



A SINGLE BLIND COMPARITIVE RANDOMISED STUDY OF ENDOSCOPIC DACRYOCYSTORHINOSTOMY WITH AND WITHOUT SILICONE STENTING

Otolaryngology

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ABSTRACT

Introduction : Endoscopic DCR is a surgical procedure to drain the lacrimal sac in instances of Nasolacrimal duct obstruction. The common causes of failure of dacryocystorhinostomy are obstruction of the rhinostomy site and of the common canaliculus. Various methods to prevent the recurrence of obstruction at rhinostomy site following endoscopic dacryocystorhinostomy have been tried such Mitomycin-C, use of silicone stent and steroid nasal sprays. Stenting appears to be cost-beneficial and simple procedure to achieve the above result. So we undertook a study to compare the results of Primary Endoscopic DCR with and without Silicone stenting.

Material & Methods: The surgical outcomes of Endoscopic DCR with and without Silicone stent were compared in 30 patients of chronic dacryocystitis. silicone stent was used in 15 patients and remaining 15 patients without use of silicone stent. Follow-up was done at end of 1st week, 6 weeks, 3 months and 6months after surgery. Surgical success was evaluated subjectively and objectively after 6months and results were compared.

Results : The success rate was 86.66% with Silicone stent as compared to 93.33% without Silicone stent . There was no statistical difference in the results of two groups. (P value - 0.542)

Conclusion: Silicone stent has no significant beneficial effect in preventing reclosure of the dacryocystorhinostomy stoma after primary endoscopic dacryocystorhinostomy. Meticulous, atraumatic surgical technique is gold standard in achieving a successful surgical result.

KEYWORDS

epiphora, endonasal dacryocystorhinostomy, silicone stent.

1. INTRODUCTION

Epiphora i.e. overflow of tears from the conjunctival sac is very distressing symptom and it can be a source of social embarrassment for a person in day-to-day life. It results from impaired drainage of normally secreted tears via lacrimal drainage system. It may be either physiological i.e. due to lacrimal pump failure or anatomical i.e. due mechanical obstruction in lacrimal passage. Mechanical obstruction in lacrimal passage may lie at the level of punctum, canaliculus, lacrimal sac or nasolacrimal duct (NLD). NLD obstruction leads to stagnation of tears which leads to recurrent infection of the lacrimal sac i.e. chronic dacryocystitis. Surgical correction of this condition is often indicated when the symptoms are not relieved by simple probing and syringing.

Dacryocystorhinostomy (DCR), a surgical procedure by which lacrimal flow is diverted into the nasal cavity through an artificial opening made at the level of the lacrimal sac, is indicated in symptomatic distal NLD obstruction. The perceived disadvantages of the external DCR included the risk of external scar and lengthy duration of surgery with significant blood loss. These potential problems have increased the popularity of minimally invasive endonasal approaches.

Endoscopic endonasal DCR has evolved from functional endoscopic sinus surgery. Further modifications in the surgical technique have been made during last two decades which includes use of powered instruments and lasers, preservation of nasal mucosal flaps, etc.

Over the past 3 decades it has become common practice for surgeons to place stents or intubation tubes at the time of DCR. It maintains the patency of rhinostomy opening by impeding fibrous closure during postoperative healing period. There is however, some controversy regarding stenting for DCR.

The aim of this study is to compare the surgical outcome of powered endoscopic DCR performed in patients with acquired distal NLD obstruction with and without silicon tube stenting.

2. Materials and Methods

This study was conducted at the Krishna Institute Of Medical

Sciences E.N.T dept from December 2015 to June 2017 with the total number of 30 cases for endonasal dacryocystorhinostomy - DCR were grouped into two using simple random technique as following:

- Group A -endonasal DCR with stents and
- Group B -endonasal DCR without stents

The stent was removed at end of 6 weeks in all cases of group A. All the cases were followed up at end of first week after surgery and thereby at six weeks, three months and six months

PREOPERATIVE WORKUP:

- 1) Lacrimal syringing
- 2) Diagnostic nasal endoscopy

Complications	Group A		Group B		P value	
	No of patients	%	No of patients	%		
Post operative bleeding (minimal)	1	6.66%	1	6.66%	1.000	
Granulation at rhinostome site	2	13.33%	1	6.66%	0.542	
Difficulty in stent removal	1	6.66%	NA	NA	NA	
Spontaneous expulsion of stent	1	6.66%	NA	NA	NA	
Synechiae	2	13.33%	3	20%	0.624	
Stenosis of neo ostium	2	13.33%	1	6.66%	0.542	

Results :

