

## Thornwaldt cyst - a disease or anomaly

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**Abstract:** *Thornwaldt's cyst is a rare congenital pathology characterized by the formation of a pathological cavity (pocket) in the nasopharynx. Discharge accumulates inside such a "pocket", which in the future becomes inflamed and a focus of purulent discharge is formed. Symptoms of the disease appear irregularly, but only as the discharge accumulates. Diagnosis of a cyst requires instrumental and radiation studies. Treatment - endoscopic removal of Thornwaldt's cyst or excision of the cyst using a surgical laser.*

**Key words:** *Nasopharynx, Thornwaldt's cyst, rhinorrhea, pain.*

### 1. Introduction

The pharyngeal bursa was first described by A. Mayer in 1840. 45 years later, the German physician Gustave Ludwig Thornwaldt (1885) published a symptom complex in the form of its occlusion, cystic transformation with inflammation, which was later called "Thornwaldt's disease". Subsequently, in 1934 K. Huber proved that the formation of the bag is due to anomalies.

### 2. Materials and methods

Thornwaldt cyst is a rare congenital pathology (about 2%), which is characterized by the formation of a pathological cavity (pocket) in the nasopharynx. Discharge accumulates inside such a "pocket", which in the future becomes inflamed and a focus of purulent discharge is formed. Normally, the "pocket" exists in the embryo from the 5th to the 10th obstetric week of pregnancy, then completely disappears. However, sometimes a part of the mucous membrane of the future

pharynx is "pulled" towards the cervical vertebrae, forming a pocket. Thornwaldt's cyst is more correctly called a cyst-like neoplasm of the posterior wall of the nasopharynx, a kind of groove between the rollers of the nasopharyngeal tonsil [5]. It is often completely reduced by the age of 20, but most completely healthy people have a small depression 2-3 mm deep. The walls of the "bag" have an epithelial lining and lymphoid inclusions. The bag is connected with the nasopharynx with a working anastomosis, which provides ventilation and the outflow of mucous secretions.

In rare cases, there is a large cavity without an anastomosis; normally, the outflow of secretion from it occurs through the internal ducts. When the duct is blocked (for example, against the background of swelling of the nasopharynx), mucus, toxins and pathogenic flora begin to accumulate in the isolated cavity. This process is called Thornwaldt's disease, gives severe symptoms and requires a visit to a doctor.

### 3. Main part

The prerequisites for such a phenomenon may be: hereditary predisposition - the presence of similar anomalies or congenital cysts in parents or close relatives; mother's age - pregnancy after 35 years; conceiving a child in a closely related marriage (consanguinity of spouses up to 3 knees); excessive exposure to the body of a pregnant woman of physical factors - sunlight, low temperatures, ionizing radiation; intoxication during gestation; if a pregnant woman has bad habits - alcohol abuse, smoking or taking psychoactive substances; the use of certain groups of medicines - a number of drugs (antibacterial, anti-

clotting and antipsychotics, antineoplastic, hormonal) have a teratogenic (disrupting the development of the embryo) effect; living in an ecologically unfavorable region.

Thornwaldt's cyst is equally often found in men and women.

In fact, a benign cavity often has an anastomosis (exit into the nasopharynx) and does not always lead to any pathological symptoms. However, infection of mucus accumulating in the cavity gives a characteristic clinical picture and creates favorable conditions for chronic inflammatory diseases of the larynx, pharynx and respiratory tract.

Clinical signs of this disease appear irregularly, but only as the discharge accumulates: nasal voice; episodic purulent discharge flowing down the posterior pharyngeal wall (periodicity 3-5 days), nasal congestion, episodic headache, bad smell in the nose, ronchopathy (sleepy snoring), cough.

Pain syndrome, aggravated by muscle tension (when coughing, swallowing, sneezing).

Anterior rhinorrhea is a condition similar to a runny nose, when purulent contents of the cystic cavity flow out of the nasal passages (in the presence of an anastomosis).

Posterior rhinorrhea - pus from the cyst flows down the posterior nasopharyngeal wall, which often brings discomfort, a putrid taste and bad breath (the process is not eliminated by antibiotic therapy) - one of the most characteristic symptoms in the presence of Thornwaldt's bag.

An increase in temperature (often subfebrile - 37-38 degrees), less often up to 38.5 - with concomitant inflammation of the pharynx, larynx, nose, ear.

Voice change (nasal) - due to the pressure of the posterior wall of the nasopharynx on the soft palate. Dry cough and snoring may be signs of Thornwaldt cysts.

