

**Original article:**

## **Study of outcomes of endonasal dacryocystorhinostomy in relation with sex distribution in Indian population**

**<sup>1</sup>Dr. Mayur Ingale, <sup>2</sup>Dr. Vinod Shinde, <sup>3</sup>Dr. Paresh Chavan , <sup>4</sup>Dr. Sudeep Choudhary**

<sup>1</sup>Assistant Professor, Department of ENT, Dr. D. Y. Patil Medical College, Pimpri, Pune , India

<sup>2</sup>Associate Professor, Department of ENT, Dr. D. Y. Patil Medical College, Pimpri, Pune, India

<sup>3</sup>Assistant Professor, Department of ENT, Dr. D. Y. Patil Medical College, Pimpri, Pune, India

<sup>4</sup>Resident, Department of ENT, Dr. D. Y. Patil Medical College, Pimpri, Pune, India

Corresponding author : Dr. Mayur Ingale

---

### **Abstract:**

**Introduction:** The external dacryocystorhinostomy has remained the gold standard by which all newer methods of dacryocystorhinostomy (DCR) must be judged. Relatively high success rate of this procedure does not however detract from its limitations. With this background present work was planned to study the outcomes of endonasal dacryocystorhinostomy in relation with sex distribution.

**Material and methods:** It was prospective study conducted in Department of Otorhinolaryngology, Dr. D. Y. Patil Medical College and Hospital Pimpri, Pune. Patients attending Otorhinolaryngology and Ophthalmology OPD of Dr. D. Y. Patil Hospital, Pimpri, Pune. This study includes 50 patients fulfilling criterias of inclusion. Those who consented for surgery were then listed for an endonasal DCR.

**Results and conclusion:** There were 40 (80%) female patients and 10 (20.0%) male patients. Male: Female ratio 4:1

**Keywords:** dacryocystorhinostomy

---

### **Introduction**

The external dacryocystorhinostomy has remained the gold standard by which all newer methods of dacryocystorhinostomy (DCR) must be judged. Relatively high success rate of this procedure does not however detract from its limitations. <sup>1</sup>Postoperative morbidity, including periorbital bruising, epistaxis and late dacryocystorhinostomy failure have led to the search for a less invasive approach to the operation. Further more, the questions have arisen regarding the need for extensive dissection required in external dacryocystorhinostomy. The increasing use of endoscopic techniques for performance of functional intranasal and sinus surgery has allowed the visualization of nasal cavity and has

awakened interest in transnasal approach to the nasolacrimal apparatus.

The nasolacrimal apparatus being intimately related to lateral nasal wall may readily be approached using an endoscopic technique that minimizes functional interference with physiological action of the lacrimal pump. In previous reports, the success rate for endonasal endoscopic DCR has remained lower than the success rate for external DCR. The higher primary success rate for external DCR is probably due to the creation of a controlled epithelial lined mucosal anastomosis. <sup>2</sup>Both of these DCR techniques have a minimal risk of complications and since the secondary success rates are equal for endonasal endoscopic DCR and external DCR, it has been concluded that

they represent good alternatives for the treatment of primary acquired nasolacrimal sac or duct-obstruction. As the technique gets refined, the endonasal DCR may slowly and surely be replacing the external DCR.<sup>3,4</sup>

With this background present work was planned to study the outcomes of endonasal dacryocystorhinostomy in relation with sex distribution.

#### **Material and methods**

It was prospective study conducted in Department of Otorhinolaryngology, Dr. D. Y. Patil Medical College and Hospital Pimpri, Pune. Patients attending Otorhinolaryngology and Ophthalmology OPD of Dr. D. Y. Patil Hospital, Pimpri, Pune. This study includes 50 patients fulfilling criterias of inclusion. Those who consented for surgery were then listed for an endonasal DCR.

#### **Inclusion Criteria**

- ❖ Patients coming with complaints of continuous lacrimation.
- ❖ Patients who are willing for surgical procedure.

#### **Exclusion Criteria**

- ❖ Patients not willing for the surgical procedure.
- ❖ Patients with any systemic disorders.
- ❖ Malignancy.

Cases selected were subjected to a complete examination according to a defined proforma.

