

## CLINICAL AND DIAGNOSTIC FEATURES OF CHRONIC PHARYNGITIS

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### Abstract

This article describes the problem of chronic pharyngitis. It draws attention to the role of allergies in the formation of chronic pharyngitis as a local manifestation of systemic allergic disease. The study estimates the role of gastroenterological diseases and psychosomatic disorders in the pathogenesis of pharyngitis, and shows that chronic pharyngitis is a multidisciplinary problem. The authors remind of the importance of the detailed anamnesis in the diagnosis of allergic diseases. It was offered a diagnostic algorithm for chronic pharyngitis to allow an individual approach to the treatment of patients with chronic pharyngitis depending on etiopathogenesis, which will improve their quality of life.

**Keywords:** allergy, chronic pharyngitis, diagnostic algorithm, psychosomatic, questionnaire.

## Introduction

Chronic pharyngitis (CP) is one of the most common reasons for a patient's visit to an otolaryngologist [1]. Chronic pharyngitis is rarely an independent disease, because it is a corresponding reaction of the mucous membrane to the influence of both exogenous and endogenous adverse factors. Clinical manifestations vary depending on etiopathogenetic factors. Analysis of the literature establishes the dependence of the manifestations of CP also with the pathology of the digestive, immune systems, cervical spine, endocrine and psychosomatic processes of the body [1, 2].

The development of chronic pharyngitis is influenced by adverse environmental and climatic environmental conditions - dry air, high air temperature, dust, gassiness and dust, exposure to harmful chemicals; smoking and alcohol abuse; disorders of the endocrine system, which provokes hormonal imbalance; diseases affecting the gastrointestinal tract; allergy; caries; too spicy food, etc. [1-3].

In some countries in North Africa and the Middle East, infestations with pharyngitis have been reported. These are the so-called Halzoun and Marrara syndromes, which are caused by microscopic arthropods *Linguatula serrata* [4, 5]. A systematic review by M Keighobadi (2020) discusses allergological and immunological aspects of linguatulosis [5].

The classification of chronic pharyngitis is not perfect enough. In ICD-10 this disease is presented in the following headings [6]:

J 31-chronic rhinitis, nasopharyngitis and pharyngitis;

J31.1- chronic nasopharyngitis

J31.2 chronic pharyngitis (CP).

In the new ICD-11 [7] for CP the following taxonomic units are reserved:

CA09 Chronic rhinitis, nasopharyngitis or pharyngitis

CA09.1 Chronic nasopharyngitis

CA09.2 Chronic pharyngitis

CA09.Y Other current chronic rhinitis, nasopharyngitis or pharyngitis

CA09.Z Unspecified chronic rhinitis, nasopharyngitis or pharyngitis

CA0G Chronic laryngopharyngitis (in the domain "chronic laryngitis or laryngotracheitis")

CA20.1Y Chronic tracheopharyngitis (in the domain "other current chronic bronchitis")

As can be seen from the above, unified approach to the definition of CP still does not exist, which complicates the choice of optimal treatment and rehabilitation strategies.

The aim of the study was to assess the structure of the incidence of CP and to determine the semiotic features of the main pathogenetic variants.

## Methods

The study was performed on the basis of the Department of Otorhinolaryngology of Odessa National Medical University during 2017-2021. 149 patients aged 18-60 years with complaints characteristic of CP were examined.

Inclusion criteria: age over 18, under 60, symptoms of CP (sore throat, burning, feeling of a lump in the throat, discomfort when swallowing)

Exclusion criteria: severe somatic diseases, infectious diseases, mental illness, refusal to participate in the study.

All patients underwent a thorough analysis of complaints and medical history, general examination, rhinoscopy, pharyngoscopy, indirect laryngoscopy. All patients passed allergy tests, a general blood test to decipher the leukocyte formula, and determined the content of reagents (IgE) in nasal secretions, saliva, and oral fluid.

In the first stage, we used our diagnostic questionnaire to reveal the presence of complaints characteristic of chronic pharyngitis, developed on the basis of the GETS throat scale and the questionnaire-questionnaire Sinus-Nasal - Outcome Test 22 (SNOT-22) [8-10]; as well as data on the history of life history (bad habits, working conditions, contact with harmful substances), genetic history - allergy history of allergies (persistent or intermittent forms), comorbidity (AR, asthma, allergic esophagitis), the presence of chronic diseases of the ENT organs and respiratory tract, the presence of chronic diseases of the gastrointestinal tract (GI), especially reflux esophagitis, the presence of psychogenic diseases.

