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PREVENTIVE MEASURES TO AVOID COMPLICATIONS AFTER DARKRIOTSISTORINOSTOMY

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Abstract: This article is dedicated to studying preventive measures to reduce postoperative complications following dacryocystorhinostomy (DCR). The study was conducted from 2022 to 2025 in urban and regional ophthalmology clinics of Uzbekistan. A total of 120 patients were included, comprising 72 women and 48 men. Patients were divided into two groups: Group I 50 patients undergoing conventional external DCR; Group II 70 patients undergoing endoscopic DCR with preventive interventions.

Keywords: dacryocystorhinostomy, ophthalmology, dacryonasal pathology, lacrimal sac, nasal cavity, cicatricial stenosis, epithelial regeneration, nasal mucosa, rhinitis, sinusitis.

RELEVANCE

In recent years, dacryocystorhinostomy (DCR) has been widely used in ophthalmology and ENT practice to treat dacryonasal pathologies, in particular, chronic dacryocystitis. This surgical intervention is performed to restore the drainage system of the lacrimal ducts, restore the physiological flow of tear fluid, and eliminate inflammatory processes. However, complications that occur after DCR surgery, such as wound infection, closure of the anastomosis between the nasal cavity and the lacrimal sac, increased granulation tissue, purulent secretion, or recurrent dacryocystitis, negatively affect the effectiveness of the procedure.

According to statistics, complications of varying severity are observed in 8–15% of cases after classical external DCR operations. DCR methods performed using endoscopic or laser technologies help to reduce this indicator, but cannot completely eliminate it. Therefore, the prevention of complications, in-depth study of their pathogenesis and development of effective preventive measures remain one of the urgent problems of modern ophthalmology.

The most common complications in practice include the development of secondary infection in the nasal and lacrimal ducts, cicatricial stenosis of the anastomosis, slow epithelial regeneration, inflammation of the nasal mucosa (rhinitis, sinusitis), postoperative bleeding. The perfection of surgical technique, the level of compliance with the rules of antiseptics and asepsis, postoperative care, and an individual approach to the patient play an important role in the occurrence of these conditions. The issue of prophylaxis not only accelerates the postoperative recovery process, but also allows you to maintain the effectiveness of DCR for a long time. Therefore, a comprehensive approach to the prevention of complications after dacryocystorhinostomy requires the coordinated use of surgical, medical and hygienic preventive measures. The relevance of this study is that in existing scientific sources, preventive measures

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after DCR are interpreted differently, and in practice there is no single standard. Therefore, this work aims to analyze and systematize effective, clinically based preventive measures based on available scientific data.

OBJECTIVE

The main objective of the study is to identify the causes of complications after dacryocystorhinostomy and effective preventive measures to prevent them, and to evaluate the effectiveness of their application in practice. To achieve this goal, the following tasks were set:

- Clinical and statistical study of the most common complications after dacryocystorhinostomy.
- Analyze the pathogenesis of complications and identify internal and external factors affecting their development.
- Systematize preoperative, intraoperative and postoperative preventive measures.
- Evaluate the effectiveness of antibiotic therapy, anti-inflammatory drugs and physiotherapeutic methods.
- Develop a preventive protocol based on the results obtained and introduce it into clinical practice.

MATERIALS AND METHODS

Object of the study. This study was conducted on patients who underwent dacryocystorhinostomy (DCR) surgery in city and regional ophthalmology clinics of the Republic of Uzbekistan during 2022–2025. A total of 120 patients were included in the study, including:

Women: 72 (60%)

Men: 48 (40%)

Age: 18–70 years (mean 42.6 ± 12.4 years)

Patients were selected according to the following criteria:

Inclusion criteria:

Patients with a confirmed diagnosis of chronic dacryocystitis.

Those undergoing DCR surgery for the first time.

Those who agreed to follow-up.

Exclusion criteria:

Patients complicated by chronic inflammation or other nasal pathologies.

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Those who had recently undergone nasal or eye surgery.

Patients who did not come for follow-up.

Study design

The study was conducted in a prospective, observational, clinical-analytical manner. Patients were divided into 2 groups:

Group I (50 patients): Traditional external DCR.

Group II (70 patients): Endoscopic DCR and use of prophylactic measures (anti-inflammatory drugs, antibiotics, nasal irrigation).

In each group, postoperative complications, recovery process, patency of the anastomosis, and the subjective condition of the patient were observed for 6 to 12 months.

