Endoscopic Dacryocystorhinostomy Without Stents: Analysis Of 37 Patients

S Singhal, S Bansal, A Dass, S Arya, N Nagarkar

Citation

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Abstract

Nasolacrimal duct (NLD) obstruction is a common disorders clinically manifested by the presence of tearing and or infection. Although it is not a serious condition, the symptoms like epiphora or repeated infections are quite annoying & cosmetically distressing. Many procedures have been described to relieve this obstruction, like external, endoscopic with and without stents, endoscopic with laser. Each of these procedures has their own success rates and complications. A prospective study was carried out in the Department of ENT in conjunction with Department of Ophthalmology at Government College and Hospital, Chandigarh, between the months of July 2001 to Oct. 2003, which included 37 patients to evaluate the success rates of endoscopic DCR without silicone stenting.

INTRODUCTION

Nasolacrimal duct (NLD) obstruction is a common disorders clinically manifested by the presence of tearing and or infection. Although it is not a serious condition, the symptoms like epiphora or repeated infections are quite annoying & cosmetically distressing. Addeo Toti, first described Dacryocystorhinostomy (DCR) for the treatment of nasolacrimal duct obstruction, in 1904([1]). Caldwell described the first intranasal DCR in 1893 ([2]). This approach could not gain much popularity because of the difficulty in visualizing the anatomy. With the advent of rigid nasal endoscopes & fibreoptic light carriers systems, surgical access through the nasal cavity has been greatly enhanced. In 1989, McDonogh & Meiring ([3]) described the endoscopic nasal DCR. Different workers have tried many modifications in the procedure. Many of the techniques described advocate the use of silicon stents, left in situ for 2 weeks to 6 months. ([3],[4])

Different lasers of Holmium YAG, argon, carbon dioxide & KTP laser have been tried. A transcanalicular approach with the Neodymium YAG laser has also been described. The aim of this study was to evaluate the success rates of endoscopic DCR without silicone stenting.

MATERIALS AND METHODS

A prospective study was carried out in the Department of ENT in conjunction with Department of Ophthalmology at Government College and Hospital, Chandigarh, between the months of July 2001 to Oct. 2003, which included 37 patients.

Patients diagnosed as having nasolacrimal duct obstruction were included in this study. An ophthalmologist & an ENT surgeon assessed all patients. Clinical examination & testing was done to diagnose the nasolacrimal duct obstruction. Radiological evaluation such as dacryocystogram (DCG) was done whenever in doubt and an X-ray / CT Scan of paranasal sinuses was done to find out any other sinus abnormalities.

Any nasal conditions were treated either before hand or simultaneously at the time of endoscopic surgery.

An endoscopic DCR was performed as described below. All patients were followed up to a minimum of six months. Patency of the stoma was checked by sac syringing & endoscopic inspection of the stoma. All patients who had evidence of presaccal canalicular obstruction were excluded from the study.

SURGICAL PROCEDURE

The procedure was done under local anesthesia in all patients except in children, uncooperative patients, some revision cases or acute cases. In the latter general anesthesia was used. The nasal cavity & middle meatus was anaesthetized using 4% lignocaine with adrenaline

(1:50,0000), 15 min prior to the procedure for adequate decongestion to achieve a bloodless field.

Zero degree and 30 degree endoscopes were used for surgery. The lateral wall of nose & around the attachment of the middle turbinate along with the area of lacrimal fossa externally was infiltrated with 1% xylocaine with 1:1 lac adrenaline. 4% xylocaine was used for conjunctival surface anesthesia.

A punctum dilator was used to dilate the punctum of the inferior canaliculus.

A Rosen's knife was used to elevate the mucosa anterior to the anterior attachment of the middle turbinate to expose the lacrimal bone. Removal of the overlying bone by a punch forceps or sometimes by a sheathed drill if the bone thickness is more exposed the entire medial wall of the lacrimal sac. The bony defect was smoothened. The position of the lacrimal sac was confirmed by passing a Bowman's lacrimal probe from the punctum, which was seen tenting the lacrimal sac. Using the lacrimal probe as a guiding instrument the lacrimal sac was incised vertically as anteriorly and superiorly as possible. The mucosal edges of the incised sac were reflected laterally and medially on to the nasal mucosa to keep the opening as wide as possible.

Patency of the stoma was checked by sac syringing & confirming the free flow of irrigating fluid by the endoscope. Only adequate amount of nasal mucosa is removed so as to expose the sac, so that there is no granulations tissue formation. No stent & no packing (except 2 cases) were used. The patient was discharged the following day after nasal suction & sac syringing.

POST OPERATIVE CARE & FOLLOW UP

Immediate post operatively, patients were asked to put antibiotic steroid eye drops & nasal decongestant drops. Nasal suction & sac syringing was done once a week for 1 month. Endoscopy was done after 1 month to check the patency of the stoma & to remove any crusts or granulations if present. After one month patients were followed up every month for 3 months then at 6 months & possibly at 1 year & more.

Only the patients followed up for at least 6-months were included in the study. Success criteria were patient's relief of symptoms & endoscopic visualization of the patent stoma. A failed procedure was reviewed at 3 months & assessed for its cause. Any underlying cause for the failure was treated first and then the revision surgery performed. Patients, who were ready for the surgery, underwent a second surgery & were followed up in a similar way. An uncinectomy was done in all cases of revision surgery.

RESULTS

In the study conducted from July 2001 to Oct. 2003, 35 patients underwent 37 endoscopic DCRs (two had bilateral). 23 had left, 14 right DCRs' out of which 2 had bilateral (both females).

