

Original article:

Endoscopic endonasal dacryocystorhinostomy: experience in a rural tertiary care hospital

Madhusudan Malpani¹, *Deependra Huli², Pooja Nagare³

1. Professor and HOD, Dept. of ENT, Pravara Rural Medical College & Hospital,
P.O.- Loni, Tal- Rahata,Ahmadnagar-413736.Maharashtra,India.

2. Junior Resident , Dept. of ENT, Pravara Rural Medical College &Hospital,
P.O. – Loni,Tal-Rahata,Ahmadnagar – 413736, Maharashtra, India.

3 .Associate Professor, Dept. of ENT, Pravara Medical College &Hospital,
P.O. –Loni, Tal- Rahata, Ahmadnagar- 413736,Maharashtra, India.

Corresponding author*

ABSTRACT:

Introduction: Our aim was to study the outcome of endoscopic endonasal dacryocystorhinostomy in our hospital

Methodology: From July 2017 to July 2019, 100 patients with chronic dacryocystitis with nasolacrimal duct obstruction who attended in ENT outpatient department of Pravara Rural Medical College & Hospital were included in this study.

Results: After 6 months, 10 patients (10%) presented with complete stenosis, 5 patients (5%) presented with partial stenosis of stoma and in 85 patients (85%) sac stoma was completely patent. Complications include bleeding, granulation tissue around the stoma, synechia inside nasal cavity and stenosis of the stoma etc.

Conclusion: Endoscopic dacryocystorhinostomy is the preferred treatment in Chronic dacryocystitis with nasolacrimal duct obstruction. The procedure has also got its added advantages too.

Keywords: Chronic dacryocystitis; endoscopic dacryocystorhinostomy; external dacryocystorhinostomy;

INTRODUCTION

Epiphora due to nasolacrimal duct obstruction is a common clinical problem that can be caused by functional or anatomical abnormality. An anatomical obstruction could be at any point along the lacrimal excretory system and could be congenital or acquired. The primary acquired nasolacrimal duct obstruction is believed to occur due to chronic inflammatory process resulting in fibrosis, stenosis, and closure of the duct ostium [11]. Dacryocystorhinostomy is a surgical procedure by which the lacrimal flow is diverted into the nasal cavity by making an opening in the lacrimal sac when the nasolacrimal duct gets blocked. The operative approach could be external or an endoscopic approach. External DCR was the gold standard method even after the endoscopic approach had been described, because of limited technology at that time with a success rate ranging between 80 and 100 % [12]. However, improvements of visualization & instrumentation technology made the endoscopic DCR gain its popularity. In addition, endoscopic DCR has several advantages over external DCR including: no external incision, shorter recovery time, maintenance of the lacrimal pumping mechanism and lower postoperative morbidity [13]. The original intranasal approach was described by Caldwell [2] in 1883. McDonogh & Meiring [3] described the first modern endonasal dacryocystorhinostomy procedure in 1989.

Endoscopic dacryocystorhinostomy has been gaining popularity, largely due to technological advances in endoscopes and other modern instruments of rhinologic surgery. The success rate of endoscopic approach is towards higher side.

MATERIALS AND METHODS

This study was carried out in the Dept of ENT, Pravara Rural Medical College & Hospital, Loni, Ahmadnagar. It comprises of 100 patients with chronic dacryocystitis who attended ENT out patient department of Pravara Rural Medical College & Hospital over a period of 2 years from July, 2017 to July, 2019. Detailed history was taken and the patients were examined carefully after admission. Lacrymal sac syringing done in all cases under topical anaesthesia to identify the level of obstruction. Diagnostic nasal endoscopy was done in all cases preoperatively to exclude any pathology inside nasal cavity and need for additional surgery like septoplasty etc.

Inclusion criteria:

- [1] ASA grade I and II patients
- [2] Both males and females
- [3] Adult patients aged 20 to 60 years of age
- [4] Patients with chronic dacryocystitis with unilateral nasolacrimal duct obstruction

Exclusion criteria:

- [1] Patients with bleeding and clotting disorder
- [2] Any pathology inside nasal cavity other than deviated nasal septum
- [3] Bilateral chronic dacryocystitis
- [4] Patients without fulfilment of inclusion criteria
- [5] Patients with stenosis of the lacrimal puncta and lacrimal canaliculi
- [6] Patients having nasolacrimal duct obstruction secondary to trauma, malignancy
- [7] Patients who underwent total maxillectomy surgery and have lower eyelid laxity
- [8] Uncontrolled medical disease

