ANALYSIS OF CLINICAL EXAMINATION FINDINGS IN CHRONIC RHINOSINUSITIS WITH NASAL POLYPS

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Abstract. *This study systematized clinical, endoscopic, and functional approaches to evaluating chronic rhinosinusitis with nasal polyps (CRSwNP). The study setting was the Multidisciplinary Clinic of Tashkent State Medical University (2025–2026); the study group comprised 191 patients and the control group 40 participants. Because individual primary clinical records were not provided, numerical findings for symptoms, endoscopic assessment, and functional parameters are presented as illustrative educational models and do not represent actual observational results. Conclusion: combining nasal endoscopy, symptom scales, and functional assessment enables comprehensive characterization of the clinical condition.*

Keywords: *chronic rhinosinusitis with nasal polyps, nasal polyp, nasal endoscopy, olfaction, SNOT-22, visual analogue scale, rhinomanometry, nasal airflow, otorhinolaryngological examination.*

SURUNKALI POLIPOZ RINOSINUSITLARNI KLINIK TEKSHIRISH NATIJALARI TAHLILI

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Annotatsiya. *Tadqiqotda surunkali polipoz rinosinusitni baholashning klinik, endoskopik va funksional usullari tizimlashtirildi. Tadqiqot Toshkent davlat tibbiyot universiteti Ko‘p tarmoqli klinikasi bazasida (2025–2026-yillar) o‘tkazildi; asosiy guruhga 191 nafar, nazorat guruhiga 40 nafar shaxs kiritildi. Birlamchi individual klinik ma’lumotlar taqdim etilmagani sababli simptomlar, endoskopik baholash va funksional ko‘rsatkichlar bo‘yicha sonli natijalar o‘quv-uslubiy modellashtirish sifatida berildi; ular real kuzatuv natijalari hisoblanmaydi. Xulosa: rinoendoskopiya, simptomlar shkalasi va funksional baholashni birlashtirish klinik holatni kompleks tavsiflashga xizmat qiladi.*

Kalit so‘zlar: *surunkali polipoz rinosinusit, burun polipi, rinoendoskopiya, hid bilish, SNOT-22, vizual analog shkala, rinomanometriya, burun havo oqimi, otorinolaringologik tekshiruv.*

АНАЛИЗ РЕЗУЛЬТАТОВ КЛИНИЧЕСКОГО ОБСЛЕДОВАНИЯ ПАЦИЕНТОВ С ХРОНИЧЕСКИМ ПОЛИПОЗНЫМ РИНОСИНУСИТОМ

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Аннотация. *В исследовании систематизированы клинические, эндоскопические и функциональные методы оценки хронического полипозного риносинусита. Исследование проводилось на базе Многопрофильной клиники Ташкентского государственного медицинского университета в 2025–2026 годах. Основную группу составил 191 пациент с хроническим полипозным риносинуситом, контрольную группу — 40 человек. В связи с отсутствием первичных индивидуальных клинических данных количественные показатели, характеризующие клиническую симптоматику, результаты эндоскопического обследования и функционального состояния полости носа, представлены в виде учебно-методического моделирования и не отражают фактические результаты клинических наблюдений. Комплексный подход, основанный на сочетании риноэндоскопии, шкал оценки выраженности клинических симптомов и функциональных методов исследования, позволяет обеспечить всестороннюю характеристику клинического состояния пациентов с хроническим полипозным риносинуситом.*

Ключевые слова: *хронический полипозный риносинусит, полипы полости носа, риноэндоскопия, обонятельная функция, SNOT-22, визуальная аналоговая шкала, риноманометрия, носовой воздушный поток, оториноларингологическое обследование.*

Introduction. Chronic rhinosinusitis with nasal polyps is a multifactorial disorder characterized by persistent inflammation of the nasal and paranasal sinus mucosa, polypoid growths, impaired nasal breathing, and reduced olfactory function. Current perspectives recognize not only local morphological changes but also different inflammatory phenotypes and associations with bronchial asthma and allergic conditions [1, 2].