The GAD-7 questionnaire, the PHQ-9 (Patient Health Questionnaire-9 test), and the Hospital Depression Scale (HADS) were used to assess psychosomatic

status [11]. The International Standardized Questionnaire GERDQ was used to determine the risk of GERD [12].

Subsequently, depending on the results of the survey, we identified three groups of patients:

1st group of patients with suspected gastrointestinal disease (37 patients or 24.8% of the sample size);

2nd group of patients with psychosomatic disorders - 32 patients (or 21.5%);

3rd group of patients with allergic nature of the disease - 80 (53.7%) people.

The follow-up period was 12 months.

Statistical processing was performed by analysis of variance using Statistica 13.0 software (TIBCO, USA) [13].

## Results

In patients with confirmed GERD and CP clinic (n = 37) the most characteristic was the complaint of nausea (91.8%), heartburn (86.5%), pain in the upper abdomen (72.0%), swallowing disorders (70 , 0%), sleep disorders (32.4%).

The results of the study of mucus acidity in patients with CP and GERD showed that in the oropharynx (6.7 + 1.2) and larynx (6.0 + 1.1) the acidity of mucus was significantly higher than in the nose (7.8 + 1, 2) and nasopharynx (7.7 + 1.3), ie pH metry of the mucous membrane in the mouth and larynx were significantly low. All patients with confirmed GERD were subsequently treated by a gastroenterologist, using proton pump inhibitors in medication (such as omeprazole).

Patients with psychoemotional disorders reported complaints of a lump in the throat, itching, as well as loss of appetite, irritability, anxiety, nervousness and panic, sleep problems, characteristic of patients with anxiety disorders and depression. At the same time there were no changes from a throat. According to the results of the GAD-7 score of more than 8 points was regarded as "anxiety disorder". According to the results of the PHQ-9 test, 30.3% of patients had mild depression, 42.4% of patients suffered from moderate depression, 15.2% - severe depression, and 6.1% of them - extremely severe depression. According to the results of the questionnaire, patients with a GAD-7 score of more than 10 points and a PHQ-9 score of more than 5 points underwent further treatment by a

psychotherapist, using sedatives in their prescriptions (e.g. benzodiazepines).

We used the SNOT-22 questionnaire to assess the complaints and quality of life of patients with nasal and paranasal sinuses. It allowed to identify the main complaints associated with the presence of CRD , to determine their severity, as well as the psycho-socio-emotional state of patients. The average value of the total number of points on the SNOT-22 questionnaire was 90.5. In 48.3% of patients with chronic pharyngitis there was a constant desire to cut the nose, nasal discharge was noted by 50.3% of patients, nasal congestion 49.7%, the same frequency sneezing - 49.7%, coughing - 51.7% of patients, runoff of mucus in the nasopharynx noted 47.7%, thick discharge from the nose 45.6%, heaviness in the ear 36.9%, dizziness - 18.8%), ear pain - 22.1%, pain in the face - 26 , 2%, decreased sense of smell and taste - 51.0%, problems with falling asleep were in 45.6%, night awakenings were noted by 42.3%, 48.3% of patients did not sleep, other psychological problems were noted by 49% of patients.

As our studies have shown, CP in many patients may be associated with respiratory or food allergies. Respiratory allergy most often manifests itself in the form of seasonal or perennial allergic rhinitis in young people (30.2 ± 3.1 years). And in the older group of patients there was a typical decrease in the incidence of CP. Patients with CP developed on the background of AR had the following complaints: tickling in throat (100% of patients), discomfort in throat (constant 77.5% and 22.5% periodically), pain in throat without clear localization (61 , 3% constantly and 38.7% periodically). In 67.5% of cases with CP on the background of AR patients complained of constant expectoration of viscous mucus and 32.5% of periodic. Foreign body sensation occurred in 35% of cases, cough bothered constantly in 26%, and periodically - in 36% of cases, most often in the morning. Patients with CP in 47.5% of cases noted an exacerbation of the disease during flowering plants and in 51% in contact with house and library dust.

