

Endoscopic Dacryocystorhinostomy With And Without Silicone Stent: A Comparative Study

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Abstract

The surgical outcomes of Endoscopic Endonasal Dacryocystorhinostomy (DCR) were analyzed in forty patients of chronic dacryocystitis out of which silicone stent was used in 20 cases. Surgical success was evaluated both subjectively as well as objectively. The success rate was 85% with stent and 90% without stent. Furthermore the use of stent was found to be associated with granulation tissue formation, patient discomfort and increased risk of complications. So we recommend endoscopic DCR without silicone stent as the treatment of choice in cases of chronic dacryocystitis.

INTRODUCTION

With the introduction of high resolution endoscopes, endoscopic endonasal DCR has begun to gain popularity. Endoscopic DCR is proposed to be an alternative surgery to the external DCR operation in cases of chronic dacryocystitis. ¹ Closure of the rhinostomy opening was considered a major factor for surgical failure in external DCR. In external DCR, several methods such as use of silicone stent, application of Mitomycin-C to the rhinostomy opening and suturing of the mucosal flaps have been suggested for providing a permanent rhinostomy opening after completion of mucosal healing. However, in endonasal DCR insertion of silicone stent is the most commonly preferred procedure. ² It has been claimed that silicone stent improves surgical outcomes of endoscopic DCR. On the other hand, some studies indicate that silicone stent itself is a reason of surgical failure due to granulation tissue formation and complications like punctual erosion and slitting of canaliculi.

The present study was undertaken to compare the surgical results of endoscopic DCR with and without silicone stent.

MATERIALS AND METHODS

The present study was conducted in the Department of Otorhinolaryngology, Pt. B.D. Sharma Post Graduate Institute of Medical Sciences, Rohtak. Forty patients of either sex above 16 years of age, having symptoms and signs suggestive of nasolacrimal duct blockage were included in the study. The patients were randomly divided into two

groups, A, and B with 20 patients in each group. The group A patients underwent endoscopic DCR with stent and group B patients endoscopic DCR without stent alternately after obtaining written informed consent. Patients having chronic sinusitis, nasal polyps, markedly deviated nasal septum on same side and severe bony deformity of lacrimal sac fossa (post-traumatic) were excluded from the study. Initial patient work-up included detailed history taking about the symptoms and their duration. Thereafter, detailed examination including complete ophthalmologic examination, anterior rhinoscopy, throat and ear examination was done. Nasolacrimal duct obstruction was confirmed by syringing. All patients demonstrated resistance to the flow of saline solution with regurgitation through opposite punctum. Patients were taken up for the surgery under local anesthesia after the routine investigations like complete haemogram, urine albumin and sugar and other relevant investigations. Surgery was performed using 0 and 30 endoscopes. Mucosal flap was raised over frontal process of maxilla. Bone was removed with Kerrison rongeur to the extent of approximately 1.0cm. x 1.5cm. and lacrimal sac was exposed. Medial wall of the sac was incised with sickle knife and removed. Syringing was done using normal saline to confirm the patency of the rhinostomy made. The Crawford lacrimal silicone stent was put in group A patients. All patients were discharged on regime of oral antibiotics and anti inflammatory drugs, nasal decongestant, steroid nasal spray and local antibiotic eye drops. Regular follow-up of patients was done at 1 week, 2 weeks, 6 weeks and 10 weeks.

Patients silicone stent was removed at 6th postoperative week. Subjective assessment for symptomatic improvement was done and objective assessment was done by syringing at 10th postoperative week. The results were then compiled.

OBSERVATIONS

The finding in 40 patients of chronic dacryocystitis undergoing endoscopic DCR with and without stent were analysed. The patients were randomly divided into two groups with 20 patients in each group (group A with stent and B without stent). It was observed that the age of patients in the study ranged from 16-60 years with the most common age group affected being 21-30 years (40% patients in group A and 35% in group B). The mean age in the study was 33.8 years. The male to female ratio in group A was 1:3 and in group B 1:4.

The commonest presenting symptom was epiphora, being present in all patients of both groups. Other symptoms noted were discharge from the eye in 80% patients in group A and 85% in group B and swelling over the lacrimal sac area in 10% patients in both groups. The mean duration of symptoms was found to be 20.25 months.

All the patients were subjected to diagnostic endoscopy. Thickened nasal mucosa was found in one patient in group A and 3 patients in group B. Deviated nasal septum to opposite side was present in one patient in each group. Intraoperative findings were also recorded (Table I). Patients were regularly followed at 1 week, 2 weeks, 6 weeks and 10 weeks. Subjective evaluation was made in terms of complete / partial / no relief from symptoms.

Objective evaluation was done by syringing. Syringing was performed in group A at 6 and 10 weeks and in group B patients at 1 week, 2 weeks, 6 weeks and 10 weeks and results were evaluated as follows:

Patent : There was no resistance to the flow of the fluid through sac to nasopharynx.