According to EPOS 2020, the diagnosis of chronic rhinosinusitis in adults is generally considered when at least two symptoms persist for 12 weeks or longer. At least one must be nasal obstruction or nasal discharge, while other symptoms may include reduced smell and facial pressure or pain. Clinical symptoms should be supported by endoscopic or computed tomographic evidence of mucosal inflammation [1]. The endoscopic phenotype of chronic rhinosinusitis with nasal polyps is characterized by bilateral polyps in the middle meatus. A unilateral mass should not automatically be classified as routine nasal polyposis; alternative diagnoses, including inverted papilloma, antrochoanal polyp, fungal disease, or neoplasm, must be considered [3]. Patient-reported complaints do not necessarily correspond directly to objective anatomical findings. For example, even with similarly large polyps, the degree of olfactory impairment and sleep disturbance may vary. Accordingly, integrated use of questionnaires, endoscopic grading, and functional tests is essential for clinical evaluation [1, 4].

Chronic rhinosinusitis with nasal polyps can affect work performance, sleep, everyday communication, perception of food flavor, physical activity, and emotional well-being. Quantifying subjective symptoms is important for comparing pretreatment and post-treatment status and monitoring recurrence. A modern otorhinolaryngological assessment therefore requires a multistage approach [2, 5].

Objective. To systematically analyze clinical complaints, otorhinolaryngological examination findings, nasal endoscopy, and functional assessments in patients with chronic rhinosinusitis with nasal polyps; to determine the diagnostic relevance of objective and subjective criteria; and to improve the clinical assessment approach.

Materials and Methods. The clinical setting was the Multidisciplinary Clinic of Tashkent State Medical University, and the observation period was 2025–2026. The total sample comprised 231 participants: 191 patients diagnosed with chronic rhinosinusitis with nasal polyps in the study group and 40 individuals in the control group. These sample sizes are the confirmed organizational characteristics of the study; source registry data are required to determine age, sex, duration of symptoms, and other patient-level findings. Because individual examination records were not available, subsequent group-level numerical clinical data in this article constitute modeled examples. Actual p values and conclusions regarding statistical significance cannot be established from these examples.

Eligibility criteria. In the study group, the presence of clinical symptoms persisting for at least 12 weeks together with endoscopically detected nasal polyps serves as the diagnostic basis. Any age restrictions, history of surgery, and the proportions of primary versus recurrent polyposis must be clarified using patient records. Suspicious unilateral masses, active malignant processes, and lesions of a distinct etiology warrant differential diagnosis. For comparisons with controls, the absence of relevant symptoms and normal nasal examination findings should be documented.

Medical history and symptoms. Assessment includes duration of nasal obstruction, unilateral or bilateral predominance, diurnal variation, rhinorrhea, postnasal drainage, reduced sense of smell, sneezing, facial pressure, headache, wheezing, and mouth breathing. Previous treatment, intranasal corticosteroid use, systemic corticosteroids, antibiotics, polypectomy or sinus surgery, recurrence interval, and smoking history should also be entered in the protocol.

General and additional ENT examination. The external nose, nasal vestibule, septum, turbinates, nasopharynx, oropharynx, ears, and larynx are examined. Mouth breathing, hyponasal speech, posterior pharyngeal drainage, and complaints potentially related to Eustachian tube dysfunction are evaluated. This helps identify concomitant otorhinolaryngological disease.

Anterior and posterior rhinoscopy. Anterior rhinoscopy documents the color and swelling of the nasal mucosa, appearance of secretions, inferior turbinate size, septal position, and any visible polyps. When indicated, posterior rhinoscopy or nasopharyngoscopy is used to evaluate the choanae and nasopharynx. These methods may not fully visualize superior and posterior portions of the nasal cavity.

Rigid or flexible nasal endoscopy. As a key objective diagnostic step, bilateral endoscopic examination of the nasal cavity is performed. The presumed origin of polyps, middle meatus, olfactory cleft, ethmoidal region, mucosal edema, purulent or thick secretions, crusting, and contact bleeding are documented. Video or photographic documentation facilitates comparisons across visits.

