

Original article:

Study of outcomes of endonasal dacryocystorhinostomy in relation with age distribution in Indian population

¹Dr. Mayur Ingale, ²Dr. Nayanna Karodpati, ³ Dr.Sudeep Choudhary, ⁴Dr. Saniya Khan

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

²Professor, Department of ENT, Dr. D. Y. Patil Medical College, Pimpri, Pune , India

^{3,4} Resident, Department of ENT, Dr. D. Y. Patil Medical College, Pimpri, Pune ,India

Corresponding author: Dr. Mayur Ingale

Abstract:

Introduction: The traditional surgical approach to distal obstruction of the nasolacrimal duct system has been by an external skin incision. Introduction of nasal endoscope has now been able to provide an alternative approach to the treatment of epiphora where the cause is an obstruction distal to the common canaliculus. With this background present work was planned to study outcomes of endonasal dacryocystorhinostomy in relation with age distribution in Indian population .

Material and methods: It was prospective study conducted in Department of Otorhinolaryngology, Dr. D. Y. Patil Medical College and Hospital Pimpri, Pune from July 2011 to September 2013. 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: Most of the patients were in 31-40 years age group. The youngest being 8 years and the oldest was 60 years old and the mean age was 33.18 years.20 (40%) cases belonged to the age group of 31-40 years.

Conclusions: From present study we may conclude that maximum number of cases belonged to the age group of 31-40 years.

Keywords: nasolacrimal duct system

Introduction

The traditional surgical approach to distal obstruction of the nasolacrimal duct system has been by an external skin incision. Introduction of nasal endoscope has now been able to provide an alternative approach to the treatment of epiphora where the cause is an obstruction distal to the common canaliculus.^{1,2}

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. 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.³The 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.

With this background present work was planned to study outcomes of endonasal dacryocystorhinostomy in relation with age distribution in Indian population .

Material and methods:

It was prospective study conducted in Department of Otorhinolaryngology, Dr. D. Y. Patil Medical College and Hospital Pimpri, Pune from July 2011 to September 2013.

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: Age Distribution

Age (in years)	No. of patients	Percentage (%)
1-10	4	8.0
11-20	4	8.0
21-30	10	20.0
31-40	20	40.0
41-50	10	20.0
51-60	2	4.0
Total	50	100.0

Table 1 shows age distribution of the patients.

Most of the patients were in 31-40 years age group. The youngest being 8 years and the oldest was 60 years old and the mean age was 33.18 years.20 (40%) cases belonged to the age group of 31-40 years. This was followed by 10 (20%) cases in the age group of 21-30 years and 10 (20%) cases in the age group of 41-50 years. This was shortly followed by 4 cases (8.0%) in the age group of 1-10 years and 4 cases

(8.0%) in the age group of 11-20 years. There were two cases (4.0%) in the age group of 51 -60 years.

Table 2: Laterality of symptoms

Laterality	No. of patients	Percentage (%)
Right	19	38.0
Left	29	58.0
B/L	2	4.0
Total	50	100.0

Table 2 shows laterality of symptoms.

There were total 19 cases (38.0%) with right sided symptoms. There were total 29 cases (58%) with left sided symptoms. There were total 2 cases (4.0%) with bilateral symptoms.

Table 3: 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
Total	50	100.0

Table 3 shows associated otorhinolaryngology problems

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.

Discussion

In a study done by Jauko Hartikainen⁴ patients who underwent external dacryocystorhinostomy were in the range of 25-86 years. Mean age was 64.8 years. In endoscopic DCR group patients were in the range of 24-90 years. Mean age was 61.0 years. In a study done by David S et al⁵ the mean age of patients who underwent external DCR was 34.4 and 41.9 in case of endoscopic DCR. In the present study, most of the patients were in 31-40 years age group. The youngest being 8 years and the oldest was 60 years old and the mean age was 33.18

years. 20 (40%) cases belonged to the age group of 31-40 years. This was followed by 10 (20%) cases in the age group of 21-30 years and 10 (20%) cases in the age group of 41-50 years. This was shortly followed by 4 cases (8.0%) in the age group of 1-10 years and 4 cases (8.0%) in the age group of 11-20 years. There were two cases (4.0%) in the age group of 51 -60 years.

A study done by Hartikainen⁴ showed majority of the patients to have left sided symptomatology

This study also showed similar findings with 29 (58%) cases with left sided symptoms. It is

observed that nasolacrimal duct and lacrimal sac form a greater angle on the right side than left, which increases the chance of stasis and obstruction of nasolacrimal duct and lacrimal sac on left side. It is, therefore, attributed as the cause for preponderance of chronic dacryocystitis on left side (Arisi 1960). Other explanation is, since their left hand is free and used for cleaning the eye or mopping of tears, the chances of infection in left eye are more. Another possibility could be congenital anatomical narrowing of nasolacrimal duct on left side.

Studies have shown that ocular origin for inflammation of the lacrimal system is less common than nasal origin (Garfin SW).⁶ 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.

Conclusions

From present study we may conclude that maximum number of cases belonged to the age group of 31-40 years.

References:

1. Caldwell GW (1893) Two new operations for obstruction of the nasal duct with preservation of the canaliculi. *Am J Ophthalmol* 10: 189-191.
2. DipakRanjanNayak, Sathish KR, Parul Shah et al. Endoscopic Dacryocystorhinostomy and retrograde nasolacrimal duct dilatation with cannulation: our experience. *Indian J Otolaryngology Head and Neck Surg* 2000; 52(1): 23 -27.
3. Jokinen K Karja J. Endonasal Dacryocystorhinostomy. *Arch Otolaryngology* 1974; 100:41-44.
4. Hartikainen J, Anitila J, Matti V et al. Prospective randomized comparison of endonasal endoscopic Dacryocystorhinostomy and external Dacryocystorhinostomy. *Laryngoscope* 1998; 108: 1861 -1866
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. Garfin SW. Etiology of dacryocystitis and epiphora. *Arch Ophthalmol* 1942; 27: