



Etiologies of Failed External Dacryocystorhinostomy – A Case Series

KEYWORDS

External dacryocystorhinostomy (EDCR), syringing, ostium, sac

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ABSTRACT

Aim

To find out intra operatively the most common cause of failure of previous dacryocystorhinostomy.

Materials and methods

8 patients referred over a period of 4 years (January 2008 - December 2012) who underwent successful repeat EDCR were selected. All the patients who had persistence tearing and ROPLAS positive were included in the study and those with regurgitation from the same punctum or canalicular obstruction were excluded from the study.

Results

Average age of the patients undergoing repeat EDCR was 48 years. The most frequent cause of failed DCR was a scarred ostium.

Conclusion:

Proper identification of the anterior lacrimal crest, lacrimal sac, and bigger osteotomy (10mm) in diameter is important for a successful primary EDCR.

Introduction

The original external DCR was first described by Toti in 1904. In 1921 Dupuy-Dutemps and Bourguet described a technique of external dacryocystorhinostomy modifying Toti's operation. They emphasized the importance of making an anastomosis of sac to nose with sutured mucosal flaps. External dacryocystorhinostomy (EDCR) is still considered an effective surgery for complete nasolacrimal duct in adults with a success rate of over 90%. Despite meticulous surgery, failures are often met with. Various studies have stated various causes for failure of DCR [1-4]. Secondary surgery on the lacrimal drainage system, is likely to be successful in a high proportion of cases [5]. In this study we assess the most common intra operative cause for a failed EDCR and the success rate of repeat EDCR.

Materials and methods:

8 patients referred over a period of 4 years (January 2008 - December 2012) who underwent successful repeat EDCR were selected. All these patients had undergone primary surgery elsewhere and were referred due to the persistence of symptoms. After taking the demographic details, a thorough examination of eyelids to identify matting of eye lashes and purulent discharge in the medial canthal area was performed. ROPLAS (Regurgitation on pressure over the lacrimal sac) along with syringing in the outdoor. ENT consult was sought to rule out any high posterior deviation of septum blocking the rhinostomy or causing synechia formation.

Patients with regurgitation from the same punctum or canalicular obstruction and patients with gross nasal pathology were excluded from the study. Written informed consent was obtained. A revision was done in all the cases and the likely causes for failure of the first surgery were analyzed. All surgeries were performed under local anaesthesia under the operating microscope.

Procedure: Prior to surgery nasal packing was done with a gauze soaked in 2% xylocaine with 1:2,00,000 adrenaline to reduce the risk of intra operative bleed. The skin was painted

with povidone iodine. Local infiltration of 2% xylocaine with adrenaline was used in all cases.

A skin incision of 8 mm made through the original scar. Orbicularis was separated and medial palpebral ligament if present was cut for better exposure. Lacrimal sac was identified and intactness was checked. The osteotomy was inspected for its presence or closure by fibrosis. The anterior aspect of the previous rhinostomy was identified and enlarged anteriorly to find nasal mucosa. Anastomosis if present was checked for its patency. Bowman's probe was inserted to check for common canalicular obstruction. Anastomosis was made between the medial wall of the sac and nasal mucosa after enlarging/creating an osteotomy. The 2 were sutured with 6-0 vicryl. Orbicularis and tendon are repositioned with an absorbable suture, and the skin is closed with an interrupted nylon suture.

After discharge the day after operation patients were reviewed and syringing was performed at one week postoperatively, at six weeks, and again at three months. All patients received topical and systemic antibiotics post operatively. Sutures were removed on day 7.

The data collected from the patients were recorded and analyzed using Statistical Package for the Social Sciences (SPSS) version 16. Chi square and Fisher exact tests were used to assess the association between surgical outcome and cause for failed dacryocystorhinostomy, with p-value ≤ 0.05 being considered statistically significant.

Results:

8 patients with history of previous dacryocystorhinostomy were assessed intra operatively. The average age of the patients undergoing repeat EDCR was 48 years (range 30-65 years). 5 patients underwent DCR on the left side and 3 on the right side. The interval between primary procedure and present procedure ranged from 3 months to 2 years. Recurrence of symptoms following primary procedure was < 3 months in 75% of the patients and > 3 months in 25%

patients. P-value was 0.289 which was significant. 5 patients complained of tearing and 4 patients had residual discharge with pressure on the lacrimal sac (ROPLAS positive). [Table 1]

Intraoperative results:

Both small obliterated and obstructed sac with chunks of fibrous tissue and scarring was observed in 7 (87.5%) patient-sand 1 (12.5%) patient had anterior sac flap only (p value - 0.034). Osteotomy was up to 10mm in 3 (37.5%) cases and of small size (<10 mm) in 5 (62.5%) cases (p value - 0.727). Fibrosis was seen in 3 (37.5%), bleeding in 1 (12.5%). Technical error in anastomosis was seen in 1 (12.5%) (p value - 0.572). [Table 2]. Syringing after 6 months was patent in all cases

Table 1: Presenting Features.

Characteristics	Value
Gender	No. of patients
Male	1
Female	7
Mean age in years (range)	48 (30 - 65)
Right : left side DCR	3:5
Mean duration following primary procedure (range)	3-24 months
Symptoms	
Tearing	5
Regurgitation with pressure over sac	4

Table 2. Intraoperative results.

Status	Number of subjects	Percentage	p-value
Sac			
Yes	7	87.5	0.034
No	1	12.5	
Osteotomy			
Yes	3	37.5	0.727
No	5	62.5	
Others			
Absent	3	37.5	0.572
Fibrosis	3	37.5	
Bleeding	1	12.5	
Structural problem	1	12.5	

DISCUSSION:

External DCR is an easy, cost effective procedure and if done properly is very effective in management of chronic dacryocystitis. Failure rate is reported to be 11-28 %. Average being 9.4% in literature [6]. Failure can be due to reduced osteotomy size, granulation and fibrosis in anastomosis, common canalicular obstruction, defective identification and anastomosis, dacryoliths and sequestration in the sac, adherent septum or turbinate [7,8]. McMurray CJ, McNab AA, et al found lacrimal system obstruction often occurring at the common canaliculus as the most common cause [9]. Hull S, Lalchan SA, Olver J et al evaluated the causes of failed dacryocystorhinostomy (DCR) surgery, recommend specific endoscopic endonasal techniques in revision DCR [10].

In this study, the most frequent cause of failed DCR was a scarred ostium. Sarcoid, Wegener's granulomatosis, Paget's disease, lymphocytic infiltrate, foreign body granuloma and osteoma are some of the etiologies leading to ostium obstruction. However, none of our cases had any of the above specified etiologies [11-15]. Error in identification of the sac and technique of performing the surgery was found to be the second most common cause for failure. Here we are of the opinion that usage of the operating microscope is a must for all sac surgeries. Proper identification of the anterior lacrimal crest, lacrimal sac, and bigger osteotomy (10mm) in diameter is important. Pre op usage of nasal decongestants act as a great help. Never forget a pre-operative ENT clearance. An intact sac and absent osteotomy were the most common intra operative findings noted. However the sample size obtained during this period was small, to analyze other causes for a failed EDCR. This study could not demonstrate causes of epiphora in cases with anatomically patent but functionally failed DCR, as all the patients had complete resolution of epiphora after 6 months.

In conclusion, proper identification of the anterior lacrimal crest, lacrimal sac, and bigger osteotomy (10mm) in diameter is important for a successful primary EDCR. A histological analysis of the scarred tissue is a must to identify specific etiology.

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