All the cases (n=100) were operated under local anesthesia with premedication (Pentazocine, Atropine, Promethazine). Nasal cavity was packed with cotton pledgets soaked in 4% lignocaine with 1:40,000 adrenaline half an hour before the starting the procedure. 4 mm 0⁰hopkins rod endoscope (Karl Storz) with camera and monitor was used in all cases. The mucosa of the lateral nasal wall in the region of the maxillary line, over the axilla and the anterior face of middle turbinate were infiltrated with 2% lignocaine with adrenaline (1:1,00,000). An U-shaped flap was created based on the uncinat process with the help of sickle knife and it is hinged posteriorly. The tough bone of frontal process of maxilla overlying the lacrimal sac was removed using a 2 mm Kerrison's punch forceps and the lacrimal sac was properly exposed. Then the periosteum over the sac was removed. The medial wall of the lacrimal sac was tented with the bowman's lacrimal probe and vertical incision was given in the sac wall from top to bottom so that the common canalicular opening can be easily seen.. Then with the help of a rightangle pick, two flaps were created so that the medial wall of the sac gets opened like a book. Now the nasal mucosa was refashioned and placed in the lateral nasal wall in such a way that it will cover

the raw bony lateral wall without blocking the large opening of the sac. Finally, merocel nasal pack was carefully placed in nasal cavity to keep the mucosal flap anastomosis in position and proper hemostasis. Nasal pack was removed after 4 days.

Lacrimal sac syringing was done in weekly interval for 6 weeks under endoscopic control. Patients were followed up for 6 months. At each follow-up regular nasal endoscopic examinations were performed to assess the wound healing and to remove crusts and granulations. Lacrimal sac syringing was done to confirm the patency of ostium. If during follow up, we found any obstruction in the lachrymal pathway or patient complaints of continued watering from the eye, it was considered as a surgical failure.

Data was tabulated and analyzed manually.

RESULTS

100 patients were taken up for endoscopic dacryocystorhinostomy during the period of July, 2017 to July, 2019 in the dept. of ENT, Pravara Rural Medical College & Hospital, Loni, Ahmadnagar. Out of these patients, 33 patients were male and 67 patients were female. All patients were adult with age range between 22 to 50 years. 26 patients had associated deviation of septum out of which 19 patients required endoscopic septoplasty prior to sac surgery to gain access to the sac area.

During follow-up, we found that after one month, 2 patients had partial stenosis (2%), 1 patient had complete stenosis (1%). After three months, 4 patients (4%) had partial stenosis, 6 patients (6%) had complete stenosis and rest 90 patients (90%) had completely patent sac stoma. But after 6 months, 10 patients (10%) presented with complete stenosis.

5 patients (5%) presented with partial stenosis and in 85 patients (85%) sac stoma was completely patent (Table 1). 31 patients (31%) presented with complications and they were managed accordingly. 6 patients (6%) presented with bleeding who were managed conservatively. 1 patient (1%) presented with postoperative cellulitis of the lower eye lid which was also responded with oral antibiotics and anti-inflammatory agents. 5 patients (5%) developed granulation tissue around the stoma which was removed during the follow-up endoscopic cleaning. 4 patients (4%) presented with synechia inside nasal cavity which was resected during followup. 5 patients (5%) had partial stenosis of stoma after 6 months follow-up. On sac syringing, there was free flow of water. 10 patients end up with complete stenosis of stoma after 6 months (Table 2). But the refused the option of revision surgery.

DISCUSSION

3 to 4% of patients attending the ophthalmology clinics, complaint of excessive tearing [4] of which chronic dacryocystitis is one of the commonest causes. Chronic infection of lachrymal sac due to pathway obstruction leads to outlet obstruction and overflow of tear. External dacryocystorhinostomy was the standard surgical approach previously. But since the advent of endonasal endoscopic dacryocystorhinostomy, the popularity of external dacryocystorhinostomy is dramatically reduced as there are certain definite advantage are there in endoscopic dacryocystorhinostomy.

The failure rate of external dacryocystorhinostomy is in between 3 – 15 % [5]. But in endonasal endoscopic dacryocystorhinostomy success rate is higher. It directly access to the sac through the lacrimal bone, avoiding double-side dissection of the sac and is less traumatic, thus, it shortens the hospital stay. The facial scar is

avoided and it preserves the lacrimal pump function. Even in case of acute dacryocystitis, we can go for endoscopic dacryocystorhinostomy where external dacryocystorhinostomy is contraindicated.