- Detailed ocular and systemic history is taken .Patients were examined with particular reference to the lacrimal apparatus. A detailed ocular examination was done by ophthalmologist. Rhinoscopy was done to look for any

significant nasal pathology.

- The patency of the nasolacrimal duct was identified by lacrimal sac syringing with normal saline.
- Routine blood investigations like Hb%, BT, CT, Urine for albumin, sugar and other relevant investigations like dacryocystograph were done when required.
- Acute dacryocystitis cases were treated on medical line and then subjected for surgery.
- All patients received a course of antibiotic starting one day prior to surgery and continued for 5 days.

#### **Technique of endoscopic dacryocystorhinostomy**

- ❖ All procedure was done under LA/GA anaesthesia.
- ❖ The nose is packed with 4% xylocaine with adrenaline one hour before the surgery.
- ❖ Premedication of Fortwin and Atropine 30 minutes prior to surgery.
- ❖ Nasal endoscopy is performed with a 0 degree endoscope.
- ❖ Identification of the middle turbinate, trace its anterior arch laterally as the maxillary line.
- ❖ The area in front of maxillary line is the lacrimal sac area. The sac is covered by the lacrimal bone which is removed during the surgical approach to lacrimal sac.
- ❖ Inject 2% xylocaine with adrenaline (1:100,000) (if no

- ❖ contraindication of adrenaline) to the lacrimal sac area and also at the middle turbinate as middle turbinate is very sensitive to touch.
- ❖ Remove the mucosa with a sickle knife.
- ❖ Expose the lacrimal bone area completely.
- ❖ Perforate the lacrimal bone with a Kerrison DCR punch forceps, the starting point of the perforation is at the maxillary line.
- ❖ Once small opening is made, press the lacrimal sac from the outside. The bony dehiscence will be felt at lacrimal sac area. The movement of medial wall of sac in endoscopic view will confirm the lacrimal sac.
- ❖ Enlarge the newly created stoma with DCR forceps as big as possible.
- ❖ The lacrimal punctum is cannulated and the lacrimal sac is filled with saline.
- ❖ Create a vertical incision in the lacrimal sac with a #12 BP Parker tonsillar blade.
- ❖ Enlarge this newly created stoma with true cutting forceps.
- ❖ Pass the lacrimal probe from lower punctum of the eye, negotiate it to come out from newly created stoma inside the nose to break any adhesion at opening of nasolacrimal duct near the sac.
- ❖ Carry out the sac syringing .The free flow of saline indicates successful surgery.
- ❖ Anterior nasal pack.
- ❖ Patient is discharged in the evening after the pack removal.
- ❖ One week course of oral antibiotic and antibiotic eye drop.

**Observation and results**

**Table 1: Sex Distribution**

Sex	No. of patients	Percentage (%)
Male	10	20.0
Female	40	80.0
<b>Total</b>	<b>50</b>	<b>100.0</b>

**Table 1 shows the sex distribution of the patients.**

There were 40 (80%) female patients and 10 (20.0%) male patients. Male: Female ratio 4:1

**Table 2: Pathology in nose**

Pathology in nose	No. of patients	Percentage (%)
Normal nasal anatomy	42	84.0
DNS to right	4	8.0
DNS to left	4	8.0
<b>Total</b>	<b>50</b>	<b>100.0</b>

Associated nasal pathology was DNS which was seen in 8 patients (16%). DNS to right was seen in 4 (8.0%) patients and DNS to left was seen in 4 (8.0%), rest of them had normal nasal anatomy. Out of these, 2 patients were having symptomatic DNS for which septoplasty was done followed by endonasal endoscopic dacryocystorhinostomy in the same sitting.

**Table 3: Diagnostic criteria**

Diagnostic criteria	No. of patients	Percentage (%)
RCD	7	14.0
LNLD	9	18.0
LCD	17	34.0
LNLD	1	2.0
LCD	3	6.0
RCD	4	8.0
RNLD	7	14.0
B/LCD	2	4.0
<b>Total</b>	<b>50</b>	<b>100.0</b>

**Table 3 shows Diagnostic criteria:**

There were 17(34.0%) cases of Left Chronic Dacryocystitis (LCD) and one case of LNLD (2%).

