

Endoscopic Dacryocystorhinostomy: Our Experience

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Abstract

Endoscopic dacryocystorhinostomy is an established surgery for nasolacrimal duct block. We did a prospective study to evaluate the results and advantages. All the 90 patients underwent endoscopic DCR and 26 patients had septoplasty simultaneously. Postoperative evaluation of patency and relief of symptoms was done up to 6th month. Our study concludes that endoscopic DCR is a safe, simple procedure with a better success rate and fewer complications along with review of literature.

Keywords: Dacryocystitis, Endoscopic dacryocystorhinostomy (Endoscopic DCR), Epiphora.

INTRODUCTION

Dacryocystorhinostomy is a procedure to create an artificial, shorter lacrimal drainage into nasal cavity proximal to the ductal block. External DCR was previously considered as the best treatment but endoscopic DCR has become more popular in recent time.¹

Caldwell introduced the endonasal approach which was later modified by West in 1910.² Endoscopic DCR was first performed by Rice in 1988 and has several advantages like no facial scar and preservation of lacrimal pump.³

Many other different techniques have been tried like laser (CO₂, KTP) assisted, use of powered instruments, silicon stenting and mitomycin application with good success rates.⁴⁻⁶ The refinement of endoscopic sinus surgery techniques and otorhinolaryngologist's better understanding of endoscopic anatomy of nasal cavity has made endoscopic DCR an extensively used surgery. In this study, we describe our experience with conventional endoscopic DCR without any other assisted technique.

MATERIALS AND METHODS

Ninety patients with epiphora who underwent endoscopic DCR at our institution between January 2006 and January 2009 were included in this study. Epiphora and late regurgitation of fluid from other punctum on sac syringing

were the criteria for endoscopic DCR. All patients underwent standard procedure of endoscopic DCR with concomitant septoplasty in 26 patients. No other procedure or technique was used along with it. Patients with bilateral duct block, or revision cases and patients who did not follow-up for 6 months were excluded from our study.

OPERATIVE PROCEDURE

The technique followed in our department is as follows:

- Surgery is done usually under local anesthesia except pediatric cases which are done under general anesthesia
- 0° and 30° endoscopes are used
- 1×1 cm area of mucosa is just in front of insertion of middle turbinate is removed by cauterization or with help of sickle knife and Freer's elevator
- Corresponding lacrimal bone and frontal process of maxilla are removed using Hajek's bone punch starting from maxillary line (Figs 1 and 2)
- Medial wall of the sac is incised using cataract knife (Fig. 3) and excised as much as possible using Blakesley forceps (Fig. 4)
- Patency is checked by saline irrigation via inferior canaliculus and flow into nasal cavity through new stoma is visualized
- Light anterior nasal packing for hemostasis.



Fig. 1: Showing maxillary line and removal by Hajek's punch forcep



Fig. 4: Showing completely excised medial wall of sac



Fig. 2: Showing bulging medial wall of sac



Fig. 3: Showing pus pouring after the sac was incised by cataract knife

POSTOPERATIVE CARE

The nasal pack was removed after 24 hours. Patients were discharged on oral antibiotics and decongestants, antibiotic eye drops and nasal saline irrigation for 7 days. Patients

were followed up at 1st week, 4th week, 3rd month and 6th month. Degree of relief from epiphora was noted and nasal endoscopy with sac syringing was done at each visit. Granulation tissue or blockage of new stoma was cleared and flow of saline through it was visualized. Depending on these findings results were classified into Cured, Partial Improvement and Failure.

RESULTS

All the 90 patients (100%) had epiphora as main complaint, lacrimal abscess was present in 18 patients (20%) and 2 patients (2.2%) had lacrimal fistula as shown in Table 1. The study group had 58 males (64.4%) and 32 females (35.6%). Mean age of the group was 38.8 with the range between 8 years to 62 years. Duct block was seen on right side in 41 patients (45.5%) and on left side in 49 (54.5%) (Table 2).

Endoscopic DCR was done in 90 patients (100%) and 26 patients (28.8%) had concomitant septoplasty. As shown in Table 3, eleven patients (12.2%) had excess intraoperative bleeding but hemostasis was achieved at the end of surgery. Ecchymosis and cellulitis of lower eyelid were seen in 2 patients (2.2%) which was treated successfully with antibiotics. Nine patients (10%) had granulations and synechiae between middle turbinate and lateral wall were seen in 2 patients (2.2%) which were removed in endoscopic follow-up.

Clear flow of saline into nasal cavity on sac syringing was seen in 78 patients (86.6%) showing complete cure. Ten patients (11.1%) had partial regurgitation and 2 patients (2.2%) complete regurgitation and no flow into nasal cavity at 6th month indicating partial improvement and failure of the surgery respectively as shown in Table 4.

Table 1: Various symptoms in patients

Symptoms	Cases	Percentage
Epiphora	90	100
Lacrimal abscess	18	20
Lacrimal fistula	02	2.1

Table 2: Clinical characters of cases

Total cases		90
Mean age		38.8
Sex ratio		6.4:3.5
Duct block	Right	41
	Left	49

Table 3: Complications

Complications	Cases	Percentage
Hemorrhage (primary)	11	12.2
Ecchymosis/cellulitis	02	2.2
Granulations	09	10
Synechia	02	2.2

Table 4: Results

Results	Cases	Percentage
Cure	78	86.6
Partial improvement	10	11.1
Failure	02	2.2

DISCUSSION

Chronic dacryocystitis is one of the commonest cause of long standing epiphora. External DCR was the gold standard procedure for it but had 3-15% failure rate.⁷ Endoscopic DCR has gained popularity because of following factors.

1. No external incision hence no scar
2. Preservation of pumping action of orbicularis oculi
3. Can be performed during acute infection
4. Useful in revision after external DCR.

Umer et al showed that 21.5% of 256 patients who underwent Endoscopic DCR needed additional endonasal procedure whereas our study showed 28.8% cases had additional septoplasty.⁸ Ramakrishnan et al had a success rate of 93.33% without mucosal flap preservation in comparison to 90% with preservation.⁹ Our study had comparable success rate of 97.7% without mucosal flap preservation. Literature review showed that in some studies laser endoscopic DCR and silicon stenting had success rate lesser than that of standard endoscopic DCR.^{10,11} The

success rate of endoscopic DCR has been reported very high and is as good as or better than external DCR.¹²

The complications like hemorrhage, adhesions, stomal stenosis and ecchymosis were minimal in a study by Fayet B et al which is comparable to our study.¹³

CONCLUSION

Endoscopic DCR is a better alternative to external DCR. Standard method used in our study (without mucosal flap preservation) is very effective compared to laser assisted, use of powered instruments and silicon stenting. Coexisting sinonasal disease can also be managed simultaneously.

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