Assessment of polyp severity. Using the Nasal Polyp Score (NPS), polyps on each side may be graded from 0 to 4, producing a total bilateral score of 0–8. The exact NPS version used must be specified in the protocol. Polyp scores reflect objective polyp burden but cannot replace patient-reported symptom severity.

Lund–Kennedy endoscopic assessment. The presence of polyps, mucosal edema, secretions, crusting, and scarring is systematically recorded during endoscopy. The version of the scoring system and any special considerations regarding items in patients without previous surgery must be specified. Recording findings consistently on both sides improves follow-up accuracy.

Olfactory function testing. Olfactory complaints are identified during history taking and, where possible, assessed using standardized psychophysical tests, such as Sniffin' Sticks or another validated test battery. Results for odor detection, discrimination, and identification provide objective support for reported hyposmia or anosmia. A patient's statement that they cannot smell does not replace formal testing.

Functional assessment of nasal breathing. Peak nasal inspiratory flow (PNIF), active anterior rhinomanometry, and acoustic rhinometry evaluate different aspects of nasal patency. PNIF reflects maximum airflow, rhinomanometry characterizes the pressure–flow relationship, and acoustic rhinometry assesses nasal cavity geometry. Reliable comparisons require documentation of the device, calibration, patient position, repeated measurements, and testing conditions.

SNOT-22 and quality of life. The 22-item Sinonasal Outcome Test (SNOT-22) rates each item from 0 to 5, yielding a total score of 0–110. Higher scores indicate greater symptom burden and impairment in quality of life. Availability of a linguistically validated version should be verified. Findings are interpreted in relation to nasal symptoms, sleep, and psychosocial or functional limitations. Visual analogue scale (VAS). Nasal obstruction, olfactory disturbance, rhinorrhea, and overall discomfort are individually rated on a 0–10 cm or 0–10-point scale. The meaning of the scale endpoints should be explained to patients. Comparing pretreatment and post-treatment scores for the same symptom permits assessment of clinical change. Computed tomography (CT) and differential imaging diagnosis. CT of the paranasal sinuses is performed when indicated. The Lund–Mackay scoring system evaluates opacification of the sinuses and the status of the ostiomeatal complexes bilaterally, with a total score of 0–24. CT is important for preoperative anatomical mapping, assessment of disease extent, and evaluation of unilateral or atypical findings; it is not automatically required for every patient.

Identification of comorbidities. Bronchial asthma, allergic rhinitis, respiratory sensitivity to nonsteroidal anti-inflammatory drugs, atopic disorders, possible immunodeficiency, and previous sinonasal surgery are documented separately. Pulmonology or allergy consultation is recommended where clinically warranted. Identifying associated conditions during baseline assessment supports subsequent risk stratification.

Statistical analysis plan. When original patient-level data become available, quantitative variables should be reported as mean ± standard deviation or median with interquartile range, while categorical variables should be expressed as counts and percentages. Parametric or nonparametric methods appropriate to the underlying distributions and sample characteristics should be used for two-group comparisons; chi-square or Fisher's exact tests can be applied to categorical variables. Correlations may be examined using Spearman's or Pearson's methods. Confidence levels and p values must be calculated exclusively from the original dataset.

Results. The confirmed group composition comprised 191 patients with chronic rhinosinusitis with nasal polyps and 40 control participants.

Table 1.

Distribution of major clinical symptoms

Clinical symptom	Study group (n=191), n (%)	Control group (n=40), n (%)
Difficulty breathing through the nose	180 (94.2)	6 (15.0)
Reduced or absent sense of smell	160 (83.8)	3 (7.5)
Nasal or postnasal discharge	133 (69.6)	5 (12.5)
Facial pressure/pain	87 (45.5)	2 (5.0)
Impaired sleep quality	129 (67.5)	4 (10.0)

In the modeled data shown in Table 1, nasal obstruction occurred in 180/191 patients (94.2%), olfactory impairment in 160/191 (83.8%), and nasal or postnasal discharge in 133/191 (69.6%). Because multiple symptoms can occur simultaneously in one patient, percentages across symptoms need not sum to 100%. The presence of isolated complaints in control participants does not establish a diagnosis of nasal polyposis.