The main significant complaints of patients with CP and food intolerance were: tickling in throat (constant -76.3%, recurrent - 23.7%), pharyngeal pain (constant - 68.8% and recurrent - 31.2%), discomfort in throat (constant in - 87.8%, periodic in - 22.2%),

liquid discharge, expectoration from the pharynx (constant - 67.5%, periodic in 32.5%), cough (constant in 26.3%, periodic - in 36.3%), chest pain (constant - in 28.8%, periodic - in 33.8%), heartburn (constant - in 26.3%, periodic - 36.3 %), belching (constant - 23.8%, periodic - 26.3%), vomiting (periodic - 11.3%), nasal breathing difficulties (constant - 53.8%, periodic - 21.3%), itchy nose (constant - 26.3%, periodic - 53.8%), sneezing (constant - 20.0%, periodic - 52.5%), tearing (constant - 7.5%, periodic - 45, 0 %), olfactory disturbance (permanent - 25.0%, periodic - 53.8%), voice change (permanent - 2.5%, periodic - 18.8%), skin rash (permanent - 5.0%, periodic - 28.8%) and wheezing - 6.2%).

It was established that the majority of complaints of patients had "local" origin and is connected with pathology of a mucous membrane of a pharynx. Along with local complaints, some respondents (22.5% of people) complained of the gastrointestinal tract (abdominal pain, constipation and diarrhea, bloating, rumbling in the abdomen). The following gastroenterological diseases were diagnosed in these patients: eosinophilic esophagitis, chronic gastritis, colitis, peptic ulcer disease, cholecystitis.

Clinical features of CP on the background of allergic rhinitis with sensitization to tree pollen and cross-food allergy with sensitization to household allergens and food products include a more severe course with a number of clinical signs (persistent deterioration of nasal breathing, smell and itching) development of cross-food allergy, exacerbation of allergic rhinitis after the end of the period of plant pollination, increased manifestations of cross-food allergy to fruits during tree care, the presence of allergic rhinitis symptoms in the form of OAS, rhinoconjunctivitis, chronic urticaria, abdominal pain, skin pain consumption of causally significant food allergens.

While examination of the nasal cavity, the color of the nasal mucosa was identical to the color of the nasopharyngeal mucosa. An objective examination of patients with allergic CP shows swelling of the mucous membrane of the posterior pharyngeal wall (65%) with redness (84.4% of patients). In 90.9 -100% of cases there was an overgrowth of lymphadenoid tissue on the posterior wall of the pharynx. The pharyngoscopic picture of patients with allergic CP was characterized by congestive edema of the lateral pharynx and granules on the posterior wall of

the pharynx (95-100%), infiltration of the mucous membrane of the posterior pharyngeal wall (69.7 - 87.9%), pronounced vascular pattern (45%).

Almost all patients with AP had problems with nasal breathing. Thus, in 72.7% of patients nasal breathing was complicated, which was confirmed by objective data using rhinomanometry of anterior rhinoscopy. In general, the addition to CP of allergic rhinitis and cross-food allergy led to significantly more frequent swelling of the mucous membrane of the nasal cavity and pharynx.

The study of the cytological picture of smears from the posterior wall of the pharynx in the dynamics revealed its great variability, which largely depended on the phase of exacerbation or remission of the disease. In the period of exacerbation of CP with allergic genesis in the smears noted the presence of increased amounts compared with healthy individuals of the squamous epithelium located in layers, a large number of eosinophils, hypersecretion of mucus. Among our patients, a significant increase in the number of eosinophils was observed in 77.5% of patients with respiratory allergies and in 41.3% with CP and concomitant food allergies, and an increase in the number of mast cells in 35 and 70% of those examined, respectively.

It should be noted that the relative number of eosinophils in respiratory allergies decreases in the direction of the nose - nasopharynx - oropharynx - larynx. Among patients with CP and cross-food allergy, the relative content of eosinophils, in contrast, increases in the direction of the nose - nasopharynx - oropharynx - larynx - esophagus. This can be used as a diagnostic criterion in the differentiation of respiratory and food allergies in CP.

Positive skin tests were most often registered with allergens for grass weed pollen -  $46.2 \pm 2.1\%$  and cyclahen ( $24.5 + 1.5\%$ ) from all examined patients. In second place in the frequency of hay fever is grass pollen - cereals and crops -  $5.0 \pm 0.9\%$ , respectively. The study of household allergens showed a high percentage (52.5%) of sensitization of varying severity to house dust mites, epidermal allergens - feather pillows (29.9%) and animal hair (18.6%). The structure of food allergies included: apple (67.8%), walnut (24.3%), peach (17.4%), carrot (15.7%), cherry (10.4%), celery (3, 5%).

Patients with various forms of chronic pharyngitis of allergic etiology received treatment. All patients were prescribed second-generation antihistamines for a long time according to the recommendations of ARIA 2016. For food allergies, each patient was given an individual diet that excluded the intake of "guilty" allergens.

