

## SURGICAL SUCCESS: EVALUATING OUR EXPERIENCE WITH ENDOSCOPIC DCR

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### Abstract

**Background:** The aim of the endoscopic dacryocystorhinostomy (DCR), a procedure performed to treat nasolacrimal duct obstruction, better success rate compared to external DCR, reduced complication and lesser operating time. This study is to highlight the senior authors and the method of performing endoscopic DCR and compare the outcomes and complication with historical endoscopic DCR cohorts. **Materials and Methods:** A retrospective analysis was conducted on 100 patients who had endoscopic Dacryocystorhinostomy performed in Government Villupuram medical college between March 2020 and March 2024. Patient demographics, medical history, physical results, surgery specifics, and postoperative assessment of symptom alleviation, duct patency, and any issues associated. Recurrence is monitored for up to two years. **Result:** With a 94% primary success rate, symptoms were resolved in 94 patients, including six cases of primary failure that were treated with stents. Six patients had partial blockages, accounting for 6% of the cases. **Conclusion:** Endoscopic DCR has a higher success rate and is relatively simple to reproduce. Training surgical residents in this method is easier. The complications are fewer compared to other methods of endoscopic DCR that use high-end instruments (such as lasers and powered instruments).

## INTRODUCTION

To treat epiphora caused by nasolacrimal duct obstruction, either of anatomical or functional origin, surgery known as dacryocystorhinostomy is performed.<sup>[1]</sup> The DCR treatment aims to establish a direct bypass of the obstructed or narrowed nasolacrimal duct by establishing a link between the lacrimal sac and the nasal cavity.

Following the development of functional endoscopic sinus surgeries for sinusitis, adequate vision could be obtained, and the intranasal approach gained popularity with an increasing success rate. Originally introduced by Caldwell in 1893 as an intranasal (nonendoscopic) approach, it was modified by West and Macbeth because surgical vision was very narrow and the approach was difficult. The results were poor, and the procedure was not established as a mainstream modality.<sup>[2]</sup>

Compared to external DCR, endoscopic DCR offers a number of benefits, including as a faster recovery

period, the preservation of the lacrimal pumping mechanism, a lack of an external incision, and a decreased rate of postoperative morbidity.<sup>[3]</sup> In order to improve operating skill, a number of modalities and adjuncts have been described for endoscopic DCR, including the Kerrison punch, powered drill, lasers, and stenting. We discuss our experience and results with endoscopic DCR using conventional procedures in this article.

**Aim:** The aim of this study is to look at the potential outcome of endoscopic Dacryocystorhinostomy and evaluate its results and complication within a period of 2 years following surgery along with review of literature

## MATERIALS AND METHODS

**Study design:** This study included one hundred individuals who came to our college with complaints of epiphora and had endoscopic DCR performed there between March 2020 and March 2024 at

Government Villupuram medical college and hospital after getting ethical committee clearance (GVMC/IEC/2024/32). At first, an ophthalmologist evaluated each patient and through sac syringing, the blockage of the nasolacrimal duct was verified. All patients had comprehensive ENT exams and radiographic evaluations. During the endoscopic DCR procedure, any coexisting nasal pathologies, such as sinusitis and a deviated nasal septum, were also addressed. Six individuals who had previously experienced primary surgical failure were also included in this study. The majority of patients had general anaesthesia, few with multiple comorbidities were operated with local anaesthesia.

### Operative Procedure

The method used comprised

Typically, general anaesthesia is utilised during surgery

0° and 30° endoscopes are employed in most cases

Nose was decongested with patties soaked in 1:10000 adrenaline

2% Lignocaine with adrenaline (1:2lacs) infiltration given at anterior end of middle turbinate.

A 1\*1 cm mucosa anterior to the middle turbinate and uncinata was incised with 15 blade and sickle knife, the incised mucosa was elevated from bone with suction freer's and removed completely

The lacrimal bone and maxillary frontal process are removed with a Hajek bone punch and Blakesley forcep

Medial wall infiltrated with local anaesthetic solution and then incised with a cataract knife, the entire medial wall upto level of fundus of the lacrimal sac was removed. The lacrimal bone is identified and removed along with frontal process of maxilla the sac is exposed upto its fundus lacrimal sac is infiltrated with local anesthetic solution and incised with cataract knife all the accessible medial wall of lacrimal sac was removed Patency assessed with saline irrigation via inferior canaliculus and free flow of saline into nasal cavity into stoma was ensured.

Nose packed with merocele. Wound is allowed to heal by secondary intention.

Other associated nasal pathologies like sinusitis and deviated septum, cleared in same surgery

**Post operative care:** Following a 48-hour period, the merocele pack was removed, and the patients were discharged with oral antibiotics, nasal decongestants, and steroid eye drops for a week.

Diagnostic nasal endoscopy was performed to view the state of the neo ostium and nasal cavity, done at one, three, six weeks and three, six months and one year and two years following surgery. Syringing through inferior canaliculus was performed during this surveillance.

Patients were classified as success if there was no tearing or if there was free flow of saline, when irrigating inferior canaliculus.