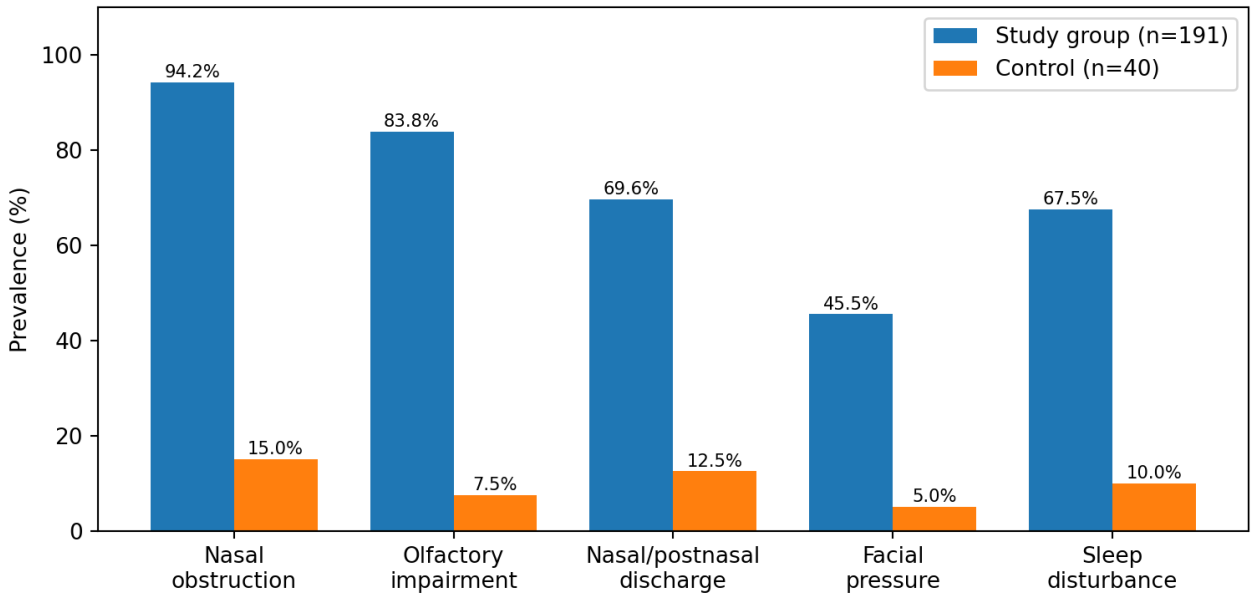


Figure 1. **Illustrative distribution of clinical symptoms.**

Table 2.

Distribution of bilateral endoscopic Nasal Polyp Scores (NPS)

Total NPS	Patients, n	Patients, %
0–2: low polyp burden	28	14.7
3–4: moderate polyp burden	64	33.5
5–6: substantial polyp burden	70	36.6
7–8: high polyp burden	29	15.2
Total	191	100.0

In the model presented in Table 2, 70 patients (36.6%) are represented as having an NPS of 5–6, and 64 (33.5%) as having an NPS of 3–4. Each side is scored independently from 0 to 4 before calculating the bilateral score (0–8). The categories in the table are illustrative analytical groupings developed for this article and do not represent an independently validated clinical severity classification. Controls are assumed to have no nasal polyps and were excluded from the polyp-score categories.