Based on the results, we offer the following diagnostic algorithm for chronic pharyngitis:

- 1) detailed anamnesis: complaints, anamnesis of life (bad habits, working conditions, contact with harmful substances); history of the disease; genetic history; allergeanamnesis, which includes information about the time of onset of allergies, persistent or intermittent forms; comorbidities (allergic rhinitis, bronchial asthma, allergic esophagitis, etc.); data on the presence of chronic diseases of the gastrointestinal tract, especially reflux esophagitis, using the GERDQ questionnaire; information on the presence of psychogenic diseases using questionnaires that will detect the presence of somatic status of the patient in the development of anxiety and depression (GAD-7) scale, test PHQ-9 (Patient Health Questionnaire-9), as well as assess the condition of the nose and sinuses (Snot-22);
- 2) clinical examination, with emphasis on the condition of the pharynx, nose and larynx;
- 3) examination of pharyngeal mucus for cell composition in different parts of the pharynx;
- 4) nasocytogram;
- 5) The complete blood count (CBC) with evaluation of the leukogram
- 6) general and, if necessary, specific IgE;
- 7) pH metry of saliva in different parts of the pharynx;
- 8) consultations of specialists - gastroenterologist, psychotherapist and allergist - identification of causally significant allergens (food and / or respiratory) associated with impaired oral tolerance, etc.

### Discussion

Chronic pharyngitis is a multidisciplinary problem that requires a comprehensive study involving modern diagnostic capabilities. Allergic form of CP is a local manifestation of systemic allergic disease,

which is virtually undetectable and not taken into account in static treatment, masked by various other diagnoses, and, accordingly, is not treated with adequate anti-allergic approaches and tools.

The developed diagnostic algorithm allows to detect the nature of chronic pharyngitis with a high probability. The use of a diagnostic algorithm at an early stage of diagnosis revealed that most patients with complaints characteristic of chronic pharyngitis have an allergic nature of the disease. This group of patients requires further examination by an allergist, which gives grounds to use etiopathogenetic treatment.

### Conclusions:

1. Chronic pharyngitis is a multidisciplinary problem that requires the involvement in the diagnostic process of specialists of various profiles (otorhinolaryngologists, gastroenterologists, specialists in psychosomatic medicine)
2. The frequency of chronic pharyngitis of allergic origin exceeds 50%
3. The developed diagnostic algorithm allows to determine the etiology of CP and the optimal etiopathogenetic treatment

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Table.1 Results of skin prick tests with pollen allergens in patients with AF and AR

Allergen	Total number of samples	Number of positive samples					
		++++	+++	++	+	+-	-
		B % ± m	B % ± m	B % ± m	B % ± m	B % ± m	B % ± m
Mixed allergen No. 1 (pollen of birch, hazel, alder, oak)	80	0	3 3,7±0,4%	2 2,5±0,5	0	0	93,8±3,9
Mixed allergen No. 2 (pollen from hedgehogs, foxtail, bluegrass, fescue, ryegrass)	80	3 3,7±0,4	2 2,5±0,5	0	0	0	93,8±3,9
Mixed allergen No. 3 (pollen from campfire, wheatgrass, rye, timothy grass)	80	2 2,5±0,5	2 2,5±0,5	0	0	0	95,0±3,2
Mixed allergen No. 4 (pollen of ragweed, wormwood, quinoa, sunflower)	80	11 13,8±1,7	12 15,0±1,9	7 8,7±2,1	7 8,7±2,1	0	53,8±3,1
Acacia	21	1,2±0,6	3,9±1,1	5,4±1,4	12,5±2,1	1,6±0,8	75,5±2,7
Chestnut	21	1,9±0,8	3,1±1,1	5,8±1,5	5,1±1,4	1,6±0,8	82,5±2,4
Linden	21	0	0	0,4±0,4	0,4±0,4	0,4±0,4	98,8±0,7
Cyclachena	33	1,2±0,7	3,9±1,2	5,4±1,4	12,5±2,1	1,6±0,8	75,5±2,7
House dust mites (mixed)	80	3 3,7±0,4%	33 41,3±2,7%	4 5,0±0,7%	0	0	47,5±2,5%
Feather pillows	80	12 15,0±1,6%	5 6,2±0,5%	5 6,2±0,5%	2 2,5±0,5%	0	70,1±2,2%
Animal fur	38	3 3,7±0,4%	5 6,2±0,5%	5 6,2±0,5%	2 2,5±0,5%	0	81,4±0,5%