**Duration of study:** March 2020-March 2024 (4 years)

### Inclusion Criteria

- Patients who gave their consent for surgery
- Patients who were followed up for 2 years.
- Patients more than 18 years
- Patients with nasal pathology, such as sinusitis and a deviated septum, were included.
- Patients with bilateral duct diseases and revision cases

### Exclusion Criteria

- Patients with cardiac diseases and altered blood parameters were not included
- Those who did not give consent for examination and follow-up.
- Patients Less than 18 years
- Patients who have additional nasal pathologies such as polyposis and other benign and malignant illnesses of the nose and paranasal sinuses

## RESULTS

Demographic and clinical characteristics:

A total of 100 patients who had complaints of epiphora referred from ophthalmologist to ENT OPD as nasolacrimal duct obstruction At Government Villupuram medical college and hospital from a period of March 2020 to March 2024 for 4 years. Next, an endoscopic DCR procedure was performed on the patient. The patients in the study group range in age from 18 to 60 years old, (Fig.1) with 56 women and 44 men. Twenty individuals have a coexisting diseases like deviated septum (8) and sinusitis (12). 94 patients had unilateral disease and 6 patients have bilateral disease. In unilateral disease 60 patient had right eye involvement and 34 had left eye disease . 88 patients had epiphora as main complaint, lacrimal abscess in 10 patients and 2 patients had lacrimal fistula.

One hundred patients underwent endoscopic DCR; eight patients underwent septoplasty, and twelve patients underwent concurrent functional endoscopic sinus surgery. Using stents, six major primary failure cases were treated. 12 patients experience profuse intraoperative bleeding grade 5 Boezaart grade,<sup>[8]</sup> which was managed by reducing pulse rate, bringing down Blood pressure and irrigating operative field with warm saline .by following this in all above cases surgery was completed. Ten patients had lower eyelid echymosis and cellulitis, both of which responded well to antibiotic treatment. During endoscopic follow-up, syneciae between the lateral wall and middle turbinate were released in nine patients.

Six patients experienced partial regurgitation, and on subsequent follow-up patient experienced total regurgitation at the sixth month follow up. Of the 88 patients, clear flow into the nasal cavity upon syringing was done, demonstrating cure [Figure 2.]. six primary failure cases with stent placement achieved free flow of saline.

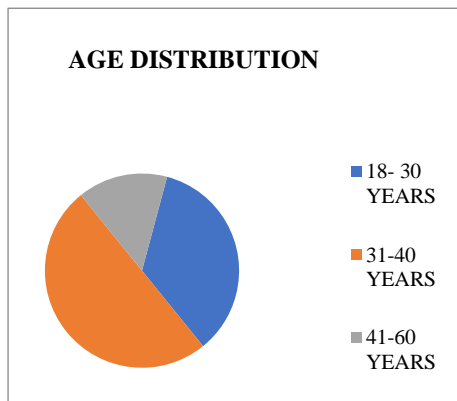


Figure.1

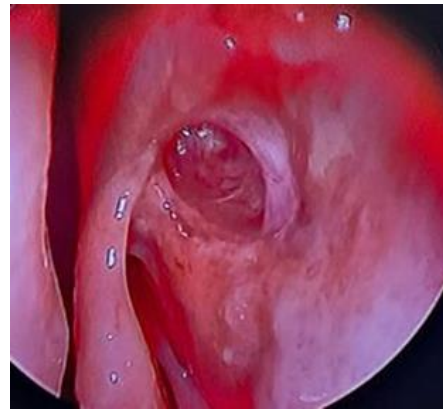


Figure.2

## DISCUSSION

The study aimed to evaluate the success rate of endoscopic Dacryocystorhinostomy (DCR) for nasolacrimal duct obstruction over a two-year follow-up period. Due to the lack of standardized criteria for assessing lacrimal surgery success, various studies use different patient selection and outcome measures. MW Yung et al. (2002) defined success based on symptom relief at 6 and 12 months, a criterion also adopted in this study following the methodology of Surinder K. Singhal et al. Our findings indicate a 94% success rate for endoscopic DCR, which aligns with reported success rates of 89.7% without intubation and 82-95% with intubation in previous studies. Camara et al. reported success rates between 70% and 90%. In our cohort, six patients who underwent endoscopic DCR with intubation achieved full success, while six experienced partial recurrence within three weeks post-surgery, which was alleviated during follow-up. No complications were noted in primary failure cases where stenting was used. Complications such as hemorrhage and stoma stenosis were minimal and comparable to findings by Fayet B et al.

### Advantages of Endoscopic DCR:

- Preferred over external DCR for nasolacrimal duct obstruction (NLDO).
- Minimally invasive and simple procedure.
- Cosmetic advantages.
- Ability to address coexisting conditions in the same procedure.
- Effective for revision surgeries.
- Overall, the study supports endoscopic DCR as a safe and effective primary treatment for NLDO.

## CONCLUSION

Endoscopic DCR is a better alternative to external DCR. Achieves 94% success rate comparable to external DCR. Authors method of removing mucosa, lacrimal bone, frontal process of maxilla and entire medial wall of sac gives higher success rate compared to laser, powered instruments and residents can reproduce the above technique easily.

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