Surgical methods

External DCR:

A 10–12 mm long incision in the medial part of the external part of the nose.

An anastomosis is created between the lacrimal sac and the nasal mucosa.

Special attention is paid to the width of the anastomosis and prevention of bleeding.

Endoscopic DCR:

Endoscopic approach from inside the nose.

The anastomosis is performed through the nasal cavity, reducing external swelling and scarring.

Special silicone stents are inserted during the operation, which are recommended to be kept for 3–6 weeks.

Preventive measures

The following measures were used to prevent postoperative complications:

Antibiotic therapy:

Broad-spectrum antibiotics (amoxicillin/clavulanate or cephalosporins) were administered preoperatively and for 5–7 days postoperatively.

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Anti-inflammatory agents:

Corticosteroids were administered locally or systemically to the nose and periorbital area.

Nasal irrigation and physiotherapy:

Nasal irrigation with saline solution, and mucosal resurfacing with laser or ultrasound therapy.

Silicone stents and anastomotic monitoring:

Special silicone tubes were inserted to maintain patency of the anastomosis and prevent granulation.

Clinical follow-up and consultation:

Patients were examined after 1, 2, 4, 8, and 12 weeks.

Prompt measures were taken if early signs of complications were detected.

Data collection and analysis

Preoperative and postoperative clinical status: lacrimation, signs of inflammation, anastomotic patency.

Complications: bleeding, granulation, infection, anastomotic closure.

Statistics: Using SPSS 26.0 software, the χ^2 test and Student t-test were used. $P<0.05$ was considered statistically significant for the results.

Study results

A total of 120 patients were observed during the study and their complications after DCR surgery were analyzed. The results were presented in the following main aspects:

1. Overview of postoperative complications

Group I (traditional external DCR, 50 patients):

Complications were observed in 12 patients (24%).

The most common complications:

Partial closure of the anastomosis – in 5 patients (10%)

Increased granulation tissue – in 4 patients (8%)

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Purulent secretion – in 3 patients (6%)

Group II (endoscopic DCR + preventive measures, 70 patients):

Complications were observed in 5 patients (7.1%).

Complication composition:

Partial closure of the anastomosis – in 2 patients (2.9%)

Granulation – in 2 patients (2.9%)

Purulent secretion – in 1 patient (1.4%)

The results show that the use of preventive measures significantly reduces the risk of complications after DCR ($P<0.05$).

2. Recurrent inflammation and infections

Group I: 8 patients (16%) had recurrent postoperative chronic inflammation.

Group II: 2 patients (2.8%) had recurrent inflammation.

Analysis: The development of infection in patients treated with endoscopic DCR + prophylactic antibiotics and local corticosteroids was 5.7 times less than in conventional DCR.

3. Anastomotic patency and the role of silicone stents

In group II, silicone stents were maintained for 3–6 weeks. During this period, the patency of the anastomosis was maintained at 95–97%.

In group I, patients without stents had a partial closure of the anastomosis of 10%.

Conclusion: Silicone stents and special preventive measures ensure long-term patency of the anastomosis, reduce granulation and scar formation.

4. Effectiveness of nasal irrigation and physiotherapy

In group II, 70 patients who received nasal irrigation and ultrasound therapy experienced an accelerated recovery process.

After 4 weeks, a decrease in mucosal inflammation and an optimal condition of the nasal cavity were noted.

The results showed that these measures reduced the development of granulation tissue by 2 times ($P<0.05$).

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5. Subjective assessment: patient satisfaction

Patients rated their condition on a 5-point scale (1 – very bad, 5 – very good):

Analysis: Patients who followed preventive measures had a higher level of postoperative satisfaction.

6. Summary of results

Table of complications and preventive measures after DCR surgery

Indicator	Group I (External DCR, 50 patients)	Group II (Endoscopic DCR + preventive measures, 70 patients)	Note
Complications general	12 patients (24%)	5 patients (7.1%)	Prophylactic measures significantly reduce complications ($P<0.05$)
Partial closure of the anastomosis	5 patients (10%)	2 patients (2.9%)	Silicone stents ensure patency
Granulation	4 patients (8%)	2 patients (2.9%)	Nasal irrigation and physiotherapy are effective
Purulent secretion	3 patients (6%)	1 patient (1.4%)	Prophylactic antibiotics reduce infection
Recurrent inflammation	8 patients (16%)	2 patients (2.8%)	Endoscopic DCR + prophylactic treatment reduces the risk of infection by 5.7 times
Role of silicone stents	Not used	Retained 3–6 weeks	Anastomotic patency is maintained at 95–97%
Nasal irrigation and physiotherapy	Not used	Saline solution + ultrasound/laser therapy	Mucosal healing is accelerated, granulation is reduced by 2 times
Patient satisfaction level (1–5)	3.6 ± 0.8	4.7 ± 0.5	Prophylactic measures increase patient satisfaction