A feeling of ear congestion on both sides, "noise", hearing impairment - the symptom is caused by the pressure of the cystic cavity on the Eustachian tube, which connects the middle ear to the pharynx.

In addition, frequent relapses of pharyngitis, eustachitis, tonsillitis, sinusitis, rhinitis.

However, the most common complaint with Thornwaldt's cyst is severe pain in the head (crown and occiput). Taking analgesics can only reduce pain or eliminate it for a short period of time.

Diagnosis of a cyst requires instrumental and radiation studies.

Diagnostic methods: Rhinoscopy - examination of the nasal passages in order to identify purulent discharge, blockage of the lumen of the nose or the Eustachian tube.

Pharyngoscopy - examination of the mucous membrane of the oropharynx, tonsils, allowing to mark signs of posterior rhinorrhea (drainage of pus).

Otoscopy - examination of the outer and middle ear in order to exclude isolated otitis media (with ear congestion).

Rhinoendoscopy is an examination of the nasal passages, which involves preliminary cleansing of the nasal cavity and reducing its edema using vasoconstrictor drugs. An endoscope with an optical device makes it possible to see on the monitor a rounded, moderately dense neoplasm, when pressed on which mucus or pus is released.

CT, MRT, layer-by-layer X-ray examination will reveal a cavity with a size of 5 mm or more, located along the midline of the pharynx, which has clear contours and a smooth inner surface. The cyst fistula will also be visualized - even if it does not function.

MRT of the head or pharynx - allows you to detect the cavity even in the absence of a stagnant or inflammatory process.

Biopsy - a sample of a scraping of the inner membrane of a cyst should be a cylindrical epithelium with inclusions of lymphoid follicles (since a cyst forms at the site of the pharyngeal tonsil, which is part of the lymphoid ring of the pharynx).

Thornwaldt's disease is more often diagnosed at the age of 15-25 - this may be due to hormonal changes and instability of the immune system.

Thornwaldt cyst treatment. Removal of Thornwaldt cysts is often carried out by three main methods:

Classical surgery - requires general anesthesia, the choice of instruments depends on the diagnostic data and the individual characteristics of the patient.

Endoscopic surgery - can be performed under general, endotracheal or local anesthesia. The endoscope is equipped with a video camera and a light source, which allows the doctor to fully control the process on the monitor. For removal, a shaver is used - a microsized instrument that allows you to cut off the walls of the cyst and remove them from the nasopharynx using a vacuum suction tool. Electrocoagulation is used to prevent bleeding and completely remove the base (to prevent relapse) [4].

Endoscopic laser marsupialization - enough application of anesthesia to perform. Blood loss and damage to healthy tissues during the intervention are practically excluded. To destroy the cyst and base, laser-induced thermotherapy ("burning" with a laser) is used.

After surgery, a slight nasal voice may be observed for 5 days. Within 2 weeks after surgery (depending on the technique, the period may be longer), patients are prescribed: antibacterial drugs, limit heavy physical activity, avoid hypothermia or overheating, as well as prolonged exposure to direct sunlight, give preference to warm, coarse food.

The likelihood of complications when removing Thornwaldt's cyst is extremely small. As a rule, the intervention leads to a complete recovery and elimination of symptoms.

Complications and consequences. The long course of Thornwaldt's disease creates a permanent focus of infection in the body and disrupts the process of nasal breathing. The most noticeable complication for the patient is an increasing headache, an unpleasant odor from the nasopharynx.

Preventive measures. Based on the genetic prerequisites for the appearance of a cyst-like neoplasm, it is possible to formulate the following recommendations for pregnant women: rejection of bad

habits, balanced nutrition, taking any medications only after consulting a doctor.

To reduce the risk of inflammation of an existing cyst will help: strengthening the immune system - hardening, physical activity, taking multivitamins;

optimization of the mode of work and rest, minimization of physical and psycho-emotional stress - hypothermia, conflict situations, the implementation of therapy for ENT inflammation under the supervision of a doctor, operations in the nasopharynx (adenotomy - removal of adenoids), scheduled visits to the otolaryngologist.

Thus, Thornwaldt's cyst is undoubtedly a congenital anomaly, with a violation of the outflow of contents and infection, lead to an inflammatory process that requires surgical intervention. Considering the rarity of the detection rate of Thornwaldt cysts, the need to carry out differential diagnosis of many diseases of the nasopharynx, pharynx, ear, neurological diseases, we consider a deep study of this pathology.

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