ASSESSMENT OF THE PATENCY OF NATURAL PATHWAYS OF THE PARANASAL SINUSES IN ACUTE RHINOSINUSITIS

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Abstract. Scientific research address the assessment of the patency of the natural pathways of the paranasal sinuses in patients with acute rhinosinusitis. As inflammation develops, the swollen mucosa of the ostiomeatal complex obstructs the natural openings of the paranasal sinuses. These openings typically range from 1 to 3 mm in diameter but can sometimes be even smaller. The development of acute rhinosinusitis is directly associated with acute inflammation of the mucous membrane in the nasal cavity and paranasal sinuses. Under normal conditions, this mucosa is as thin as parchment paper, but due to the disease, it can thicken up to 20-100 times its normal size, forming a cushion-like shape. These openings act as valves, and when they become blocked, the self-cleaning mechanism of the sinuses is disrupted. Consequently, gas exchange ceases, leading to tissue hypoxia and acidosis. Severe swelling and secretion retention reduce oxygen pressure within the sinuses, creating a favorable environment for active bacterial infection to develop. Therefore, in the treatment of patients with acute rhinosinusitis, it is crucial to reduce nasal mucosal edema as quickly as possible and restore the aeration of the paranasal sinuses. Acute maxillary sinusitis holds a significant position among inflammatory diseases of the paranasal sinuses. The degree of functional impairment in the natural pathways of the sinuses greatly influences the clinical course of the disease, the severity of symptoms, and the extent of narrowing or complete blockage of the natural openings. These factors, in turn, affect the formation, spread, and duration of the inflammatory process. Based on this, assessing the patency of the natural maxillary sinus pathway and developing an appropriate treatment strategy is a critical issue in addressing problems related to acute maxillary sinusitis.

Acute maxillary sinusitis is a significant condition among inflammatory diseases of the paranasal sinuses. Narrowing or complete closure (blocking) of the natural ostia of the paranasal sinuses in acute rhinosinusitis greatly affects the clinical course of this disease and manifestation of its symptoms as well as the development, affected area, and duration of the inflammatory process. Therefore, assessment of patency of the natural sinus ostium in acute maxillary sinusitis and developing a treatment strategy

based on this assessment is crucial for addressing issues related to the case of acute maxillary sinusitis.

Background: Selecting the appropriate treatment strategy by determining the degree of patency of the natural pathway in patients with acute rhinosinusitis.

Objective: Between 2022 and 2024, 42 patients aged 18 to 51 with acute maxillary sinusitis were examined at the "Rivojidin Med Service" clinic. Among these, 24 were male and 18 female.

Methods: According to the clinical and radiological examination data, 26 patients had bilateral and 16 had unilateral cases. Of those with unilateral cases, 6 were right-sided and 10 left-sided. According to B.S. Preobrazhensky's classification, 17 cases showed purulent-serous inflammation, 15 cases had purulent inflammation, 8 had serous inflammation, and 2 cases had catarrhal inflammation.

Patency of the natural ostia of the maxillary sinus was evaluated using the method proposed by S.Z. Piskunov, G.Z. Piskunov, and co-authors (2004). For this, the affected maxillary sinus was punctured using a Kulikovsky needle. The impairment of function of the natural ostium was categorized into the following degrees:

- normal patency of the natural ostium: when aspiration is performed, air or pathological exudate enters the syringe, and when washed with antiseptic solutions, the liquid freely flows into the nasal cavity;
- 1st degree of patency impairment: negative pressure occurs in the syringe during aspiration; when rinsing, the liquid freely flows into the nasal cavity, which indicates the presence of negative pressure in the sinus cavity;
- 2nd degree of patency impairment: aspiration of the sinus is impossible; rinsing can be performed when pressure in the syringe increases and after anemization of the nasal cavity;
- 3rd degree of patency impairment (blockage): aspiration and rinsing of the sinus are both impossible, indicating complete blockage of the natural ostium.

Results: In patients diagnosed with this disease, the following degrees of impairment of natural ostia of the paranasal sinuses were noted: 1st degree impairment in 18 patients, 2nd degree impairment in 16 patients, and 3rd degree impairment in 8 patients.

Conclusion: Based on the obtained results, the following conclusions can be drawn:

1. In acute maxillary sinusitis, the patency of the natural ostia of the paranasal sinuses is impaired to varying degrees.
2. Higher degrees of impairment (second and third degrees) of patency of the natural ostia of the maxillary sinus are more frequently observed in purulent and subsequently in purulent-serous forms of acute maxillary sinusitis.

BIOGRAPHY

Ulmasov Bisyorbek is conducting scientific research on the functional impairments of the natural drainage pathway in acute rhinosinusitis. He has a deep interest in this field and is committed to improving healthcare. His scientific approach focuses on understanding the pathogenesis of the disease and its clinical outcomes.With years of experience in this research field, he has been actively involved in scientific investigations, evaluation, teaching, and working within the healthcare system. His research model adopts a flexible approach to the complexities of the disease, ensuring effective outcomes for all stakeholders.



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