Partially patent: When some of the fluid regurgitated through the upper punctum and some passed into nasopharynx.

Blocked: When whole of the fluid regurgitated through the upper punctum and no fluid passed into the nasopharynx.

Relief in symptoms after surgery and findings of syringing on follow-up are summarized in Table II (a and b) and III (a and b) respectively. No major complication occurred in our

study. In group A difficulty in stent removal was observed in one patient, stent could not be removed completely due to formation of granulations. Spontaneous extrusion of stent was seen in one patient at 2 weeks. All intraoperative and postoperative complications are summarized in Table IV.

Figure 1

Table 1: Intraoperative Findings

Finding	GROUP A (n=20)	GROUP B (n=20)
	Number of patients (%)	Number of patients (%)
Mucoid discharge	4 (45%)	1 (5%)
Mucopurulent discharge	5 (25%)	8 (40%)
Purulent discharge	5 (25%)	10 (50%)
Hypertrophic lacrimal sac	1 (5%)	0
Atrophic sac	0	1 (5%)

Figure 2

Table 2a: Group A (n=20)

	SYMPTOMATIC RELIEF			
	1 WEEK	2 WEEKS	6 WEEKS	10 WEEKS
No. of patients with complete relief	14	14	17	17
No. of patients with partial relief	6	6	3	2
No. of patients with no relief	0	0	0	1

Figure 3

Table 2b: Group B (n=20)

	SYMPTOMATIC RELIEF			
	1 WEEK	2 WEEKS	6 WEEKS	10 WEEKS
No. of patients with complete relief	18	18	18	18
No. of patients with partial relief	2	2	2	2
No. of patients with no relief	0	0	0	1

Figure 4

Table 3a: Findings of Syringing GROUP A (n=20)

	PERIOD OF FOLLOW-UP			
	1 WEEK	2 WEEKS	6 WEEKS	10 WEEKS
No. of patients with syringing patent	0	0	17	17
No. of patients with syringing partially patent	0	0	3	2
No. of patients with syringing blocked	0	0	0	1

Figure 5

Table 3b: Findings of Syringing GROUP B (n=20)

	PERIOD OF FOLLOW-UP			
	1 WEEK	2 WEEKS	6 WEEKS	10 WEEKS
No. of patients with syringing patent	20	20	18	18
No. of patients with syringing partially patent	0	0	2	2
No. of patients with syringing blocked	0	0	0	0

Figure 6

Table 4: Complications

Findings	GROUP A		GROUP B	
	No. of patients	%	No. of patients	%
Postoperative bleeding (minor)	2	10	1	5
Difficulty in removal of stent	1	5	0	0
Spontaneous expulsion of stent	1	5	0	0
Closure of rhinostomy	0	0	2	10
No complication	16	80	17	85

DISCUSSION

Endoscopic DCR is a commonly performed operation in which a fistulous tract is created between the lacrimal sac and the nasal cavity in order to relieve the epiphora due to nasolacrimal duct obstruction. Silicone stent has been proposed to maintain the patency of fistula during postoperative healing period.

The recent study was undertaken to evaluate and compare

the results of endoscopic DCR with and without stent. In our study, complete relief from symptoms was seen in 85% patients with stent and 90% patients without stent. Results of our study have been found nearly comparable to other workers. Jin reported primary success rate of 83% with endoscopic DCR with stent and in 17% cases rhinostomy opening was found to be obstructed by granulations or synechie. ³ Sprekelson reported success with endoscopic DCR with stent in 85% patients. ⁴ The success rate of endoscopic DCR without stent reported in the literature varies from 90% to 96% which is comparable to our study. Singh reported success rate of 92.6% of endoscopic DCR without stent with no major complication. ⁵

Singh et al and Sham et al on the basis of their studies opined that silicone stenting is not routinely indicated in endoscopic DCR. ^{5,6} Moreover, silicone stent is associated with high failure rate due to granulomatous inflammation and complications as punctal erosion and slitting of canaliculi.

There were no major intraoperative and postoperative complications in the present study. Minor bleeding from the operative site occurred in 2 patients (10%) in group A and 1 patient (5%) in group B. All were managed by conservative management. Difficulty in removal of stent was observed in one patient and in another patient spontaneous extrusion of stent was seen at two weeks in group A. Tube prolapse has been reported to be one of the most frequent complication of endonasal DCR operation with silicone stent. Other complications include postoperative discomfort, corneal abrasion and canaliculi erosion form stent. Jin reported bleeding from nasal cavity, orbital injury, CSF leakage through fractured ethmoid, corneal abrasion, canaliculi erosion due to overly tight silicone tube placement and lacrimal pump syndrome associated with use of stent.

In conclusion, considering that the surgical results of endonasal DCR with or without stent are almost equal and the use of stent is associated with patient discomfort, increased risk of complications and additional cost, we recommend that endonasal DCR without silicone stent be the treatment of choice for chronic dacryocystitis.

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