As observed in our study maximum number of patients in both the Group A and Group B belong to the age group of 26 – 35 years. Mean age in Group A is 38.44 (SD 12.14) and mean age in Group B is 38.28 (SD 10.79) with female prepondance in both groups During the study, following complications in performing endonasal dcr were observed

Granulation at rhinostome site	2	13.33%	1	6.66%	0.542
Difficulty in stent removal	1	6.66%	NA	NA	NA
Spontaneous expulsion of stent	1	6.66%	NA	NA	NA
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Stenosis of neo ostium	2	13.33%	1	6.66%	0.542

FOLLOW UP

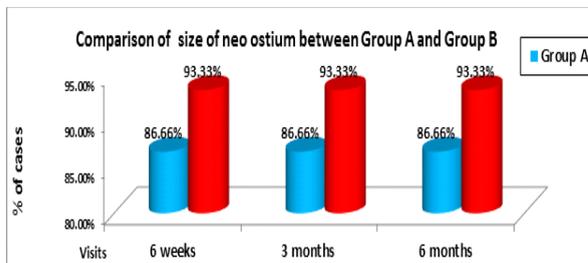
1) SUBJECTIVE ASSESSMENT

Follow up	Patients with complete symptomatic relief		Patients with no symptomatic relief		P value
	Group A	Group B	Group A	Group B	
1 week	13 (86.66%)	13 (86.66%)	(13.33%)	(13.33%)	1.000
weeks	13 (86.66%)	14 (93.33%)	(13.33%)	(6.66%)	0.542
months	13 (86.66%)	14 (93.33%)	(13.33%)	(6.66%)	0.542
months	13 (86.66%)	14 (93.33%)	(13.33%)	(6.66%)	0.542

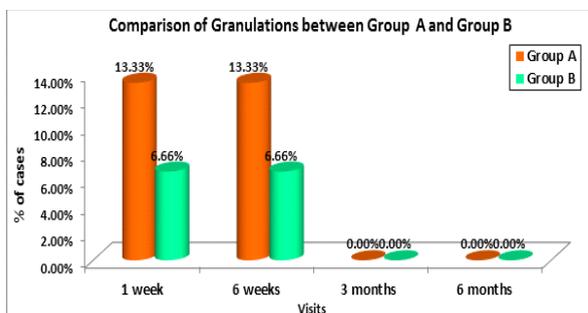
At end of 1st week of follow up 13(86.66%) patients in Group A and 13(86.66%) patients in Group B had complete relief. No relief was seen in 2(13.33%) patients in Group A and 2(13.33%) patients in Group B. By applying Chi-square test of difference between two proportions, the difference was not statistically significant (p value -1) At 6 weeks of follow up 13(86.66%) patients in Group A and 14(93.33%) patients in Group B had complete relief. No relief was seen in 2(13.33%) patients in Group A and 1 (6.66%) patients in Group B. This is the time that patients in Group A had their stent removal. By applying Chi-square test of difference between two proportions, the difference was not statistically significant.(p value – 0.542) At 3 months of follow up 13(93.33%) patients in Group A and 14(93.33%) patients in Group B had complete relief. No relief was seen in 2(13.33%) patients in Group A and 1 (6.66%) patients in Group B. The difference was not statistically significant.(p value – 0.542) At 6 months of follow up 13(93.33%) patients in Group A and 14(93.33%) patients in Group B had complete relief. No relief was seen in 2(13.33%) patients in Group A and 1 (6.66%) patients in Group B. The difference was not statistically significant. (p value–0.542)

2) OBJECTIVE ASSESSMENT

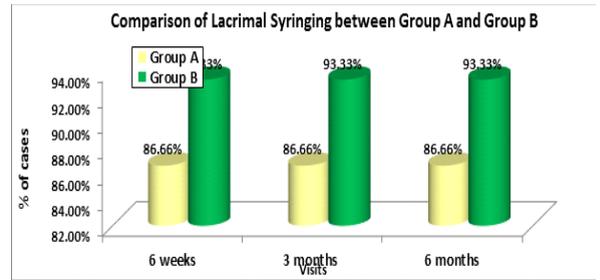
A) Diagnostic Nasal Endoscopy (DNE) findings :



2) Granulation present at rhinostome site:



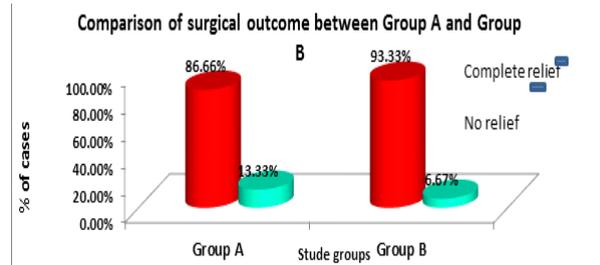
3) LACRIMAL SYRINGING (FREE FLOW PRESENT) :



