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# MORPHOCLINICAL ASPECTS OF THE FRONTAL SINUSES (literature review)

***Abstract.*** *The article deals with modern data concerning sickness rate of the frontal sinuses associated with variability of their structure and diversity of clinical manifestation of pathological processes in them.*
***Key words:*** *frontal sinus, nasal sinuses, nasal cavity, anatomy, human.*

**Introduction.** At the beginning of the XXI century pathology of the upper respiratory passages constitutes a considerable part of all chronic diseases of the human airways. Chronic inflammatory processes of the mucous membrane of the nasal cavity, nasal sinuses and pharynx belong to the most wide-spread diseases of the upper respiratory tract. In recent years the sickness rate of the diseases of the nose and nasal sinuses has increased considerably both in absolute numbers and their share in the structure of general ENT pathology [1].

Pathology of the nasal sinuses constitutes one third in the structure of ENT sickness rate. Among nasal sinuses diseases most often occur in the maxillary sinuses and ethmoidal labyrinth; frontal sinuses are afflicted less, although inflammatory process in them is more severe and very often is associated with severe intraorbital and intracranial complications. Severity of the course is explained by a considerable variability in the structure of the frontal sinuses and diversity of clinical manifestation of pathological processes in them. Moreover, frontitis (frontal sinusitis) can cause affliction of different internal organs, nervous system, result in allergic reactions in the body and inhibition of immunity. Variable forms and location of intranasal structures can promote occurrence and development of chronic sinusitis since they provoke narrowing of the nasal passages and disturbance of the nasal sinus ventilation [2-4].

Close anatomical relation of the frontal sinus and ethmoidal bone labyrinth promotes practically continuous involvement of the ethmoidal cells into inflammatory processes in case of frontal sinuses and vice versa [5, 6]. The ethmoidal labyrinth located in the ethmoidal bone is formed by the aggregate of the air cells, which size, amount and location are very much variable. Depending on the degree and peculiarities of development of the ethmoidal labyrinth cells they can penetrate into the major nasal sinuses. The cells penetrating into the frontal sinus are called frontal ones. Frontal cells in case of inflammation can cause disorders of aerodynamics and mucociliary clearance in the ehtmoidal funnel promoting development of chronic inflammatory process in the frontal sinus [7, 8].

Individual anatomical peculiarities in the structure of the frontal sinuses, considerable dependence on the condition of the nasal cavity structures (osteomeatal complex, nasal septum, nasal turbinate, etc.), variability of the symptoms, difficulties of examination and treatment are indicative of the necessity to improve traditional methods and work out new ones, and the methods to diagnose sinusitis [9]. Nowadays to improve the diagnostic search ENT specialists have the whole set of modern methods including spiral computed tomography, computed craniometry, magnetic-resonance tomography, laser spectroscopy, 3D-technologies, etc. [9-16]. Meanwhile, the investigation of morphologic-functional peculiarities of the frontal sinus and its structural elements is not complete today. A comprehensive morphological examination of the mucous membrane of the frontal sinus and its

glands is a topical issue nowadays. Cysts of the frontal sinuses are described in scientific literature in the form of single publications that do not always correspond to the pathology indicated, and clinicians more frequently describe cases of muco- and pyocele of the frontal and ethmoidal sinuses and dermoid cysts. Moreover, the pathology indicated is very seldom evidenced by morphological examinations of surgical findings. In recent years the diagnosis of frontal sinus cyst has become more frequently evidenced by radiological and clinical findings which enabled to recognize this nosological form to be a real one. Analysis of the radiological and morphological peculiarities of frontal sinus cysts enables to elaborate maximally sparing surgical methods of their removal [17, 18].

However, today there is no a single approach to surgical treatment of pathological processes occurring in the frontal sinus. For example, there are different opinions concerning the choice of optimal technology of performing surgery on the frontal sinus in case of its affliction by pathological processes of various genesis [19, 20]. It should be noted that extra- and endonasal access to the frontal sinuses has its advantages and disadvantages. Extranasal methods of surgical treatment are used most often, although recently endonasal surgery under endoscopic control has been widely introduced into practice which is an optimal variant in cas of acute relapsing and chronic frontal sinusitis and cysts of the frontal sinuses localized in the medial portions of the sinus or close to the septum between sinuses. To open the frontal sinus by means of endonasal method is technically more complicated, therefore external or combined access is often used [21]. Surgery with the application of extranasal and intranasal accesses requires further restoration of the structure and physiology of the frontal sinuses which remains today a multi-component and multistage issue [22].

Solution of these and many other complicated issues of clinical otorhinolaryngology require a comprehensive investigation of the structure of the frontal sinus and its mucous membrane in particular.

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