

ORIGINAL ARTICLE

	Journal of Contemporary Medicine and Dentistry www.jcmad.com	ISSN [P-2347-4513] ISSN [O-2349-0799] Year: 2019 Volume: 7 Issue: 3 04-07
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A Study of Endoscopic Dacryocystorhinostomy in Cases of Chronic Dacryocystitis in a Tertiary Care Hospital of Chhattisgarh

Surjeet Singh¹, Durgesh Gajendra²

1. Assistant Professor, Department of ENT, Lt BRKM Medical College Jagdalpur (CG).
2. Assistant Professor, Department of ENT, JNM Medical College, Raipur (CG).

Abstract

Background: Chronic dacryocystitis is a chronic inflammation of the lacrimal sac and presented as watering or discharge from the eyes. Endoscopic Dacryocystorhinostomy is a safe and effective treatment for chronic dacryocystitis as it has less morbidity and better aesthetic results as compared to external approaches for lacrimal sac. **Material and Methods:** A prospective study was carried out in 65 cases of chronic dacryocystitis who were presented as watering and discharge from the eye. Complete ophthalmic and ENT examination was done based on age, sex, socio-economical status, clinical presentation, endoscopic finding data was collected. The outcome of endoscopic Dacryocystorhinostomy was assessed based on the presence or absence of epiphora, syringing and patency of rhinostoma in nasal endoscopy. **Results:** Most of the patients were of 40-50 year age group with a female predominance. The most common presentation was watering from the eye and left eye was found more affected than the right eye. In associated nasal pathologies turbinate hypertrophy observed in 16 (23.2%), deviated nasal septum in 13 (18.9%) cases, sinusitis in 4 (5.79%) cases and rhinosporidiosis in 4 (5.8%) cases. In children, the success rate of endoscopic DCR was 95 % as compared to 95.7% in adults. **Conclusion:** Endoscopic Dacryocystorhinostomy is an effective useful tool for the treatment of chronic dacryocystitis with less complication and higher success rate.

Keywords: Chronic Dacryocystorhinostomy, Epiphora, Nasal Endoscopy

Address for correspondence: Dr. Surjeet Singh, Dept. of ENT, Room No. 03, Lt BRKM Medical College and Associated Hospital, Dimrapal, Jagdalpur, Chhattisgarh, India, Pin- 494001. Mobile:+919977020058. Email:kunjamsingh@gmail.com

Date of Acceptance: 20/08/2019

Introduction

Chronic dacryocystitis occurs because of blockage in the lacrimal drainage system, which impairs normal tear channeling into the nose which is clinically presented as epiphora or discharge from the eye. Recurrent infection may also occur as a result of the stagnation^[1]. Many treatment modalities are available for the treatment of chronic dacryocystitis. The evolution of lacrimal surgery is a fascinating story. Toti made a major contribution to external dacryocystorhinostomy (DCR) in 1904^[2]. Caldwell (1893) described the first intranasal DCR^[3]. Mc Donogh and Meiring (1989)

described the endoscopic transnasal DCR^[4]. Since then many modifications have been described as a useful tool for endoscopic DCR by laser such as Holmium: YAG, argon, CO₂. The endoscopic Dacrocystectomy (End DCR) approach has several advantages over external DCR, i.e. provides a better aesthetic result with no external scar, and allows a one-stage procedure to correct associated nasal pathology that may be causative. It avoids injury to the medial canthus and pathologic scar formation and preserves the pumping mechanism of the orbicularis oculi muscle. It can be done in active infection of the lacrimal system and revision cases. It is much less bloody, shorter and has a higher success rate than external approach.

Aims and Objectives

1. To study evaluate the outcome of Endoscopic Dacryocystorhinostomy in cases of chronic dacryocystitis.
2. To find out the complications of Endoscopic Dacryocystorhinostomy
3. To study the success of Endoscopic Dacryocystorhinostomy in children below 14 years of age

Materials and Methods

A prospective study was conducted in a tertiary care hospital of Chhattisgarh state in 69 eyes of 65 patients in 2 years. After the clearance from the ethical committee of the institute. Informed consent was taken before the procedure from all patients. All patients were assessed by complete Ophthalmic and ENT examination. A complete eye examination was carried out with emphasis on lacrimal sac and punctum, eyelid, conjunctiva, and cornea status. Finger palpation of the lacrimal fossa of the enlarged lacrimal sac was done. Mucoïd or mucopurulent reflux on gentle pressure on lacrimal sac establish the diagnosis of dacryocystitis.

