

Original Research Article

Evaluation of the results endonasal dacryocystorhinostomy in patients with DCR

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ABSTRACT

Background: Dacrocystitis refers to a series of clinical entities characterized by inflammation of lacrimal sac which leads to obstruction at the level of drainage of lacrimal system. Owing to the initial encouraging results and simplicity of the operation, it is decided that all symptomatic patients with lacrimal drainage obstruction would be treated initially by endoscopic endonasal dacryocystorhinostomy method, irrespective of the level of obstruction.

Methods: A total 50 patients were included in the study over a period of 3-4 months. They were subjected to endonasal dacryocystorhinostomy and were evaluated for postoperative complications.

Results: Very few complications were seen postoperatively suggesting that this newer technique may be useful.

Conclusions: Endonasal dacryocystorhinostomy may prove better in coming years.

Keywords: Dacrocystitis, Endonasal dacryocystorhinostomy, Lacrimal drainage obstruction

INTRODUCTION

The Lacrimal system is essentially a system of fluid pools and channels connecting them. The eye is one pool, lacrimal sac is another pool, and nose is the final pool. The lacrimal secretion first flows into the eye pool, from there a channel system called the canalicular system carries the tears to the lacrimal sac pool. A second channel called the nasolacrimal duct (NLD) carries the tear from the lacrimal sac to the nose, where they are swallowed. Principle of DCR The basic principle of dacryocystorhinostomy (DCR) is elimination of the second compartment i.e., lacrimal sac, thus lacrimal fluid directly drains into nasal space. This is achieved by a large osteotomy and opening up of the sac from fundus to NLD results in a maximum sized ostium. Toti described the initial dacryocystorhinostomy (DCR) operation in 1904. Three groups of procedures are currently practiced such as external DCR, endoscopic endonasal DCR with contact laser and surgical endoscopic endonasal DCR without laser.¹

Endonasal dacryocystorhinostomy is considered to be the standard treatment for chronic dacryocystitis, and is simple to perform and is very effective even in patients with complications like abscess, fistula periorbital cellulitis. Bacterial inflammation may have caused a significant role in causing swelling of the mucosa membrane of the reactive hyperemia. In endoscopic endonasal DCR, no such demerits are there as other procedures. Owing to the initial encouraging results and simplicity of the operation, it is decided that all symptomatic patients with lacrimal drainage obstruction would be treated initially by this method, irrespective of the level of obstruction. Dacrocystitis refers to a series of clinical entities characterized by inflammation of lacrimal sac which leads to obstruction at the level of drainage of lacrimal system.² Patient may present with excessive tearing or watering of the eye, reddening, pain and swelling over the side of the nose, fever, mucus or pus in the corner of the eye, crusty eyelids or eye lashes, epiphora and tenderness.³

METHODS

A total of 50 patients were enrolled in the study after obtaining written informed consent who matched the inclusion criteria. Then all the patients were subjected to endoscopic endonasal DCR after all the pre surgical work up and anaesthesia. This study took place in tertiary care teaching hospital from July 2016 to December 2016.

Patients with epiphora, evidence of obstruction on probing and irrigation, patients who got obstruction on lacrimal scintigraphy, dacrycystography and fluorescein dye disappearance test were included in the study.

Patients with previous DCR on the same eye, congenital NLDO and having age under 16 years were excluded from the study.

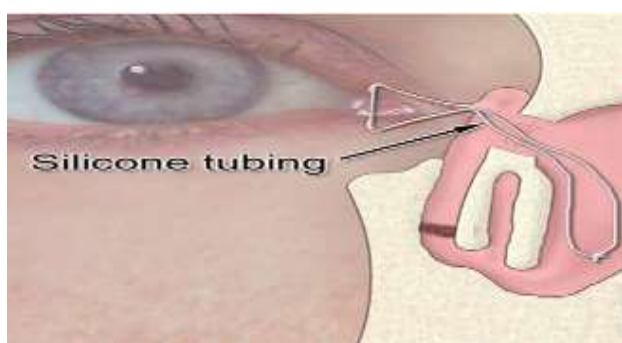


Figure 1: Dacrycystorhinostomy procedure.

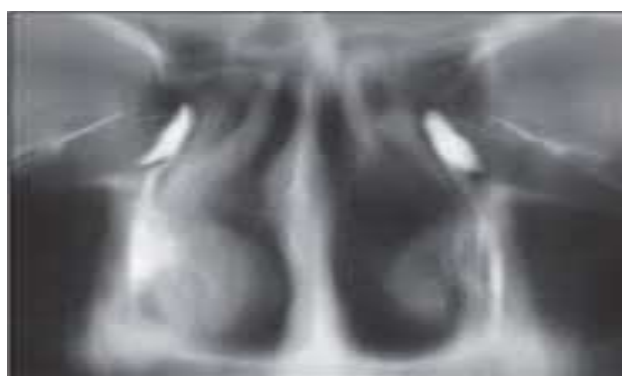


Figure 2: Linear CT dacrycystography.

