

## Endoscopic dacryocystorhinostomy for acquired nasolacrimal duct obstruction

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### Abstract

**Objective:** To evaluate the results of endoscopic dacryocystorhinostomy performed to treat acquired nasolacrimal duct obstruction.

**Design:** Retrospective analysis of the outcome of endoscopic dacryocystorhinostomy performed in the conventional manner (i.e. without power instruments or laser) to treat acquired nasolacrimal duct obstruction.

**Subjects:** Outcomes for 300 patients with acquired nasolacrimal duct obstruction were evaluated. Cases with congenital or traumatic blockages were excluded. All the cases were evaluated for nasolacrimal duct blockage by the syringing and regurgitation test. Surgery was performed under local anaesthesia with sedation. Follow up was conducted by syringing and nasal endoscopy, up to one year. Results were compared with published data for endoscopic and external dacryocystorhinostomy.

**Results:** Outcomes were evaluated subjectively using patient symptoms, syringing results and endoscopic appearance. All cases were symptom-free following endoscopic dacryocystorhinostomy. Revision surgery was performed in 18 cases. Stents were placed in 10 patients, of which two developed granulations. Septoplasty was performed in 25 cases to gain access to the lacrimal sac area.

**Conclusion:** The results were comparable with published data for endoscopic and external dacryocystorhinostomy.

**Key words:** Lacrimal Duct Obstruction; Dacryocystorhinostomy; Endoscopy; Nasal Cavity

### Introduction

A dacryocystorhinostomy is the creation of a fistula from the lacrimal sac into the nose. This procedure is mainly used to treat distal outflow obstruction to the nasolacrimal system.<sup>1</sup>

One of the most important aspects of such surgery is establishing that the primary pathology is due to nasolacrimal duct obstruction.

Endoscopic dacryocystorhinostomy is becoming increasingly popular, compared with conventional external dacryocystorhinostomy. The endoscopic dacryocystorhinostomy procedure has become more popular over the last decade, due to advances in the design of nasal endoscopes and to the increased familiarity of otolaryngologists with the endoscopic anatomy of the nasal cavity.<sup>2</sup>

### Materials and methods

A retrospective study of 300 patients undergoing endoscopic dacryocystorhinostomy for acquired nasolacrimal duct obstruction was performed in the ENT department of the Sawai Man Singh Medical College and Attached Hospitals, Jaipur, Rajasthan,

India. Primary evaluation was conducted by an ophthalmologist; a regurgitation test was performed in the ENT department in all cases, and syringing was done in doubtful cases. Ropra's regurgitation test (i.e. expression of mucopurulent material through the puncta and canaliculi if the canaliculus and valve of Rosenmuller are patent and healthy) was considered to be the most reliable test of acquired nasolacrimal duct obstruction.<sup>3</sup>

Surgery was performed under topical anaesthesia with sedation, as all patient were 16 years or older.

A 30° endoscope was used. The area anterior to the maxillary line, just anterosuperior to the uncinat process, was infiltrated with 2 per cent Xylocaine and 1:100 000 adrenaline. Mucosa was removed to expose the bone. Bone was removed with the help of Kerrison punch forceps to create a window approximately 1–1.5 cm. The nasolacrimal sac was identified and its medial wall distended by applying external pressure. The medial wall of the sac was incised and the opening enlarged, using scissors and Kerrison punch forceps. A final rhinostomy diameter of about 1.8 mm was considered sufficient to ensure long term success.<sup>4</sup>

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FIG. 1  
Granulations at rhinostomy.

Patients were followed up weekly for one month, fortnightly for two months, and then at three months, six months and one year. Stents were placed in 10 cases of revision surgery, and in all patients with a lacrimal fistula.

Results were evaluated by syringing and by assessing patients' symptomatic recovery.

### Results

Patients' ages ranged from 16 to 70 years. Two hundred and fifty patients were female and 50 were male.

Dacryocystorhinostomy was performed on the right side in 130 cases and on the left in 170 cases. Septoplasty was performed in 25 cases to gain access to the lacrimal sac area. Revision surgery was performed in 18 cases. Stents were placed in 10

cases: six requiring revision surgery and four with lacrimal fistula. Of the 10 cases with stents, granulation was seen in two: in the sac area in one case (Figure 1) and in the sac area and lower puncta in the other (Figure 2). These granulations resolved after removal of the stent. Stents were removed between eight and 12 weeks.

After primary surgery, 282 (94 per cent) patients were symptom-free with a patent rhinostomy. Revision surgery was performed in 18 cases (6 per cent) who developed restenosis of the stoma; these patients were symptom-free after one year of follow up.

### Discussion

This study aimed to evaluate the results of endoscopic dacryocystorhinostomy performed to treat acquired nasolacrimal duct obstruction. The study results serve to emphasise the importance of careful pre-operative evaluation and endoscopic post-operative follow up. With good management, even conventional methods can give comparable results.

- **This study aimed to evaluate the results of endoscopic dacryocystorhinostomy for acquired nasolacrimal duct obstruction**
- **A retrospective analysis of endoscopic dacryocystorhinostomy outcomes was undertaken for 300 cases**
- **A 94 per cent success rate was achieved after initial surgery; 6 per cent of cases were successfully revised endoscopically**
- **Results were comparable with those of external dacryocystorhinostomy**



FIG. 2  
Granulations at lower punctua.

Following standard endonasal dacryocystorhinostomy, residual epiphora and blocked passage of saline upon irrigation have been reported in about 13 per cent of patients.<sup>5</sup> In the current study, 18 cases were revised endoscopically. After revision surgery, epiphora disappeared in all cases. Complications such as sac and canalicular stenosis, sump syndrome, distal stenosis, and adhesions between the ostium and the septum were not seen in the current study.<sup>5</sup> Although external dacryocystorhinostomy has a high success rate (85–100 per cent), longer follow-up times have given lower figures.<sup>6</sup> Laser dacryocystorhinostomy has a higher failure rate than endoscopic and external D.C.R. This procedure may induce more scarring and has a 10 per cent lower success rate at long term follow up (12 months) gives lower results as compared to immediate post operative follow up and 3 months follow up.<sup>1</sup> A very high success rate has been reported for endonasal dacryocystorhinostomy (up to 96 per cent), equivalent to that for external dacryocystorhinostomy.<sup>6,2</sup> In the current series, a success rate of 94 per cent was achieved after first surgery. Six per cent of cases were revised endoscopically, and were all symptom-free at one-year follow up.

### Conclusion

Endoscopic dacryocystorhinostomy, compared with external D.C.R. has the following advantages: greater cosmetic acceptability; reduced surgical time; minimal learning curve; minimal blood loss; less risk of interfering with the physiological lacrimal pump mechanism; simultaneous management of intranasal pathology; and the facility for biopsy if necessary, as the lacrimal sac is opened and visualised directly.

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