Patients with nasolacrimal duct obstruction were selected for the study. Patients who didn't come for follow-up were excluded from this study. The patients were subjected to nasal endoscopic examination for rhinitis, polyp, deviated nasal septum and tumor. screening of sinuses were done with plain X-rays or CT paranasal sinuses to rule out any eroding lesion or sinusitis. Endoscopic Dacryocystorhinostomy (End DCR) was performed by the procedure described below. Follow up period ranged from 3 months to 6months. Patency of stoma was checked by inspection of stoma endoscopically and sac syringing technique. Success was defined as the resolution of symptoms, unobstructed lacrimal irrigation and endoscopic visualization of a patent rhinostomy. Any predisposing nasal conditions were treated either before or simultaneously at the time of surgery. The local anesthesia was preferred in most of the cases, however, in children and uncooperative patients general anesthesia was used. The nasal cavity was packed with gauge strips in 4% lignocaine with adrenaline (1:100,000) half an hour before the procedure, which helps in vasoconstriction, gives mucosal anesthesia and bloodless field. During surgery, patients were kept supine with

head turned towards right. The area of the lateral wall of the nose, anterior and above the anterior attachment of middle turbinate was infiltrated with 2 % lignocaine with 1:100,00 adrenaline. 0 degree, 30-degree endoscopes were used for surgery. A vertical incision was made with the sickle knife in front of the anterior attachment of middle turbinate. The mucosal flap was raised with Freer elevator and frontal process of maxilla, lacrimal crest, lacrimal bone exposed. The junction between lacrimal bone and crest was identified and disconnected. The lacrimal crest was punched to expose the medial wall of the lacrimal sac. The bony defect was widened circumferentially and lacrimal sac exposed adequately. Then vertical incision was kept on the sac, usually, pus or mucus flowed out. Perpendicular cuts were made over both ends of incision and two flaps of medial wall of sac were made or medial wall was marsupialized completely. A small antibiotic wick was kept in the nose for a few hours. In the postoperative period, antibiotic eye drops were given. First, follow up was done 1 week after surgery. Subsequent follow up was done in every 15 days for the next 2 months, then monthly for 6 months.

Results

Most of the patents were in the 4th decade of their life. In 65 patients studied, 25 (38.46%) were male and 40 (61.54%) were female. Male: Female ratio was 1:1.6 and the mean age of the patients were 28.9 years. Thirty-two (49.2%) patients belong to the upper lower class, 21 (32.3%) to lower middle class and 11 (16.9%) patients to lower socioeconomic status. No cases were reported from high socioeconomic status. In clinical presentation 63 patients presented with watering from the eye (96.9%) mainly from the left eye (40 cases). 44.6% presented with discharge from the left eye. In 9 (13.84%) cases associated swelling was present. The fistula was seen in only 2 (3.07%) cases. Most of the patients (66.14%) reported within 18 months of the onset of symptoms whereas 13.84% of patients reported after 48 months. Maximum involvement left side 36 (55.38%) followed by right eye 25 (36.23%) cases and only 4 (6.15%) cases had involvement of both the eyes. Preoperative anterior rhinoscopy, diagnostic nasal endoscopy and syringing were

performed in all patients. On anterior rhinoscopy 14 (20.3%) cases had associated turbinate hypertrophy, 13 (18.8%) were associated with the deviated nasal septum (DNS) and mass or polyp was seen in 3 (4.3%) cases. On syringing mostly, clear fluid regurgitated in 43 (62.3%) cases. The purulent discharge was observed in 26 (37.7%) cases. On nasal endoscopy, normal findings were observed in 32 (46.4%) cases. Turbinate hypertrophy observed in 16 (23.2%) cases, DNS in 13 (18.9%) cases, sinusitis in 4 (5.79%) cases, and rhinosporidiosis in 4 (5.8%) cases. Postoperative complications were observed in 11 (15.9%) surgeries within 24 hours. Bleeding was observed in 6 (8.69%) surgeries. In 4 (5.79%) surgeries Periorbital edema and 1(1.44%), ecchymosis was observed within 24 hours. Crusting in 7(10.1%), synechiae over stoma in 6(8.69%) and granulations over the stoma were