Surgical technique

The operation is performed using a 30 degree side viewing endoscope. Most operations are carried out under local anaesthesia except children or very nervous adults. For revision DCR, cases with a small or fibrotic sac, patients with acute dacrycystitis and post-trauma dacryostenosis, the entire medial wall of the lacrimal sac and upper duct is exposed by bone removal at the frontal process of the maxilla using a 2 mm Kerrison bony rongeur.⁴ This allows a window 4–8 mm wide at the lateral nasal wall. The medial wall of sac and duct are

opened in this window with a disposable angled keratome. The endoscope is used to examine the interior of the sac at high magnification, and allows dissection to be performed inside the sac if required. Calculi can be removed, and membranectomy performed to clear obstruction at the common canalicular entrance to the sac. In all cases a silicone stent (Quickert style) is inserted from the upper and lower canaliculi through the opened sac and duct and into the nasal cavity.⁵ This is done as atraumatically as possible. For patients with a deviated nasal septum or bulky middle turbinate, septoplasty or trimming of the anterior part of the turbinate is performed to improve the access to the lacrimal sac and prevent adhesions between the turbinate and the lateral nasal wall at the site of the lacrimal window after the operation. Betamethasone eye and nose drops are used for 6 weeks after the operation to reduce crusting and scarring inside the nose. The stent is removed after 3 months in patients with distal blockage and after 6 months in those with common canalicular blockage. For more proximal canalicular obstruction, the silicone stent is left in situ permanently providing patients are improved after surgery. All cases were followed up routinely for a minimum of 2 months after surgery by the otolaryngologist. They were then recalled for review again at 6 and 12 months.⁷

RESULTS

Total 50 patients were subjected to surgery. Following table shows the results of the study. Results of both the surgeries were comparable. Patients operated with endoscopic endonasal DCR did not have any intraoperative or postoperative complications like, tube falling, haemorrhage, punctal erosion etc. following table shows the rate of intra and postoperative complications.

Table 1: Postoperative results of endoscopic DCR.

Postoperative results	Total cases	Endoscopic cases
Intra-operative complications	Nil	Nil
Lacrimal irrigation no patency	1 (10%)	1 (10%)
Tubes fallen out	1 (10%)	1 (10%)
Adjunct surgery	No	No
Associated conditions example sinus disease diagnosed	No	No
Referral for other pathology or ocular conditions	No	No
Postoperative complications		
Postoperative hemorrhage	Nil	Nil
Punctal erosion	Nil	Nil
Canalicular obstruction	1 (10%)	1 (10%)

The parameters of success and failure of surgery are decided as follows as shown in Table 2. Success of surgery was denoted by patency on probing or irrigation, resolution of symptoms on follow-up and failure was denoted by obstruction, no visualization of fluorescein dye or persistence of symptoms.

Table 2: Outcome measures for cases post dacryocystorhinostomy surgery at two month follow up.

Success	Failure
Patency on probing and irrigation	Obstruction on probing and irrigation
Resolution of symptoms	No visualization of fluorescein in dye disappearance test
Improvement of symptoms	Persistent symptoms
	Requiring revision or adjuvant intervention

DISCUSSION

The Royal College of Ophthalmologists (1999) published guideline for clinical governance suggests that freedom from epiphora 3 months after surgery is the marker for a satisfactory procedure.⁸ We therefore use relief of symptoms as the measure of success for surgery. Many different techniques of DCR have been described in literature. We prefer the endoscopic surgical route, since it avoids a facial scar, cause minimal postoperative discomfort, and can be performed on both sides (if required) under local anaesthesia as a day procedure. The surgical endoscopic endonasal DCR technique is highly suitable for revision operations for two reasons. Firstly, most of the bone removal has been performed at the initial operation.⁹ Secondly, where the previous operation was an external DCR, the scarred tissue planes of the orbit and lateral wall of the sac are avoided. When it was compared with study conducted by Durvasual et al complication rate was very low with endonasal DCR. Patients were satisfied with the results of surgery. Study conducted by Javate et al, suggested that radio frequency assisted endonasal DCR proved still better technique than simple endonasal DCR as it reduced the surgical difficulties faced by the operating surgeon and thus complications to the patients.¹⁰ Amit Pal Singh et al conducted a study and evaluated the technique endoscopic DCR, which proved better than simple DCR. The results of our study comparable to this study.¹¹ Though we have conducted the study in 50 patients with 2 months follow-up but still it needs to be conducted in more number of patients to strengthen the study.¹² Endoscopic DCR is more favoured by the patients as it reduces the discomfort, postoperative complications and less postoperative care and even it proved cosmetically better as it prevented the scar formation.¹³⁻¹⁵

CONCLUSION

Endoscopic endonasal DCR is more accepted by the patients and is more favourable also as the complication rates are almost nil.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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