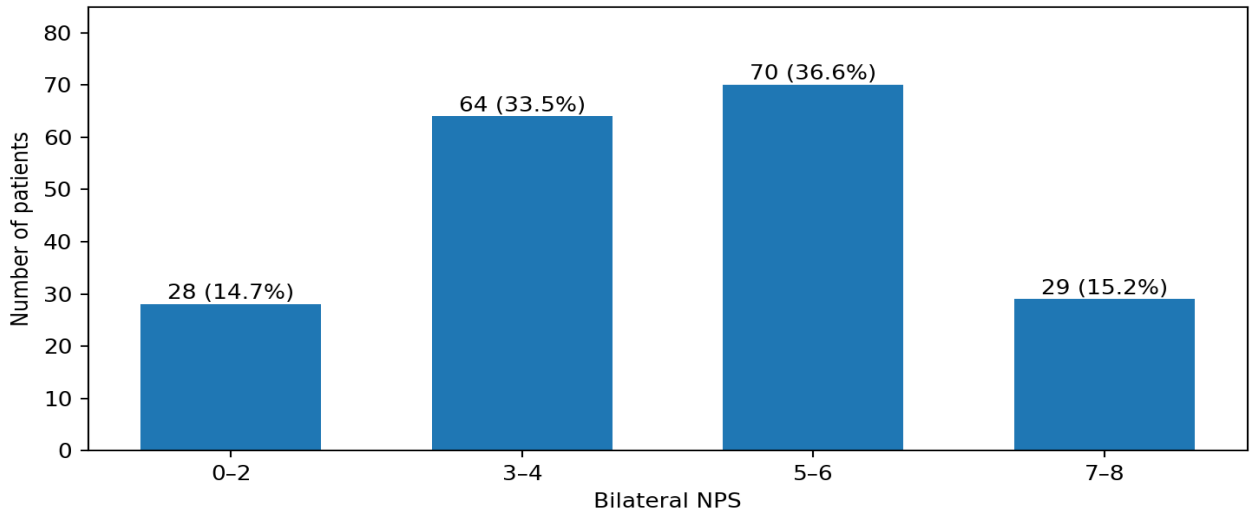


Figure 2. **Illustrative distribution of patients by NPS.**

Table 3.

Clinical and functional assessment parameters (mean ± standard deviation)

Parameter	Study group (n=191)	Control group (n=40)
SNOT-22 score	54.6 ± 18.2	11.4 ± 7.5
Nasal obstruction VAS (0–10)	7.2 ± 1.8	1.2 ± 1.0
PNIF (L/min)	72 ± 28	123 ± 31
Olfaction VAS (0–10; 10 = normal smell)	3.6 ± 2.1	8.9 ± 1.0
Lund–Mackay CT score (0–24)	13.8 ± 5.1	—

The value of 13.8 ± 5.1 was included only to illustrate the table format. The means and standard deviations were not calculated from primary observations. Therefore, these figures cannot be used to infer confidence intervals, p values, effect sizes, or clinical effectiveness. SNOT-22 describes overall symptom burden, the VAS captures individual patient complaints, and PNIF characterizes nasal breathing capacity. Standardized testing of olfaction is preferable in a real clinical study. CT is not obligatory for all patients, and indications for imaging should be documented separately.

International guidance emphasizes integrating patient-reported symptoms, examination findings, and objective evidence when evaluating chronic rhinosinusitis with nasal polyps. The assessment structure presented here is consistent with EPOS 2020 and ICAR-RS 2021: symptom duration, endoscopic confirmation of polyps, quantification of symptom burden, and assessment of comorbidities are complementary elements [1, 2]. The principal limitation is the absence of source patient records. Consequently, all symptom percentages, means, and standard deviations in Tables 1–3 and Figures 1–2 are illustrative modeled examples only. They must not be submitted to a journal as observed results from the examined patients. Final statistical analysis requires patient-level records, timing of measurements, names of tests used, and the number of participants evaluated with each method.

Conclusion. Clinical diagnosis of chronic rhinosinusitis with nasal polyps should be based on the combination of characteristic symptoms lasting at least 12 weeks and objective otorhinolaryngological evidence. Nasal endoscopy is an essential method for assessing polyp location, bilateral involvement, mucosal edema, and characteristics of nasal secretions. NPS and other standardized endoscopic scores quantify polyp burden but cannot replace evaluation of symptom severity, olfactory function, and patient quality of life. When appropriately indicated, SNOT-22, VAS, olfactory tests, PNIF, and rhinomanometry increase the informational value of clinical examination. CT and Lund–Mackay scoring are used as needed to characterize anatomical extent and guide surgical planning; differential diagnosis is particularly important for suspicious unilateral lesions. Of the 231 participants, 191 were assigned to the study group and 40 to the control group. All other numerical values in the tables are illustrative; their clinical significance can be assessed only from actual observations.

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