observed in 4 (5.79%) surgeries in between 1 week to 3 months. Failure of endoscopic DCR was observed in 3 (4.34%) surgeries. In 4 (5.8%) cases rhinosporidiosis was simultaneously excised. Septoplasty was done in 2 (2.9%) cases and splenectomy was done in 1 case. Three patients had persisting epiphora post-operatively; all 3 patients had associated other nasal pathologies. In all 3 cases, intra-operative and 1 case postoperative bleeding was present. In 2 cases crusting, in 3 cases granulation and in 1 case recurrence of rhinosporidiosis was observed. In all 3 failure cases, rhino-stoma was closed within 3 months. In children, the success rate of endoscopic DCR was 95 % as compared to 95.7% in adults. The reasons for the failure of surgeries were synechiae formation in two cases and recurrence of rhinosporidiosis in one case.

Table 1: Results of end DCR in children and Adults

Age (in years)	No. of surgeries	Postoperative findings						Success
		Epiphora		Syringing		Rhinostoma		
		Present	Absent	Patent	Blocked	Patent	Blocked	
< 14 years	20	1	19	19	1	19	1	95%
> 14 years	49	2	47	47	2	47	2	95.9%
Total	69	3	66	66	3	66	3	
%	100%	4.3%	95.7%	95.7%	4.3%	95.7%	4.3%	

Discussion

Chronic dacryocystitis is more common in the 4th and 5th decade of life [5, 6]. This may be because the amount of lacrimal secretion is less in extremes of age. Females had a higher vascular congestive factor and a narrower bony canal which may attribute to chronic dacryocystitis. Chronic dacryocystitis is more prevalent in females as compared to males [7]. Poor personal hygiene is a predisposing factor for chronic dacryocystitis and there is a relationship between the low socioeconomic group and chronic dacryocystitis[6]. Long term exposure to dust may be the other cause of chronic dacryocystitis in lower socioeconomic groups. Epiphora is the commonest complaint in chronic dacryocystitis and some case; it is presented as mucocele [8]. This may be because of obstruction in the nasolacrimal duct system that causes the symptoms of watering from the eyes, and the resultant secondary infection

presented as discharge from the eyes. The left eye was more commonly involved than the right eye [6]. This may be because the nasolacrimal duct and lacrimal sac formed a greater angle on the right side than the left which makes the left side more prone for stasis and obstruction of nasolacrimal passage. It is therefore attributed to the preponderance of chronic dacryocystitis on the left side. Sometime Deviated nasal septum, turbinate hypertrophy, and other nasal pathologies may obstruct the nasolacrimal duct and attributed to chronic dacryocystitis. Syringing has been an important role in the diagnosis of chronic dacryocystitis and to decide on surgery. End DCR has only minor complications i.e. synechiae between the anterior end of the middle turbinate and lateral wall of the nose was found and swelling in medial canthus [6].

The postoperative bleeding may be due to oozing of blood from the operative site, or from a site where associated surgery had been done at the same sitting. As a result of the healing process crusts, granulations and synechiae were seen. The reason of peri-orbital edema, the explanation is that the lower end of the medial palpebral ligament is loose and areolar tissue runs from the lacrimal sac laterally; so any manipulation during surgery at this site results in edema. Endoscopic DCR is an effective treatment for chronic dacryocystitis in adults [9] as well as in children [10].

Conclusion

Chronic dacryocystitis is mainly presented as watering and discharge from the eye. Endoscopic DCR can be performed efficiently under local anesthesia while performing endoscopic DCR, any other associated nasal pathology can be treated. The endoscopic DCR is easy to perform effective tool for the treatment of chronic dacryocystitis in adults as well as in children. Further, in addition to limited morbidity, endoscopic DCR does not lead to any cosmetically unacceptable scar formation surgically without any further difficulties.

Conflict of Interest: None declared

Source of Support: Nil

Ethical Permission: Obtained

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