ORIGINAL ARTICLE

Effectiveness of Endonasal Endoscopic Dacryocystorhinostomy for Chronic Dacryocystitis

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Abstract

***Background**: External Dacryocystorhinostomy was surgical procedure for the treatment of complete nasolacrimal duct obstruction in adults before the endoscopic dacryocystorhinosotomy. This study was done evaluate the rate of success of Endo DCR procedure in patients with chronic Dacryocystitis. **Methods**: The study was carried out in MGM Hospital Warangal and 60 patients were selected for the procedure following inclusion and exclusion criteria and patients underwent Endonasal endoscopic dacryocystorhinostomy and they were followed for three months for complications and recurrences. **Results**: 60 selected patients underwent the surgical procedure Endo DCR. Out of which 40 (66.67%) were female and 20 (33.33%) were male patients. Most common age group was 46 – 60 years 16 (26.67%). Left side was most commonly involved 33 (55%) of the patients. Septoplasty was also performed along with Endo DCR in 10 (16.67%) patients and Chonchoplasty was performed along with Endo DCR in 5 (8.34%) patients. Success was seen in 54 (90%) and complications were seen in 6 (10%) of cases. **Conclusions**: External Endoscopic dacryocystorhinostomy is a safe surgical procedure for treatment of chronic Dacryocystitis it has advantages like minimal blood loss, less surgical operating time, can be used in medically compromised patients and better esthetic results post operatively which is more acceptable by the patient. Success in this procedure mainly depends on creating a wide stoma and preservation of mucosa around lacrimal window to reduce change of post operative scarring and stenosis.*

***Keywords**: Dacryocystorhinostomy, Dacryocystitis, Endoscope*

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Introduction

Lacrimal or Nasolacrimal duct obstruction is a common disorder clinically manifests presence of tearing and infection. Although medical treatment including antibiotic therapy addresses the symptoms of this problem, definitive management of this problem generally consists of surgical procedure in which the patency of the lacrimal system is restored. [1] We live in a surgical era which strives towards minimal trauma, ENT is one of the pioneers in minimally invasive microsurgical techniques. Planter in 1724, describe the technique of surgically treating chronic dacryocystitis. [2] Nasolacrimal duct obstruction leads to recurrent infections of the lacrimal sac. [3] Obstruction of the lacrimal pathways whether congenital or acquired is a common problem that can be corrected with dacrocystorhinostomy. [4, 5] The function dacryocystorhinostomy is to divert lacrimal drainage into the nose through an osteotomy at the level of the lacrimal bone. This procedure is performed either through an external endonasal approach 1 or by Endo DCR more recently. External dacryocystorhinostomy was surgical procedure for the treatment of complete nasolacrimal duct obstruction in adults before endo DCR. External dacryocystorhinostomy, as originally described in 1904 by Toti consisted of resecting the lacrimal sac mucosa, bone and nasal mucosa through an external skin incision. [6] This procedure has largely been unchanged and remains the gold standard in the treatment

of acquired nasolacrimal duct obstruction. [7] The major risks are complications scar, infections, disruption of medial canthal ligament and lengthy procedure with significant blood loss and nose bleeds. [8, 9]

The idea of using an endonasal approach for the same surgery was described by Caldwell in 1893, with the advent of the rigid fiber optic endoscope and its use in paranasal sinus surgery, there has been renewed interest over past decade in endonasal surgery to correct primary and recurrent lacrimal obstructions. [1] The procedure of Endonasal Dacryocystorhinostomy is easy hence it has wide scope. Blood loss is minimal in this procedure. [9] It is cosmetically more acceptable because it avoids scar. It may be used in cases of acute dacryocystitis where the external approach is not possible. It is a day care surgery hence it can be done in medically compromised patients who are relative contra indication for external dacryocystorhinostomy under general anaesthesia. [10] Simultaneous nasal and paranasal sinus pathologies can be treated in the same sitting which has been an important cause for failure of external dacryocystorhinostomy. For nasolacrimal duct obstruction, the endonasal technique is approach of choice and can be procedure of choice for revision surgery. [11] With this in mind we tried to evaluate the results of Endonasal Endoscopic Dacryocystorhinostomy in selected patients and evaluate their post operative results.

