

The Autoimmune Rheumatic Disease and Laryngeal Pathology

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ABSTRACT

Voice disorders constitute one of the autoimmune pathological conditions characterized by dysfunction of the system of many organs. The pathology of the larynx in this disease has an autoimmune nature; it is very diverse and poorly studied. The purpose of this work, based on the analysis of relevant literature publications, was to study the clinical manifestations of autoimmune rheumatic disease affecting the larynx. "Bamboo knots" on the vocal folds are a rare manifestation of autoimmune diseases of the larynx. In the available literature, we found references to 49 cases of this condition. All the patients were women with autoimmune diseases. This review highlights the problems associated with the etiology of "bamboo nodes" on the vocal folds and the method of treatment of this condition.

One of the manifestations of autoimmune diseases, the steady growth of which is registered at the present time [1], is a violation of the voice. The analysis of the domestic and foreign literature showed insufficient coverage of issues related to the connection of AZ with the pathology of the larynx.

According to statistical studies conducted in Russia in recent years, there is an obvious increase in the prevalence of rheumatologically pathology. Thus, during the period from 2000 to 2006, the incidence of rheumatoid arthritis (RA) increased from 237.9 to 249.6 cases per 100,000 adult population of Russia. The prevalence of systemic connective tissue diseases such as systemic lupus erythematosus (SLE), systemic scleroderma (SSD) and systemic vasculitis (SV) increased from 37.0 to 39.5 per 100,000 adult populations. According to epidemiological data of the Russian Federation for 2005, the number of patients with RA was 610.0 per 100,000 populations; the number of patients suffering from SLE, SV, SSD was 120.0 per 100,000 adults [1]. About 8 % of the world's population suffers from AZ, including more than 100 nosological forms [2].

AZ is conditionally divided into organ-specific and organ-specific (systemic). An example of organo-nonspecific AZ is autoimmune rheumatic diseases (ARD). ARZ is a heterogeneous group of human immuno-inflammatory diseases, including RA, SLE, SSD, SS, idiopathic inflammatory myopathies, antiphospholipid syndrome and SV [2]. All these diseases are characterized by multiple organ damage and a variety of clinical manifestations [3-5], significant prevalence in the population, and the complexity of early diagnosis [2, 6].

It should be noted that women are more likely to suffer from ARZ. According to a number of authors, women suffer from SLE 8-10 times more often with a predominance of women of childbearing age [3, 5]. Sjogren's syndrome develops in 5-25% of patients with ARZ. According to Russian literature, this syndrome is detected in women 10-25 times more often than in men.

The disease debuts at the age of 20-50 years [3, 7]. According to foreign authors, women aged 20-30 years are mostly ill with SH. In the USA, Sjogren's syndrome is the second most common rheumatic disease. So, secondary SS occurs in almost 30% of RA patients, in 10% of patients SLE [8]. RA women get sick more often than men in 2-5 once; the disease is most often detected in 40-50 years [3]. It was noted that the incidence of the disease increases with age, and the sex difference in morbidity among older people decreases [9].

Attention is drawn to the fact that, according to the literature, the frequency of laryngeal pathology in ARD varies in a significant range from 2 to 70% of cases [3, 7, 10-12].

Dysphonia is often the first and for a long time the only symptom of systemic connective tissue disease [13, 14].

The aim of the study is to study the manifestations of autoimmune rheumatic diseases in the larynx based on the analysis of literature data.

According to a study conducted in 2011 by L. Sanz, J. Sistiaga et al. [11], the prevalence of dysphonia among subjects suffering from RA, SLE and SH reaches 32-38% compared to the control group (5-8%). Most often, vocal disorders were noted in patients with SLE, and in second place were patients with RA.

N. Roy, K. Tanner et al. [12] in 2015, as a result of a statistical telephone survey of 100 people suffering from RA, 35% of respondents revealed long-term dysphonia. At the same time, a significant influence of dysphonia on the quality of life of the survey participants was determined, but only 37% of them had ever sought professional help from otorhinolaryngologists.

The pathology of the larynx that occurs in ARZ is diverse. Yu.E. Stepanova et al. [15] emphasize that such clinical manifestations as infiltrates of the subclavian department, necrotic laryngitis, bamboo nodules are pathognomonic for this pathology, and functional dysphonia, nodules of the vocal folds are related to non-pathognomonic manifestations of AZ. SH is characterized by the development of subatrophic or atrophic laryngitis [3, 7, 8]. Patients note dry cough, hoarseness, aggravated in cold weather, sore throat, difficulty swallowing, a feeling of dryness in the nasopharynx [7, 8]. With SLE and SV, ulceration and inflammation of the mucous membrane and cartilage of the throat, motor disorders, subclavian stenosis may occur [3, 16]. In patients with RA, inflammation of the laryngeal mucosa, myositis, impaired mobility of the nasal folds due to damage to the cartilage and joints of the larynx up to the development of ankylosis, rheumatoid nodules of various localization are detected [9, 17].

From 12 to 27% of patients with diagnosed RA (and according to some data more than 70%) complain of dysphonia of varying severity. This may be due to damage to the cartilage and joints of the larynx, as well as to the appearance of rheumatoid or bamboo nodules of the vocal folds [10, 18]. In one observation, in 50% of patients suffering from RA, laryngeal pathology was the only manifestation of this AZ [13].

One of the rare laryngeal findings in AZ is the bamboo nodules of the vocal folds. For the first time, the presence of so-called submucosal rheumatoid nodules in the larynx was described by R. Raven et al. [19] in 1948, Y. Hosako et al. [20] in 1993, unusual inclusions in the thickness of the vocal folds in a 28-year-old woman suffering from SLE were compared with bamboo nodules, and in 2001 E. Murano et al. [21] the term "bamboo nodules" was proposed to denote these changes in the vocal folds.