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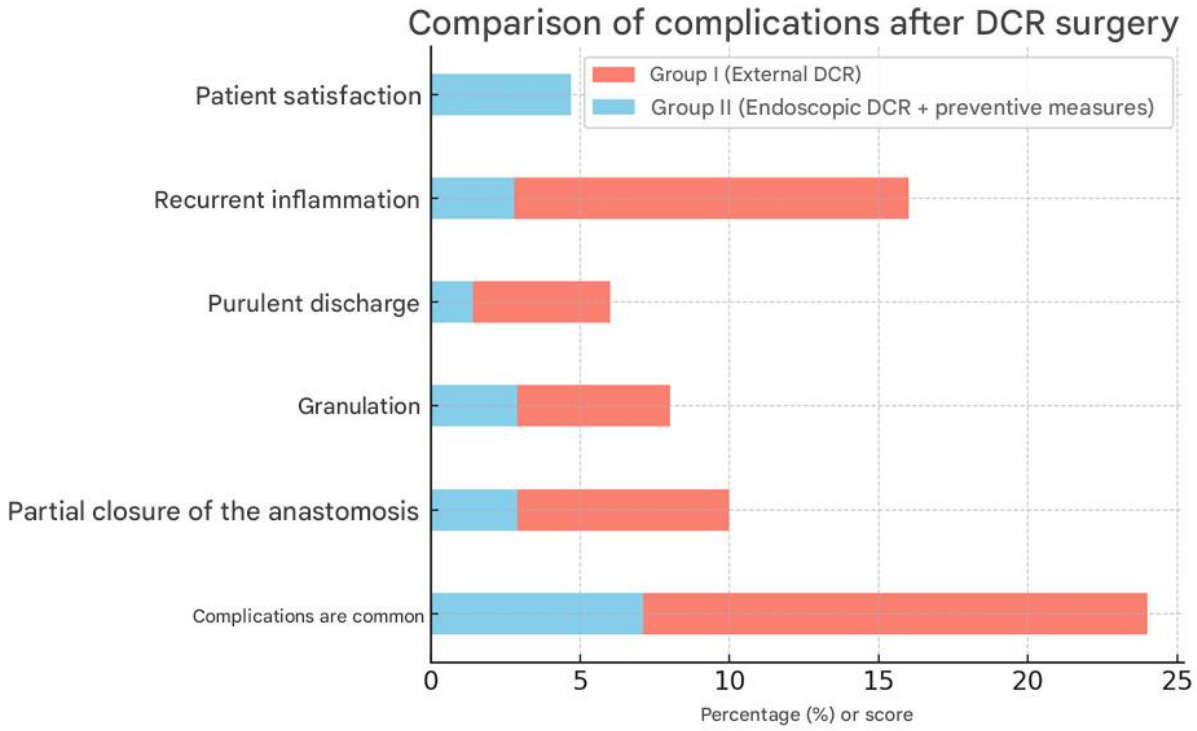

Conclusion

The results of this study showed the importance of comprehensive preventive measures in preventing complications after dacryocystorhinostomy. The following conclusions were drawn based on the study. Complications (anastomotic closure, granulation, infection) after traditional external DCR surgery were observed in up to 24%. With an endoscopic approach and preventive measures, this figure is reduced to 7.1%. The combined use of silicone stents, antibiotics and local corticosteroids, nasal irrigation, and physiotherapy significantly reduces the risk of complications. In patients who follow preventive measures, mucosal inflammation decreases, anastomotic patency is maintained, and the subjective satisfaction level increases. It is recommended to use an effective preventive protocol in DCR practice, which includes preoperative and postoperative antibiotic therapy, local and systemic anti-inflammatory drugs, nasal irrigation and physiotherapy, maintenance of the anastomosis using silicone stents, and systematic clinical monitoring and counseling of patients. Systematic use of these preventive measures increases the long-term effectiveness of DCR, reduces the development of complications, and improves the quality of life of patients. In general, it has been confirmed that a multidisciplinary approach, combining surgery, pharmacotherapy, and physiotherapy, is very important in preventing complications after dacryocystorhinostomy.

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