Materials & Methods

The present study was carried in OPD of ENT of MGM Hospital Warangal 60 patients were selected of both sexes following the inclusion and exclusion criteria and the procedure was completely explained to the patients and a written consent was obtained. Institutional Ethical committee permission was obtained for the study. Inclusion criteria were all patients attending OPD of ENT with diagnosis of Chronic Dacryocystitis due to nasolacrimal obstruction based on the clinical examination and radiological examination. Exclusion criteria were patients below 15 years of age and those above 70 years those with canicular pathology and patients with bleeding disorders, uncontrolled hypertension, diabetes mellitus and immunocompromised patients. Routine investigations performed before surgery included complete blood picture, urine examination, syringing to check the patency of lacrimal passages Diagnostic nasal endoscopy X-PNS Dacryocystography when necessary.

Procedure

Local or general anaesthesia was used depending on the level of anxiety, co-operation and general health of the patient. The Endonasal approach was introduced in 1893 by Caldwell and modified by West and Halle. [12-14] The patient was placed in a supine position with the head slightly elevated to decrease venous pressure at the operative site. Visualization during endonasal dacryocystorhinostomy includes endoscopy video monitoring with better magnification and visualization. A 4 mm diameter nasal endoscope with 0 to 30 degree viewing angle provides excellent visualization the head of middle turbinate may needed to be trimmed in order to achieve a proper approach to the lacrimal sac. This maneuver will make post operative care easier and it will prevent unwanted scarring which would jeopardize the final result. Care must be taken because manipulation of the middle turbinate can cause significant bleeding and post operative scarring. Concurrent septoplasty is necessary if septal deviation is so severe that adequate visualization and access to the lateral nasal wall is blocked. A 20 G retinal light is placed through the dilated canaliculus and advanced through the sac to the medial wall. The light from the retinal light pipe marks the site of the intended ostium. Bowman lacrimal probe can be placed into the lacrimal sac to guide location of ostium. 2% fluorescent dye with viscoat is instilled in the lacrimal sac for identification.

The incision was given in the internal wall of the nose with the help of sickled knife starting just anterior to the Axilla of middle turbinate and proceeded in forward direction for 0.5 to 0.7cm the vertically downward for 1.25 cms and thereafter it is proceeded posterioly thus creating a posterior based mucoperiosteal flap which is elevated with help of Freer's elevator and removed with a straight forceps. Once the lacrimal fossa is exposed the osteotomy is formed mainly by fracturing the thin lacrimal bone using the probe of the light pipe or hemostat Enlargement is performed anteriorly with a ear cutting bur under irrigation. A vertical

incision is given in posterior aspect of the medial wall of the sac with the help of right angled micro knife or sickle knife or spear knife. Dacryocystorhinostomy knife is used to cut anterior flap at the superior and inferior extent of the vertical incision. Micro scissors are used to cut the posterior flap. A sharp biting through Blakesley is used to cut the middle two thirds out of the original mucosal flap there by creating U shaped flap when replaced into the lateral nasal wall this meets the flaps from the lacrimal sac end to end creating close apposition of the edges of the nasal wall. This will result in primary intention healing at the superior, inferior and posterior sac edges. The raw area is then filled with antibiotic ointment and nasal packing is effective in achieving homeostasis. Post operatively sterile eye drops are prescribed with systemic antibiotics for 7 - 10 days Post operative examination and follow up was done 4 -5 days for 4 weeks followed by monthly examination for 3 months.

Results

Randomly selected 60 patients were taken up for this procedure and studied. A total of 40 female (66.67%) were included and 20 (33.33%) male patients were included the other characteristic of the distribution of the patients are given in detail in Table 1.

The most common side involved in the pathology was the left lacrimal apparatus which was seen in 33(55%) of the patients and Right side was involved in 27(45%) of the patients and the distribution of the involved side is given in detail in the Table 2

The performed procedure was Endo DCR in 40 patients and in 9 patients Endo DCR along with Septoplasty was performed as it was deemed necessary and in 5 patients Endo DCR along with Chonchoplasty was performed. The Overall success in all the cases was 90% and complications occurred in 10% of the patients given in table 3.

The most commonly encountered complication is granuloma. Granulation tissue formation during healing process will decrease or compromise the created surface area of the osteotomy site leading to surgical failure.

