exudation widely used antihistamines and corticosteroids (hydrocortisone, prednisone). Improving their absorption, as well as other medicinal drugs, reduce the viscosity of exudate and increase local phagocytosis contributes to the inclusion in the complex of therapeutic measures of proteolytic enzymes (lidase, hyaluronidase, chymotrypsin, trypsin, chymopsin, etc.). Can apply them in the form of drops, enter by electrophoresis or endoural ultrasonic phonophoresis.

It must be remembered that almost all long-term applied topically drugs, in addition to positive therapeutic properties, also have shortcomings. For example, the most widely used antiseptic medicinal substances in the form of alcohol solutions with prolonged use lead to the development of gross cicatricial changes, ankylosis of auditory bones, sclerosis of the subepithelial layer. Long-term use corticosteroid drugs leads to a decrease in local immune defense, although their short-term use is advisable, since they relieve hyperergic reactions. Corticosteroid drugs should be given with antiseptics and antibiotics.

There is now an unambiguous approach to prescribing antibiotics. They should be used only during an exacerbation, strictly taking into account the nature microflora and its sensitivity, and only after other means have been exhausted. This reserved approach to antibiotic prescribing is not only due to the changed nature of the microflora in chronic otitis media and its resistance to most antibacterial agents, but also because antibiotics suppress local immunity and sensitize the mucous membrane.

Particular difficulties in the treatment of patients arise when excreted from the ear Gram-negative bacteria (*Proteus*, *Pseudomonas aeruginosa*, *Escherichia coli*, etc.), which are most often sensitive only to ototoxic antibiotics. However, the latter are used quite widely, but always under certain conditions: the cochlear window (round window) must be isolated from the common tympanic cavity with a scar membrane or remnants of the tympanic membrane, and an antibiotic should be used in high dilution and in small quantities. Abroad use standard mixtures such as cortisporin (a mixture of polymyxin, neomycin, hydrocortisone), colimycin (a mixture of colistin, neomycin, hydrocortisone). Sofradex has been widely used in our country and abroad, acting on staphylococcus, *Pseudomonas aeruginosa* and *Escherichia coli*, *Proteus*. However, at long-term use of it, cases of the onset of complete deafness are known.

It must also be remembered that prolonged use of antibiotics, especially local, can lead to the growth of fungi. With otitis media of fungal etiology, it is widely alcohol solutions of resorcinol, nitrofungin, chinisol, fuchsin are used, solution of Castellani and others, nystatin, levorin inside and topically in

the form of ointments. In complex local therapy, to influence granulations, they use silver nitrate, trichloroacetic acid, 2% zinc sulfate solution, 5% solution tannin in glycerin. Large granulations, like polyps, must be removed with a curette or loop.

The general treatment of patients provides for the normalization of the general and local immunological reactivity and stimulation of metabolic processes. With this the purpose is to prescribe immunomodulators (prodigiosan, levamisole, etc.), derivatives pyridine - pentoxyl and methyluracil, vitamins, biogenic stimulants, autohemotherapy. General strengthening physiotherapy procedures are useful.

Parenteral use of antibacterial agents without definition the nature of the flora and its sensitivity to antibiotics with a banal exacerbation of chronic suppurative otitis media is impractical, since the microbial flora is often resistant to most of the antibiotics used. Practice shows that in chronic purulent otitis media, even with their seeming favorable course, conservative measures often are ineffective due to proliferative changes in the ear in the form of blocking small isthmuses and separating narrow, non-aerated spaces inaccessible to the effects of drugs. By this reason, with an unsuccessful 3-4 week course of conservative therapy, it is necessary set up the patient for surgical treatment, but do not search non-surgical methods of treatment, in the form of new antiseptics and physiotherapy methods. The sooner surgical treatment is performed, the greater the chances of complete cure of chronic otitis and restoration (preservation) of auditory functions.

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