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CLINICAL OUTCOMES OF ENDOSCOPIC RECONSTRUCTION IN PATIENTS WITH NASAL SEPTAL PERFORATION

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Abstract. Nasal septal perforation (NSP) is a challenging condition in rhinologic surgery that may result in impaired nasal breathing, crust formation, recurrent epistaxis, dryness of the nasal mucosa, and deterioration in patients' quality of life. Although numerous surgical techniques have been proposed, the optimal reconstructive approach remains a matter of debate. Recent advances in endoscopic surgery have significantly improved visualization of the operative field, minimized tissue trauma, and enhanced postoperative outcomes.

Keywords: nasal septal perforation, endoscopic reconstruction, rhinologic surgery, nasal obstruction, mucosal regeneration, NOSE scale, quality of life, endoscopic rhinoplasty.

Introduction. Nasal septal perforation (NSP) is a complex pathological condition characterized by a defect in the cartilaginous or bony nasal septum, leading to impaired nasal airflow, mucosal dryness, crust formation, recurrent epistaxis, and deterioration in patients' quality of life. The incidence of NSP has increased in recent years due to the growing number of septoplasty, rhinoplasty, endoscopic nasal surgeries, traumatic injuries, and chronic inflammatory diseases

of the nasal cavity. Successful treatment remains a significant challenge because surgical reconstruction requires not only anatomical closure of the defect but also restoration of normal nasal physiology and mucociliary function. Recent advances in endoscopic rhinologic surgery have enabled surgeons to perform minimally invasive procedures with improved visualization, reduced tissue trauma, and better preservation of the vascular supply to the mucosa. Nevertheless, the long-term clinical effectiveness of endoscopic reconstruction compared with conventional surgical techniques remains an important topic of discussion. Therefore, evaluating the clinical and functional outcomes of modern endoscopic reconstructive procedures is essential for optimizing the surgical management of patients with nasal septal perforation.

Objective: To evaluate the clinical effectiveness of endoscopic reconstruction for nasal septal perforation by assessing anatomical closure, functional recovery, and postoperative quality of life.

Materials and Methods: A prospective comparative clinical study was conducted in patients diagnosed with nasal septal perforation between 2024 and 2025. Comprehensive preoperative evaluation included clinical examination, nasal endoscopy, computed tomography, laboratory investigations, and histological assessment when indicated. Patients underwent either endoscopic reconstructive surgery or conventional surgical treatment. Postoperative outcomes were evaluated at 3, 6, and 12 months using the Nasal Obstruction Symptom Evaluation (NOSE) scale, Visual Analogue Scale (VAS), endoscopic examination, and mucociliary transport assessment. Statistical analysis was performed using standard parametric and non-parametric methods, with significance accepted at $p<0.05$.

Results: Endoscopic reconstruction demonstrated superior clinical outcomes compared with conventional surgery. Patients experienced significant improvement in

nasal airflow, reduction of crust formation and nasal bleeding, restoration of mucociliary function, and enhanced epithelial regeneration. NOSE and VAS scores decreased significantly during follow-up, reflecting improved nasal function and quality of life. The endoscopic approach was also associated with a higher rate of complete perforation closure and fewer postoperative complications.

Conclusion: Endoscopic reconstruction is an effective and minimally invasive treatment option for nasal septal perforation. The technique provides reliable anatomical repair, accelerates mucosal healing, restores physiological nasal function, and significantly improves patient-reported outcomes. These findings support the wider implementation of endoscopic reconstructive techniques in contemporary rhinologic practice.