SURGICAL OUTCOME

(At the end of 6 months)

Result	Group A		Group B		P value
	No of patients	%	No of patients	%	
Complete relief	13	86.66%	14	93.33%	0.542
No relief	2	13.34%	1	6.67%	



Discussion :

In our study 13(86.66%) patients in Group A and 14(93.33%) patients in Group B had shown improvement in the form of complete relief of epiphora at the end of 6 months. The difference was statistically insignificant (p value=0.542).The above results were comparable to those obtained by Hardik Shah et al. in their study of 129 patients who underwent primary endoscopic DCR with or without stent. They reported 84(93.33%) patients in the stent group and 35(92.30%) patients in the non stent group showed complete recovery of symptoms at the end of six month (p value=0.808).Unlu et al. in their study of 38 patients with an average follow up of 8 years also found similar success rates on subjective assessment. They found 16(84%) patients in the group with stent and 18(94.7%) patients in the non stent group got relieved of epiphora (p value=0.123).

On endoscopic examination at the end of 6 weeks we noted that, size of neo ostium was adequate in 13(86.66%) patients of Group A and 14(93.33%) patients of Group B. . The number of patients having adequate size of neo ostium was 14(93.33%) in Group B and 13(86.66%) in Group A at the end of 3 months with no further change at final follow up visit. The difference was statistically insignificant (p value=0.542). PJ Wormald, in a study of 47 powered endoscopic DCR procedures reported 95.7% rate of success for anatomic patency of the ostium after 11 months of follow up.Unlu et al. in their study of 38 patients with an average follow up of 8 years also reported results comparable to our study. In their study rhinostomy opening was patent in 17(89.5%) patients of the stent group and 18(94.7%) patients of the non stent group (p value=0.29). From observations of our study, and that quoted by PJ Wormald and Unlu et al. in their studies, it is evident that use of powered instruments to create wide bony ostium and mucosal flap preservation is responsible for the patency of rhinostomy opening during long and short term follow up period, and stenting has no significant role in it.

In our study we found that 2(13.33%) patients in Group A and 1(6.66%) patients in Group B developed granulations at the rhinostomy site at the end of 6 weeks. During follow up visits, there were no new cases with the granulation tissue at the rhinostomy site at the end of 3rd month and 6th month. As both the groups in our study were subjected to powered endoscopic DCR using mucosal flap technique and stent insertion in Group A being a solo difference in the procedure, we didn't find statistically significant difference in the

formation of granulations at the rhinostomy site in both the groups (p value=0.542). PJ Wormald in a study of 47 powered endoscopic DCR procedures stated that opposition of nasal mucosal flaps with flaps from the lacrimal sac leads to healing by primary intention without granulations. Thus from above figures, it follows that stenting is not an additional factor for the formation granulations.

In our study, free flow on lacrimal syringing was present in 13(86.66%) patients in Group A and 14(93.33%) patients in Group B at the end of 6 months. The difference in both the groups was statistically insignificant (p value=0.542).

The observations of our study were comparable to those obtained by Naik et al. in a comparative study of 238 endoscopic DCR procedures with or without stenting. They reported that 154(89.53%) patients in the stent group and 59(89.39%) patients in the non stent group had free flow present on lacrimal syringing at the end of 6 month (p value-0.974).Unlu et al. in their study of 38 patients also reported results comparable to our study. In their study flow was present in 16(84.2%) patients of the stent group and 17(89.5%) patients of the non stent group.

In our study we considered the case as success when at the end of 6 months there was complete relief of epiphora and free flow on lacrimal syringing, as subjective and objective assessment respectively.

Based on these criteria the success rate was 86.66% in Group A and 93.33% in Group B out of 15 patients in each group. The difference in the success rate was statistically insignificant (p value=0.542).

In both the failed cases of Group A and one failed case in Group B, stenosis of neo ostium was present at the rhinostomy site. Unlu et al. reported 85.7% success rate in patients with use of silicone stent and 87.5% in patients without stent. PJ Wormald reported 95.7% success rate in a study including 47 powered endoscopic DCR procedures with intubation. These results are comparable to our study. This shows that stenting has no significant role in the outcome of this procedure. On the other hand Mohamad et al. in their study of 128 endoscopic DCR reported success rate of 70% in group with stenting and 97% in group without stenting. Vishwakarma et al. also reported similar results discouraging use of stent in endoscopic DCR. These results are in support to our results related to outcome of the surgery.

Conclusion: Silicone stent has no significant beneficial effect in preventing reclosure of the dacryocystorhinostomy stoma after primary endoscopic dacryocystorhinostomy. Meticulous, atraumatic surgical technique is gold standard in achieving a successful surgical result.

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