**Table 4: History of previous surgery**

Previous surgery	No. of patients	Percentage (%)
Nil	47	94.0
Right external DCR	2	4.0
Left external DCR	1	2.0
<b>Total</b>	<b>50</b>	<b>100.0</b>

**Table 4 shows history of previous surgery:**

47(94%) patients presented to us for first time. 3 (6.0%) cases were previously operated by External DCR.

**Discussion**

In a study conducted by David S et al<sup>5</sup>, 80% of those who underwent endonasal DCR were females. In the present study 40 (80%) patients were females, which is similar to the above mentioned study. The very striking predilection for females is due to narrower lumen of the bony lacrimal canal and high nasal index (Sir Stewart Duke Elder). Most studies demonstrate that 70%-83% of cases of dacryocystitis occur in females (Viers R).

Studies have shown that ocular origin for

inflammation of the lacrimal system is less common than nasal origin (Garfin SW).<sup>6</sup> The chronic infections of the maxillary sinus and ethmoidal cells, septal deviation and acute infection in the nasal cavity may lead to an ascending infection via Hasner's fold. This results in a inflammatory reaction of the nasolacrimal duct followed by swelling, ulceration, scar formation and stenosis. The same pathologic process may occur from recurrent infections descending from the conjunctiva. The pathogenesis of so called

idiopathic stenosis is unknown and is a subject of controversy.

Manfred Weidenbecher et al<sup>7</sup> in his study noted detached 72% of septal deviation, 32% of maxillary sinusitis, 20% hyperplasia of turbinates, 14% nasal polyposis and none of these in 16% patients.

In our study, associated nasal pathology was DNS which was seen in 8 patients (16%) of whom Right DNS was seen in 4 (8%) and left DNS in 4 (8%) patients, but none required septoplasty as it was not obscuring the field of surgery.

In this study patients had four follow up visits scheduled at the end of 1<sup>st</sup> week, 3<sup>rd</sup> week, 3<sup>rd</sup> month and 6<sup>th</sup> month. At the end of 3<sup>rd</sup> week 1 (2%) patient, by 3<sup>rd</sup> and 6<sup>th</sup> month 5 (10%)

patients were found to be having block with clear regurgitation on lacrimal syringing. In this study, success rate was defined by an anatomically patent nasolacrimal system ascertained by nasolacrimal irrigation at the end of 6 months after surgery. 45 (90%) patients had successful outcome at the end of 6 months. The success rates are comparable with the success rates of studies done by Hartikainen et al who reported a success rate of 75%, David S et al<sup>7</sup>, who reported 100% success rate and Cokkeser Y et al reported a success rate of 88.2%.<sup>8</sup>

#### **Conclusion:**

There were 40 (80%) female patients and 10 (20.0%) male patients. Male: Female ratio 4:1

#### **References**

1. Jokinen K Karja J. Endonasal Dacryocystorhinostomy. Arch Otolaryngology 1974; 100:41-44.
2. Thorton SP, Batchelor ED. Dacryocystorhinostomy with nasolacrimal prosthesis. Ophthalmic Surg 1975; 6: 50-52.
3. Korkut AY, Teker AM, Yazici MZ, Kahya V, Gedikli O, et al. (2010) Surgical outcomes of primary and revision endoscopic dacryocystorhinostomy. J Craniofac Surg 21: 1706–1708.
4. Leone CR Jr., van-Germert JV, Underwood L. Dacryocystorhinostomy: a modification of the Dupuy-Dutemps operation. Ophthalmic Surg\_1979; 10: 35-38.
5. David S, Raju R, Job A et al. A comparative study of external and endoscopic endonasal dacryocystorhinostomy: A preliminary report. Indian Journal of Otolaryngol Head Neck Surg 2000; 52(1): 32-37.
6. Duck-Elder S. System of Ophthalmology, Vol-3 Part II, St Louis, C. V. Mosby Co., 1976: 72-78.
7. Garfin SW. Etiology of dacryocystitis and epiphora. Arch Ophthalmol 1942; 27
8. Man Fred Weidenbecher, Werner Hosemann, Wolfgang Buhr. Endoscopic endonasal dacryocystorhinostomy: results in 56 patients Ann Otol Rhino Laryngol 1994; 103: 363 -367.