In the literature, bamboo nodules are described as white or creamy-yellow formations up to 3 mm long and up to 1 mm wide, symmetrically (or asymmetrically), vertically (sometimes longitudinally) located in the thickness of the leaf folds. Bilateral lesion of the vocal folds is

characteristic. At the same time, localization in various parts of the vocal folds is possible [22-24]. There are reports of multiple bamboo nodules of vocal folds [15, 23].

From a histological point of view, bamboo nodules are described as linearly arranged granulomas with a zone of central necrosis surrounded by macrophages [24], as fibrinoid necrosis surrounded by a rim of histiocytes [25]. K. Izdebski et al. [14] described the histological picture of bamboo vocal nodules as zones manifested by eosinophilia, surrounded by fibroblasts, histiocytes and multinucleated giant cells, which is a granulomatous process, characteristic of autoimmune diseases.

The formation of bamboo nodules of vocal cords has been described in SLE, SS, Sjogren's disease, RA, SSD, autoimmune hepatitis, Hashimoto's thyroiditis, Sharpe syndrome, Charge—Strauss syndrome, and undifferentiated systemic diseases.

In the literature available to us from 1948 to 2016, there is a description of 49 cases of identified bamboo nodules of go-los folds [14, 15, 19-21, 23-37], of these, 21 cases in RA, 10 cases in SLE, 9 cases in undifferentiated systemic diseases, 2 cases in SS, 3 cases in mixed systemic diseases of connective tissue, 2 cases of SSD, 1 case of disease Sjogren, 1 case of Charge—Strauss syndrome.

Currently, there is no clear consensus on the etiology of bamboo nodules of vocal cords. Two possible causes are considered: an autoimmune process or the result of mechanical trauma of the vocal folds.

According to the authors, the asymmetry of the bamboo nodules of the vocal folds, the presence of AZ or a high titer of antibodies in all patients, the absence of signs of disorganization of the vascular pattern of the vocal folds in the area of inclusions, detected when NBI-endoscopy, evidence in favor of autoimmune etiology. The presence of excessive vocal loads in some patients with AZ indicates the importance of mechanical trauma of the vocal folds in their etiology [14, 22]. The detection of bamboo nodules in the middle parts of the naked folds may indicate the role of phonotravity in their occurrence [24].

The issue of management tactics for patients with bamboo nodules of the vocal folds remains debatable. Most researchers agree that there are currently no standard schemes for the treatment of this condition [30]. Both conservative and surgical treatment is possible [10].

The works of some foreign authors testify to the expediency and effectiveness of surgical treatment in the absence of positive dynamics against the background of conservative treatment of bamboo nodules of the vocal folds. Thus, C. Schwemmler, H. Kreipe et al. [25] showed the effectiveness of surgical removal of bamboo nodules of the vocal folds followed by a course (20 sessions) of phonopedic treatment for several months in a 43-year-old patient suffering from mixed collagenosis. The patient was able to return to work as a primary school teacher. The previous therapy in the form of 4-fold injections 1 time a week into the vocal folds of prednisone (5 mg) did not bring a marked improvement in vocal function. In the future, repeated phonopedia courses during the year contributed to the improvement of the voice in this patient [25].

K. Izdebski, R. Cruz in 2016, describing 3 cases of bamboo nodules of the vocal folds, noted the ineffectiveness of conservative treatment of laryngeal pathology, including hormonal and phonopedic therapy, in two cases. In this regard, a 31-year-old patient suffering from polyarthritis in combination with Raynaud's phenomenon was excised lesions of the vocal folds. As a result of the surgical treatment, a significant improvement in voice quality was achieved, which was also recorded 12 months after the operation. In the second case (a 68-year-old woman suffering from RA), the question of the expediency of surgical treatment is resolved.

At the same time, there are data in the literature on the effectiveness of hormone therapy [27]. E.

Hilgert and co-author [30] in their work, using the example of three patients with bamboo nodules, described the effectiveness of phonopedic therapy of laryngeal pathology in AZ. According to a number of authors, the basic therapy of the underlying disease is of great importance in the treatment of voice disorders in patients with ARD [21, 22]. E. Murano et al. [21] expressed the opinion that it is preferable to carry out conservative treatment, including hormonal therapy, restriction of vocal loads and phonopedic correction in combination with basic therapy of the underlying systemic disease, and surgical treatment can be applied if it is necessary to restore the voice function as soon as possible, provided that stable remission is achieved by AZ. The authors emphasize that effective therapy of the underlying disease makes it possible to prevent relapses or the appearance of new bamboo nodules of the vocal folds.

Conclusion

Thus, the manifestations of ARZ in the larynx are quite diverse. One of the rare pathologies of the vocal folds are bamboo nodules. The analyzed domestic and foreign literature describes 49 cases of bamboo nodules of vocal folds. In 100% In most cases, these were female patients suffering from AZ. The professional activity of the majority of the surveyed was associated with excessive voice loads. Bamboo nodules are transverse or longitudinal formations of creamy white or creamy yellow color up to 3 mm long and 0.5-1 mm wide, located in the thickness of the vocal folds; bilateral lesion is characteristic. It is possible both symmetrical and asymmetric their location in the thickness of the vocal folds with localization in different departments. Bamboo knots can be single or multiple.

The etiological aspects of this pathology of the larynx have not been sufficiently studied. There is no single concept in the treatment of bamboo nodules of the vocal folds.

Understanding the laryngeal manifestations of ARZ increases the diagnostic capabilities of clinicians and makes it possible to achieve optimal therapeutic effect, high-quality rehabilitation of patients.

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