Graph 1: Showing complications which occurred after Endo DCR

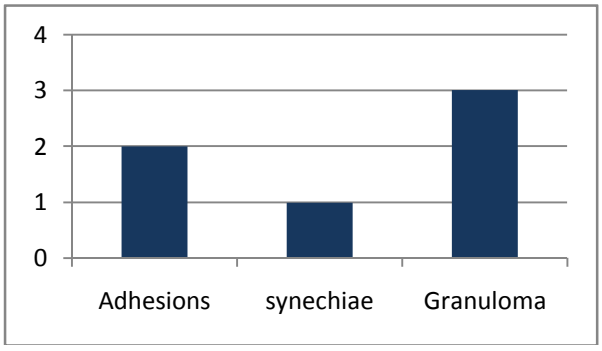

Table 1: Age and sex distribution of patients

Age In Years	No. of patients	Female	Male	Percentage
16 – 30	14	4	8	23.33
31 – 45	18	11	5	30
46 – 60	16	15	4	26.66
60 – 70	12	10	3	20
Total	60	40	20	100

Table 2: Side of the Lacrimal apparatus involved in patients

Side	Female	Male	Total	percentage
Right	19	8	27	45
Left	21	12	33	55
Total	40	20	60	100

Table 3: Operative procedure performed with success and failure percentage

Operation	Success	Percentage	Failure	Percentage
Endo DCR	40	66.67	5	8.33
Endo DCR with Septoplasty	9	15	1	1.67
Endo DCR with Chonchoplasty	5	8.33	Nil	---
Total	54	90	6	10

Discussion

Epiphora is an annoying symptom embarrassing the patient both socially and functionally. The widely accepted modality of treatment for epiphora resulting from the obstruction of the nasolacrimal duct is Endoscopic dacryocystorhinostomy. The current study was carried on 60 patients presenting with symptoms of epiphora. The main purpose of the study was to find the success rates following Endoscopic dacryocystorhinostomy. In the present study we found patients 33.33% male and 66.67% female which comes out to ratio of male: female as 1:2, this data correlates with other studies which shows there is significant preponderance of lacrimal obstruction in female. [8, 15, 16] This could be due to alteration in the lacrimal pathways which is a consequence of long term use of cosmetics, especially on the rim of the lower eye lids. It could also explain why lacrimal obstruction most often occurs in elderly women. Chronic Dacryocystitis is generally seen in women of low socioeconomic group due to their personal hygiene and long duration of exposure to smoke in kitchen and dust in external environment. Other possible causes could be anatomical narrowing of the lacrimal drainage system in female as compared to male. [17] We in this study also found most cases of chronic dacryocystitis on left side 55%. It has been usually observed that the nasolacrimal duct and lacrimal sac formed a greater angle on right side than the left side. It increases the chances of stasis and obstruction of nasolacrimal duct and lacrimal sac of the left side other possible explanation is most of the people are right handed as a result left hand is free and used for cleaning the eye and mopping of tears increase the chance of infection of the left eye. One of reasons may be congenital or anatomic narrowing of the nasolacrimal duct on left side. In this study we found all the patients were with unilateral block and after operative procedure patients were discharged next post operative day unless adjunctive surgery is required or complication develops. In this study success rate was defined by an anatomically patient nasolacrimal system ascertained by irrigating at regular intervals up to 3 months after surgery. Dye application to conjunctival fornix during endoscopy and visualization of the dye at the osteotomy site has been shown to be useful in assessing rhinostomy patiency. The overall success was 90% which is equivalent to those obtained by specialist lacrimal clinics. In the present study complications were found in 10% of patients with synechiae, adhesions and granulation tissue formation which were diagnosed by nasal endoscopy. The main cause of failure in dacryocystorhinostomy surgery is fibrosis of intranasal ostium. [18, 19] Metson stated that scarring of the ostium and errors in ostium location are the major cause of surgical failure. [20] Other similar studies have shown the failure rates ranging from 5 % to 18 %. [4, 10, 21]

Conclusion

External Endoscopic Dacryocystorhinostomy is a easy and safe surgical procedure for treatment of chronic Dacryocystitis it has advantages like minimal blood loss, less surgical operating time, can be used in medically compromised patients and better esthetic results post operatively which is more acceptable by the patients. It is also more physiological because it preserves larcimal pump mechanism. Success in this procedure mainly depends on creating a wide stoma and preservation of mucosa around lacrimal window to reduce change of post operative scarring and stenosis.

Conflict of Interest: *None declared*
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