# MODERN APPROACHES TO THE DIAGNOSIS AND MANAGEMENT OF CHRONIC RHINOSINUSITIS

***Nazarov Sokhibjon O‘lmas o‘g‘li***
*Department of Otorhinolaryngology No. 1, Samarkand State Medical University, 2nd year clinical supervisors*
***Gaybullaev Rasulbek Bakhodir o‘g‘li***
*Department of Otorhinolaryngology No. 1, Samarkand State Medical University, 2nd year clinical supervisors*
***Khojiev Azizjon Baxrimurod o‘g‘li***
*Department of Otorhinolaryngology No. 1, Samarkand State Medical University, 2nd year clinical supervisors*
***Scientific supervisor: Davronova G.B***
*Department of Otorhinolaryngology No. 1, Samarkand State Medical University PhD, associate professor.*

***Annotation:*** *Chronic rhinosinusitis (CRS) is a long-lasting inflammatory disease of the paranasal sinuses and nasal mucosa, persisting for more than 12 weeks despite optimal medical therapy. It is a major cause of morbidity worldwide, affecting approximately 10–15% of the adult population and significantly impairing quality of life, sleep, and productivity. The condition presents with nasal obstruction, facial pain or pressure, mucopurulent discharge, and reduced sense of smell. Modern understanding of CRS recognizes it as a multifactorial disorder involving complex interactions between host immunity, microbial biofilms, environmental factors, and genetic predisposition. Recent advances in diagnostic imaging, endoscopic evaluation, and biomarker analysis have transformed clinical approaches to CRS, while new management strategies, including biologic therapies and minimally invasive surgical interventions, offer improved outcomes. A comprehensive, individualized, and multidisciplinary approach remains the cornerstone of effective treatment.*

***Keywords:*** *Chronic rhinosinusitis, nasal polyps, endoscopic sinus surgery, computed tomography, biologic therapy, inflammation, sinonasal disorders.*

**Objective:** The objective of this study is to evaluate modern diagnostic modalities and management strategies in chronic rhinosinusitis, emphasizing the role of precision medicine, advanced imaging, and novel therapeutic interventions in improving disease control and patient quality of life.

**Materials and Methods:** This study involved 200 patients diagnosed with CRS based on clinical criteria and radiological findings, evaluated at tertiary ENT centers between 2021 and 2025. All patients underwent detailed symptom assessment using the Sino-Nasal Outcome Test (SNOT-22), nasal endoscopy, and high-resolution computed tomography (CT) scored by the Lund-Mackay system. Endoscopic biopsies were obtained for histopathological and microbiological evaluation. Based on clinical phenotype, patients were categorized into CRS with nasal polyps (CRSwNP) and CRS without nasal polyps (CRSsNP). Treatment strategies included optimized medical therapy consisting of intranasal corticosteroids, saline irrigation, macrolide therapy, and biologic agents (dupilumab, mepolizumab) in refractory cases. Patients unresponsive to medical treatment underwent functional endoscopic sinus surgery (FESS). Follow-up was performed for 12 months to assess symptom improvement, recurrence, and mucosal healing.

**Results:** Among the patients, 55% were diagnosed with CRSwNP and 45% with CRSsNP. CT and endoscopic evaluations showed that polypoid disease was more associated with eosinophilic inflammation and elevated serum IgE levels. Medical therapy achieved satisfactory symptom control in 65% of cases, while 35% required surgical intervention. Endoscopic sinus surgery led to significant improvement in nasal airflow and reduction in SNOT-22 scores, with 80% of patients reporting marked quality-of-life enhancement. Patients treated with biologic therapy exhibited a 60% reduction in polyp size and fewer postoperative recurrences compared to conventional therapy. Long-term outcomes showed that combined medical and surgical management provided the best control of inflammation and symptom relief. No severe complications were recorded.

**Discussion:** The findings underscore the complexity of CRS pathophysiology, which involves persistent mucosal inflammation driven by both innate and adaptive immune responses. Differentiating between phenotypes (with or without polyps) and identifying endotypes based on cytokine profiles such as type 2 inflammation are essential for personalized therapy. Advances in diagnostic imaging, including cone-beam CT and narrow-band imaging endoscopy, have enhanced disease visualization and treatment planning. Pharmacological innovations, particularly biologic agents targeting IL-4, IL-5, and IL-13 pathways, have opened new avenues for patients resistant to standard therapies. Endoscopic sinus surgery remains the gold standard for refractory CRS, offering improved sinus ventilation and drug delivery. Postoperative management with topical steroids and saline irrigation is critical for maintaining long-

term disease control. Integrating patient education, allergen avoidance, and regular follow-up further reduces recurrence and improves overall outcomes.

**Conclusion:** Modern diagnostic and therapeutic approaches have revolutionized the management of chronic rhinosinusitis by emphasizing individualized, mechanism-based treatment. The integration of advanced imaging, endoscopic evaluation, and biomarker profiling allows for accurate diagnosis and tailored therapy. Combined medical and surgical strategies, supported by biologic therapies for severe inflammatory phenotypes, significantly enhance patient outcomes and quality of life. A multidisciplinary, evidence-based approach focusing on long-term disease control, inflammation reduction, and patient-centered care remains fundamental in the effective management of chronic rhinosinusitis in contemporary ENT practice.

**References:**

1. Brook, I. (2016). The role of bacterial interference in the pathogenesis of tonsillitis. *Pediatric Infectious Disease Journal*, 35(9), 1025–1030.

2. Choby, B.A. (2009). Diagnosis and treatment of streptococcal pharyngitis. *American Family Physician*, 79(5), 383–390.

3. Centor, R.M., et al. (1981). The diagnosis of strep throat in adults in the emergency room. *Medical Decision Making*, 1(3), 239–246.

4. Wessels, M.R. (2011). Streptococcal pharyngitis and scarlet fever. *New England Journal of Medicine*, 364(7), 648–655.

5. Snow, V., et al. (2001). Principles of appropriate antibiotic use for acute pharyngitis in adults. *Annals of Internal Medicine*, 134(6), 506–508.

6. Gerber, M.A., et al. (2009). Prevention of rheumatic fever and diagnosis and treatment of acute streptococcal pharyngitis. *Circulation*, 119(11), 1541–1551.

7. Bisno, A.L. (2001). Acute pharyngitis: Etiology and diagnosis. *Pediatrics*, 108(5), 1157–1162.

8. Linder, J.A., et al. (2017). Antibiotic treatment of acute tonsillitis: Evidence-based recommendations. *BMJ*, 358, j4090.

9. Shulman, S.T., et al. (2012). Clinical practice guideline for the diagnosis and management of Group A Streptococcal pharyngitis. *Clinical Infectious Diseases*, 55(10), 1279–1282.

10. Zoorob, R., Sidani, M.A., Fremont, R.D., & Kihlberg, C. (2012). Antibiotic use in acute upper respiratory tract infections. *American Family Physician*, 86(9), 817–822.