Changes in Blood Counts of Patients with Chronic Atrophic Rhinitis

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Abstract

Chronic atrophic rhinitis among all ENT organ diseases happens in 10% of cases. This process is very rarely diffuse and mainly from an ailment, the nasal cavity and nasopharynx are sometimes tracheal membranes. The aim of the study was to study the indicators of a general analysis of blood, iron and ferritin in the blood. A study was conducted of 20 people with a diagnosis of atrophic rhinitis. After the initial reaction, expressed in the form of increased bone marrow production, a significant predominance of lymphocytes sets in again.

Based on this, it can be concluded that a degenerative shift with an increase in the number of lymphocytes should apparently indicate a chronic infectious irritant.

Keywords: *Subatrophy, crusts, ferritin, iron, neutropenia.*

Introduction

It is probably impossible to find a person in the whole world who would not know what a runny nose is, although [1]this is a fairly common occurrence.[3] Very few treat the common cold, and in vain, because one of the complications of this disease can be atrophic rhinitis[6], which implies an inflammatory disease of the nasal cavity and nasopharynx [9]. The occurring changes in the nasal mucosa are dangerous, and can lead to further changes in bone tissue[2]. The causative agents of atrophic rhinitis are infections, which indicates a negative effect on the body[3]. Subatrophic rhinitis occurs in 10% of patients with chronic diseases of the nasal cavity, and is characterized by a prolonged course, unexpressed symptoms of dryness and itching in the nose, and difficulty breathing[11]. Chronic diseases can provoke this condition. Chronic subatrophic rhinitis occurs due to endogenous and exogenous factors[15]. Diseases of the gastrointestinal tract, genitourinary and nervous systems are common causes[13]. They contribute to the development of pathogenic (pathogenic) microflora, the accumulation of cell breakdown products in the body. In this case, the regulation of restoration of the epithelium of the nasal cavity is disrupted, the cells begin to be replaced by connective tissue[16]. The atrophic process is very rarely diffuse.

The nasal cavity and nasopharynx sometimes suffers from an condition is inherent in the lake, when all layers of the wall of the nasal cavity are deeply affected. With subatrophic rhinitis, epithelial cells undergo mainly dystrophic changes, their number sharply decreases, they are unable to secrete a sufficient amount of protective mucus. Atrial epithelium loses its excretory function[9], and its pH (acidity) rises, which contributes to the development of pathogenic microbes [14]. Clinical signs of the disease develop gradually and at the same time, a bacterial runny nose worsens.[4] Mucous secretions acquire a purulent appearance (green color). Thickening occurs, the formation of crusts and the blood supply to the mucous layer is disrupted, degenerative changes in the tissues begin[7]. One of the leading causes of chronic atrophic rhinitis is long-term exposure to various environmental factors[8], which is especially important for residents of ecologically unfavorable territories, as well as for workers of harmful industries[14].

The main clinical manifestations of the disease occur with prolonged inhalation exposure to industrial factors, such as wood, coal dust, gaseous products formed during the cooking of metals, processing of petroleum products, etc. It is known that after 2-3 years of working in harmful production, workers note the appearance of typical symptoms of chronic atrophic rhinitis. Subjective

complaints are confirmed by objective research data: a decrease in the speed of mucociliary transport (saccharin test), a decrease in the temperature of the mucous membrane of the anterior divisions of the nasal septum, a violation of secretory function (a test with weighing) is determined. The main clinical manifestations of chronic atrophic rhinitis include a feeling of dryness in the nasal cavity, itching and abundant formation of dry crusts, which are found not only in the anterior, but also in the posterior part of the nasal cavity (differential diagnosis with anterior dry rhinitis). The fetid smell that bothers some patients is probably due to the presence of specific bacteria.

The sense of smell is impaired, weakness, anemia, and panic attacks occur periodically due to repeated episodes of nosebleeds[15]. Prolonged constant irrigation and adverse microclimate can lead to further damage to the structures of the nasal cavity, up to perforation of the nasal septum [17]. The disease is often associated with similar atrophic processes in the pharynx. Diagnosis of chronic rhinitis is based on the patient's subjective complaints and objective examination data (including endoscopy of the nasal cavity). For the purpose of differential diagnosis, it is necessary to perform allergological studies (test panel), make a seeding of the separated nasal cavity to determine the flora and sensitivity[1], as well as conduct computer tomography of the paranasal sinuses (to exclude pathological foci in the paranasal sinuses, the initial manifestations of some autoimmune diseases)[6]. Equally important is a violation of the blood supply to the mucous membrane of the nasal cavity, often associated with age-related changes. Diseases such as heart disease, pulmonary emphysema, tumors of the chest cavity, which make it difficult to drain blood from large veins and develop congestion in the mucous membrane of the upper respiratory tract, also play a large role in the development of atrophic rhinitis. The development of this disease can provoke prolonged use of vasoconstrictor nasal drops.

An important role is assigned to the hereditary factor. Separately, it should be said about the development of atrophic rhinitis in children. Teenagers are at risk during puberty, especially girls. Most likely, this is due to sharp hormonal bursts in the body, as well as vitamin deficiency and a decrease in immune resistance. As international medical experience shows, all atrophic processes in the body are interconnected. Therefore, together with damage to the nasal mucosa, they can detect similar processes in the esophagus or stomach.

The aim of the study was to study blood counts in patients with chronic atrophic rhinitis.

Materials and Research Method

In the clinic of the Samarkand Medical Institute from 2017 to 2019, 20 people were examined, of which 11 men and 9 women with a diagnosis of chronic atrophic rhinitis aged 15-70 years. Patients were divided into 2 groups. The first group of patients was 9 patients, after surgical interventions on the septum and nasal cavity. Complained about the formation of crusts in the nose, atrophy, dry mucous membrane, weakness, respiratory failure. The second group of patients was 11 patients who had not previously been operated on on the nasal cavity and nasal septum. Complained of dryness and crusting of the nose. All of them had signs of atrophic lesions of the nasal cavity, but had not previously been on an outpatient appointment with an otorhinolaryngologist.