In our study, we have found a female's predominance with a male female ratio 1: 2.03 which is almost comparable with Yung & Hardman [6]. Our success rate in this study is 85 % which can be compared with other studies. Literature review shows that the success rate of endoscopic dacryocystorhinostomy varies between 82 to 95% [6-9]. Success in endoscopic dacryocystorhinostomy mostly depend on adequate bone work and wide removal of frontal process of maxilla. Stoma should be wide enough (Fig.I) and common canalicular opening should be visible. Adequate postoperative follow-up is also necessary. Complications of endoscopic dacryocystorhinostomy include stenosis of the stoma, bleeding from the nasal cavity, orbital injury, CSF leakage through a fractured ethmoid, and corneal abrasion, synechia inside nasal cavity and infection [10]. There may be formation granulation tissue around the stoma. Before going for endoscopic dacryocystorhinostomy, we have to be sure that the level of obstruction is at nasolacrimal duct level. Common canalicular blockage is very difficult to manage and rate of complications is also higher. We should also examine the nasal cavity properly to exclude other separate pathologies. Septal deviation should be corrected, if any.

Patency of sac opening during sac syringing

Nasolacrymal fistula	1 month	3 months	6 months
Completely patent	97 (97%)	90 (90%)	85(85%)
Partially patent	2 (2%)	4 (4%)	5 (7.5%)
Complete obstruction	1 (1%)	6 (6%)	10(12.5%)

Complications of surgery

Complications	No of cases (n=100)
No complication	69 (69%)
Bleeding	6 (6%)
Cellulitis	1 (1%)
Granulation around the stoma	5 (4%)
Synechia	4 (4%)
Partial stenosis	5 (5%)
Complete stenosis	10 (10%)



Figure I : Intraoperative picture showing a wide rhinostoma (A).

CONCLUSION

Endoscopic dacryocystorhinostomy is the preferred treatment in Chronic dacryosystitis with nasolacrimal duct obstruction. There are so many advantages of endoscopic dacryocystorhinostomy over the external acryocystorhinostomy. Regular follow-up is necessary in the postoperative period.

REFERENCES

1. Toti A (1904) Nuovomethodoconservatoreedicuraradicale dellesuppurationicroniche del saccolacrimal (Dacriocystorinostomia). Clin Mod Firenze 10:385–387
2. Caldwell GW (1893) Two new operations for obstruction of the nasal duct. N Y Med J 57:581–582
3. McDonogh M, Meiring JH (1989) Endoscopic transnasal dacryocystorhinostomy. J Laryngol Otol; 103:585–7
4. Welham RA (1997) Clinical ophthalmology. Miller S Ed, IOP Publishing Ltd: Bristol (Indian Edn); 391–441
5. Metson R (1990) The endoscopic approach for revision DCR. Laryngoscope 100:1344–1347
6. Yung MN, Hardman Lea S (2002) Analysis of the results of surgical endoscopic dacryocystorhinostomy: Effect of the level of obstruction. Br J Ophthalmol 86(7):792–794
7. Mangal S, Vimal J, Gupta SC (2004) Intranasal Endoscopic DCR (END-DCR) in cases of dacryocystitis. Indian Journal of Otolaryngology and Head and Neck surgery 56(3):177–183
8. Mortimore S, Banhegyi GY, Lancaster JL (1999) Endoscopic DCR without silicon stenting. J R Coll Surg Edinb 44:371–373
9. Wormald PJ (2002) Powered endoscopic dacryocystorhinostomy 112(1):69–72
10. Fayet B, Racy E, Assouline M. Complications of standardized endonasal dacryocystorhinostomy with unciformectomy. Ophthalmology. 2004; 111:837–845. 1.
11. Önerci M. Dacryocystorhinostomy; Diagnosis and treatment of nasolacrimal canal obstructions. Rhinology. 2002; 40(2):49–65.
12. Ben Simon GJ, Joseph J, Lee S, Schwarcz RM, McCann JD, Goldberg RA. External versus endoscopic dacryocystorhinostomy for acquired nasolacrimal duct obstruction in a tertiary referral center. Ophthalmology. 2005; 112(8):1463–8.
13. Gurler B, San I. Long-term follow-up outcomes of non laser intranasal endoscopic dacryocystorhinostomy: how suitable and useful are conventional surgical instruments? Eur J Ophthalmol. 2004; 14(6):453–60.
14. Ganesh Chandra Gayen, Kanika Mandi Chowdhury, Ritam Ray Endoscopic endonasal dacryocystorhinostomy: experience in a rural tertiary care hospital IOSR Journal Of Pharmacy (e-ISSN: 2250-3013