

USE THE PROPEL DEVICE IN DACRYSTORRHINOSTOMY

Khasanov U.S.

Rakhimov J.M.

**Republican Specialized Scientific and Practical Medical Center for
Otorhinolaryngology and Head and Neck Diseases**

<https://doi.org/10.5281/zenodo.19663574>



ARTICLE INFO

Received: 14th April 2026

Accepted: 16th April 2026

Online: 18th April 2026

KEYWORDS

was to evaluate the clinical effectiveness of the PROPEL device in preventing recurrence of the disease after dacryocystorhinostomy

ABSTRACT

Dacryocystorhinostomy (DCR) is a highly successful (85%–99% success rate) surgical procedure used to treat blocked tear ducts by creating a new pathway from the lacrimal sac into the nasal cavity. It resolves symptoms like excessive watering (epiphora) and chronic infection (dacryocystitis) by bypassing the obstruction, often using small silicone stents to keep the new opening clear.

Materials and methods: During 2024–2025, 30 patients underwent endoscopic dacryocystorhinostomy. They were divided into two groups: Group 1 (Comparison group, n=15) underwent standard DCR surgery, while Group 2 (Main group, n=15) underwent PROPEL placement along with DCR. All patients were followed for 6 months. The effectiveness of the operation was assessed based on the results of a comprehensive examination, including changes in clinical symptoms, endoscopic examination of the nasal cavity, and wound healing.

Results and discussion of the study: During the 6-month follow-up, the postoperative status of both groups was analyzed. In the main group, the stoma remained open in 28 (93.3%) patients, and complete obstruction was observed in only 2 patients. In the comparison group, the stoma remained open in 22 (73.3%) patients, and re-obstruction was noted in 8 (26.7%). In the statistical analysis, the results of the χ^2 test showed a significant difference in maintaining stoma patency in the PROPEL group ($p<0.05$). When analyzing nasal function, respiratory function was fully restored in patients who used the PROPEL device after the procedure. The PROPEL device acted as a temporary structure without blocking the airflow and was absorbed naturally within 30-45 days. In the comparison group, some patients (10%) had short-term breathing difficulties due to hypertrophic tissues in the postoperative period.

In the main group, 26 patients (86.7%) of the patients had complete healing of the mucosa within 4 weeks, with minimal granulation tissue and accelerated epithelialization. In the control group, 18 patients (60%) had prolonged healing of the mucosa for 5-6 weeks, and 7 patients (23.3%) had increased granulation. PROPEL reduced inflammation by releasing a local steroid (mometasone furoate) and led to rapid healing of the mucosa.

When the questionnaire was analyzed among the patients, patients in the PROPEL group noted a mild postoperative course, less pain, decreased tearing, and improved breathing. In the control group, 5 patients complained of recurrent tearing, nasal itching, and pain. The incidence of dacryocystorhinostomy reocclusion was 6.7% in the PROPEL group, compared to

26.7% in the standard group. Granulation and fibrosis were less common in the PROPEL group.

Conclusion: The use of PROPEL in dacryocystorhinostomy has been shown to be highly effective in maintaining stoma patency in the postoperative period, restoring nasal breathing function, ensuring rapid and complete healing of the mucosa, reducing the risk of granulation formation, and increasing patient satisfaction. This method is a highly effective innovative approach to the treatment of lacrimal outflow disorders..

References:

- 1.Liu S. et al. The efficacy of endoscopic dacryocystorhinostomy in the treatment of dacryocystitis: A systematic review and meta-analysis //Medicine. – 2024. – T. 103. – №. 11. – C. e37312.
- 2.Locatello L. G. et al. A critical update on endoscopic dacryocystorhinostomy //ACTA Otorhinolaryngologica Italica. – 2024. – T. 44. – №. 6. – C. 351.
- 3.Sieśkiewicz A. et al. Factors influencing endoscopic dacryocystorhinostomy outcomes: a comprehensive clinical and histopathological analysis and review of the literature //Clinical Ophthalmology. – 2024. – C. 3277-3288.
- 4.Malvezzi L. et al. Twenty years of endoscopic dacryocystorhinostomy: evolution of surgical technique and outcomes in a high-volume tertiary center //European Archives of Oto-Rhino-Laryngology. – 2026. – C. 1-11.
- 5.Babu A. R. et al. Endoscopic dacryocystorhinostomy: a comprehensive review of surgical techniques and clinical outcomes //Indian Journal of Otolaryngology and Head & Neck Surgery. – 2024. – T. 76. – №. 5. – C. 4575-4579.
- 6.Li J., Wang J., Sun C. Efficacy of hyaluronic acid in endoscopic dacryocystorhinostomy: a systematic review and meta-analysis //American Journal of Rhinology & Allergy. – 2023. – T. 37. – №. 1. – C. 102-109.
- 7.Callejo F. J. G., Azpilicueta M. J., García R. B. Factors involved in the success and failure of endoscopic dacryocystorhinostomy from our experience //Acta Otorrinolaringologica (English Edition). – 2022. – T. 73. – №. 1. – C. 11-18.
- 8.Meng Z. et al. Quality of vision in eyes with chronic dacryocystitis after endoscopic dacryocystorhinostomy //Clinical Ophthalmology. – 2023. – C. 3729-3737.
- 9.Boal N. S. et al. Antibiotic utilization in endoscopic dacryocystorhinostomy: a multi-institutional study and review of the literature //Orbit. – 2024. – T. 43. – №. 2. – C. 183-189