The patient underwent a study of a general analysis of blood, iron, and ferritin in the blood. As a rule, a study of plasma for iron and ferritin is carried out from 8 to 10 in the morning. The analysis is given on an empty stomach. The day before the blood sampling, you should refrain from eating fatty foods and drinking alcohol. It is performed in conjunction with studies on hemoglobin, transferrin, total iron binding capacity of serum (OGSS) and ferritin. The results are needed to detect iron deficiency, diagnose and monitor the treatment of anemia, hereditary hemochromatosis, infections, systemic inflammatory diseases and malabsorption of substances in the intestine. Blood sampling is performed from a vein. Within 30 minutes before the fence, you need to refrain from smoking and physical activity, to avoid feelings and emotional stress. To get the correct results 7-10 days before the blood donation, it is necessary to stop taking food supplements and medicines containing iron.[6] The study is carried out by the colorimetric photometric method (with ferrozine). Normally, in men, the iron content in serum is 11.6–31.3 μmol/L, in women - 9.0–30.4 μmol/L [7].

The term of the analysis does not exceed 1 business day. The determination of iron is carried out by the colorimetric method, often using ferrosin[2]**.** Diagnosis of chronic rhinitis is based on individual patient complaints and objective examination data, including endoscopy of the nasal cavity [3].Taking into account one of the main links in the pathogenesis of atrophic rhinitis the principles of treatment are formulated: 1) stimulation of

local and General blood circulation, i.e. increased supply of the mucous membrane with nutrients; 2) moistening of the nasal mucosa and preventing the formation of crusts; 3) combating local pathological microflora.

One of the main points is the systemic effect on the trophism of the nasal mucosa is considered mandatory, but this is a ineffective method of treating atrophic processes. Some authors recommend irrigation with infusions of medicinal herbs (sage, calendula flowers, walnut leaves, tree aloe), often recommend peach, olive oil, retinol acetate and other oil drops.

Results of the Study

Summarizing and summarizing the data of the blood picture, we can reduce them to the following: the total number of leukocytes in 57.5% of cases was normal, in 25% there was little expressed leukocytosis and in 17.5% some leukopenia. The neutrophilic group of leukocytes was characterized by a decrease in the percentage and was characterized by degenerative forms of both segmented cells and stab cells. The number of rod-shaped in most hemograms was reduced and only in 12 cases, slightly increased, although degeneration was quite pronounced. The number of eosinophils in the overwhelming majority of patients 64% was normal in others, but it gave some fluctuations in one direction or another. The number of monocytes, with few exceptions, did not have any particular deviations, but it is difficult to note a certain regularity in the changes in their percentage content on our material.

Analyzing the hemograms of patients with atrophic rhinitis shown here, we tried to find any relationship between the clinical picture of the disease and blood changes. The most interesting in our material is the fact that the number of neutrophils appeared to be significantly lower than the average norm. Any irritation produces a functional change in the leukocyte formula. The longer and more intense the irritation, the more it acts on the leukopoietic organs**.**

Table 1: Revealed altered hemogram parameters in patients with atrophic rhinitis

	Leukocytosis	**Lymphocytosis**	**Ferritin reduced less than 10 ng/ml**	**Fe in the blood is reduced less than 5.83 µmol/l**
1 group (n= 9)	7	6	8	9
2 group (n =11)	8	7	11	11
Total 20	**15**	**13**	**19**	**20**

As can be seen from table 1 in the first group of patients, characterized by more vivid clinical phenomena and the duration of suffering, the decrease in the number of segmented and the presence of a shift is presented more sharply. Obviously, the irritation that caused these changes had a depressing effect on the production of the neutrophilic moiety. In the second group with less pronounced clinical symptoms, the irritating moment probably did not cause this oppression, and we have some neutropenia with a slight shift or normal blood counts.

In the study of serum iron in the blood in all examined patients, we revealed low rates. Normally, in patients, normal values of iron for an adult patient are indicators from 5.83 to 34.5 µmol/L. In 11 patients, the indicators were in the range of 4.35 µmol/L, in 9 patients 6.35 µmol/L. A certain degenerative shift in these sufferings indicates the constancy of the cause acting on the body. Under physiological conditions, ferritin reflects the iron content in the blood. So 1 µg/l of blood ferritin corresponds to 8 mg of deposited iron. In 2 groups of patients, a decrease in blood ferritin below 10 ng/ml was also noted.

Two large systems, the opposite in nature of the lymphocytes and ferritin in the blood, are closely related to each other. With a decrease in the total number of leukocytes with neutropenia and a degenerative shift, lymphocytosis occurs, and against this background, a decrease in iron and ferritin in the blood is detected. A certain degenerative shift indicates the constancy of the cause acting on the body. The absence of a neutrophil core shift always speaks against infection.

In the aforementioned disease, after the initial reaction, expressed in the form of increased bone marrow production, a significant predominance of lymphocytes sets in again.

Conclusion

Based on this, it can be concluded that a degenerative shift with an increase in the number of lymphocytes should apparently indicate a chronic infectious irritant. But less pronounced changes not only do not exclude infection, but confirm our conclusion by the fact that the infection, which is an irritant, has not yet acquired the significance of a chronic factor in these patients due to certain conditions. Although in patients with chronic atrophic rhinitis, a decrease in iron and ferritin in the blood is also observed, which basically can and is the main factor causing the formation of dryness and crusts in the nose.

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