Figure 1

Table I: Age & Sex Distribution

Age (In years)	Male	Female	Total
0-10	0	2	2
11-20	0	2	2
21-30	2	7	9
31-40	51	10	15
41-50	2	4	6
51-60	0	2	2
61-70	0	1	1
	9 (24.3%)	28 (75.7%)	37 (100%)

There were 28 males (75.7%) & 9 females (24.3%) with the maximum incidence of patients between the age group of 31-40 years (age range from 3 years – 67 years)

31 patients underwent primary endoscopic DCRs', while 6 were revision cases (4 external & 2 previous endoscopic DCR)

Figure 2

Table II shows the aetiology & symptoms of the patients.

Aetiology		Symptoms	
Congenital	1		
Trauma	3	Epiphora	37
Surgery (FESS)	4	Swelling	19
Rhinitis	7	Discharge	16
Idiopathic	22	Sticky eyes	12

RHINITIS (2 PATIENTS HAD EARLY ATROPHIC RHINITIS, 5 HAD ALLERGIC).

Along with watering of eyes, 19 patients had an external swelling due to mucocele / pyocele formation and 16 had discharge.

These patients were first medically treated for 3-months & then operated but medical treatment continued. Patient's duration of symptoms ranged from 4 months to 7 years with an average of 16.3 months. Seven additional procedures were performed with these 37 endoscopic DCRs. 4 underwent septoplasty, 2 conchoplasty & one patient an infundibulotomy. There was no significant intra operative complication.

Intraoperative bleeding was profuse in 4 patients & required a temporary temponade before surgery could be continued further. Two patients had minimal orbital emphysema, which subsided within 48 hours with local treatment.

The follow up period ranged from 6 to 18 months, average being 9.1 ± 2.8 months. As on first endoscopic follow up examination, minimal granulations around the stoma & synechiae between the middle turbinate & lateral wall were removed which had otherwise not yet caused the blockage of stoma.

Relief of symptoms & endoscopic visualization of a patent stoma made into the lacrimal sac determined a successful outcome. 33 patients (89%) fulfilled these criteria. There were 3 failures out of the 31 fresh cases operated. Two of these had allergic rhinitis & went on to develop polyps & the3rd was the one who had developed NLD block because of FESS. Repeat endoscopic DCR alongwith uncinectomy was performed in all three & two improved subsequently. Out of the 6 cases of revision DCRs performed, one failed. This was the case of trauma & had been operated before by the external approach. DCG was done in this case & it showed presaccal obstruction. This patient refused any further treatment.

DISCUSSION

Endoscopic DCR has revolutionized the surgery for NLD blockage.

It has many distinct advantages over external DCR such as:

- Acute stage of the disease is not a contraindication.
- It prevents an external scar.
- Endoscopic DCR can be followed up easily through the nasal cavity & any problem can be dealt at the initial stage.
- It causes less morbidity than external DCR.

Any additional procedure required to improve middle meatus ventilation can be done at the same sitting as was done in 7 cases in this study, as supported by other studies. ([2],[8]).

For the success of the endoscopic DCR following points should be taken care of:

- The stoma made in the bony lateral wall of nose & medial wall of the sac should be wide enough
- The bony edges of the stoma should be smooth
- Nasal mucosa should be handled with care, to prevent formation of the synechiae & granulations.
- Avoid any postoperative packs, which might occlude the stoma.
- Regular follow up with nasal suction & sac syringing should be done initially to prevent synechiae & blockage of stoma.

The mean age, gender ratio, duration & presentation of symptoms were more or less in keeping with other studies. ([2],[4],[5]).The success rate of endoscopic DCR without the use of silicon stents was 89.7% in our series, which is comparable with results of external DCR & endoscopic techniques with stents.

The success rate of external DCR ranges from 75 to 99% ([9], [11]). Success rate of the endoscopic technique has been reported as 82 to 95% with instruments and stents ([8], [10], [11]), 77 to 83% using the laser ([2], [4], [5], [11]). These reported success rates are with the use of silicon stents, which are removed from 4 weeks to 24 weeks post operatively ([11]). The success rate of 89.1% in our series is comparable to other studies in which stents were not utilized ranging from 81% to 90%([11],[12]). The average follow up period of 10 months is comparable to the average follow up period in other studies using stents.

This study uses a subjective method, relief of patients' symptoms as well as an objective method, endoscopic visualization of the lacrimal sac ostium as the criteria for successful outcome.

Summarizing, it can be said that endoscopic DCR without the use of silicon stents compares favorably with external DCR, Laser assisted DCR & DCR with silicone stents as described in literature. Moreover, it has an added advantage of shorter operative time, less morbidity and avoidance of stent related complications.

CORRESPONDENCE TO

Dr. Sandeep Bansal Senior Resident Department of ENT Government Medical College Hospital Sector 32-A Chandigarh – 160030 INDIA Tel-Office +91(172)-2665253,Extn.2309 Resi – 91(172)-2776052 Fax-+91(172)-2609360 E-mail: drsandeepb@rediffmail.com

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Author Information

Surinder K. Singhal, MS, DLO, DNB, MNAMS
Department of Otolaryngology, Government Medical College & Hospital

Sandeep Bansal, MS
Department of Otolaryngology, Government Medical College & Hospital

Arjun Dass, MS, DNB, DHM, MAMS, FIMSA
Department of Otolaryngology, Government Medical College & Hospital

Sudesh Kumar Arya, MS
Department of Ophthalmology, Government Medical College & Hospital

Nitin M. Nagarkar, MS, DNB, MNAMS
Department of Otolaryngology, Government Medical College & Hospital