



A STUDY ON EXTERNAL DACRYOCYSTORHINOSTOMY WITH SILASTIC TUBE VERSUS WITHOUT TUBE.

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ABSTRACT **Background:** Chronic dacryocystitis is a chronic inflammation of the lacrimal sac, frequently caused by bacteria due to blockage of the nasolacrimal duct leading to constant epiphora.¹ External Dacryocystorhinostomy(DCR) is the gold standard surgical method for treating nasolacrimal duct obstruction.² This study was designed to compare the outcome of external dacryocystorhinostomy with silastic tube intubation and without silastic tube intubation.

Material and Methods: Sixty patients irrespective of age, sex and disease duration were randomly divided into two groups with thirty patients in each group. Group A has undergone DCR with silastic tube and Group B without silastic tube. Silastic tube was removed at 3 months post operatively. Patients in both groups were evaluated for symptoms resolution, post-operative complication and syringing was done in first week, six weeks, third month and sixth month after intervention.

Result: At the end of 6 months, DCR with silastic tube has success rate of 93.3% and DCR without silastic tube has success rate of 86.7% with P value of 0.389. One patient had epistaxis and wound infection at 1 week post operatively, two patients had difficult stent detection and one patient had self extrusion of the silastic tube.

Conclusion: Our finding suggest that success rate was higher in DCR with silastic tube, although results were not statistically significant.

KEYWORDS : dacryocystitis, dacryocystorhinostomy, silastic tube

INTRODUCTION

Chronic dacryocystitis is a chronic inflammation of the lacrimal sac, frequently caused by bacteria due to blockage of the nasolacrimal duct leading to constant epiphora.¹ Chronic dacryocystitis can also present with swelling over lacrimal sac area (mucocele), purulent discharge and lacrimal sac abscess (acute exacerbation). Causes of obstruction of NLD are infections, trauma, neoplasm, radiation exposure etc. Chronic dacryocystitis accounts for 87.1% of epiphora.³ It commonly affects females over 40 years of age with peak incidence in 60 to 70 years.⁴ Chronic dacryocystitis does not resolve spontaneously. If untreated it may cause unilateral chronic conjunctivitis, corneal ulcer, lacrimal abscess or fistula. If any intraocular surgery is performed in the presence of unrecognized dacryocystitis, it can cause endophthalmitis or panophthalmitis.⁴ Other complications are orbital cellulitis, cavernous sinus thrombosis and orbital thrombophlebitis.³

Chronic dacryocystitis needs to be managed surgically. Dacryocystorhinostomy (DCR) is the procedure of choice for NLD obstruction and chronic dacryostenosis in the setting of patent canaliculi and a functional lacrimal pump.⁵ Two major approaches are utilized: External, via transcutaneous incision and Endonasal, which is endoscopically guided.⁵ The aim of the surgery is to bypass the obstructed NLD by creating an anastomosis between lacrimal sac and middle meatus in order to enhance the free outflow of the tears. External DCR is the gold standard surgical method for treating NLDO.²

AIMS AND OBJECTIVES

Our primary objective was to conduct an institutional based longitudinal, prospective comparative study to compare the efficacy of external Dacryocystorhinostomy (DCR) with and without silastic tube in chronic dacryocystitis in primary acquired nasolacrimal duct obstruction. Our secondary aim was to find whether silastic tube improves the overall success rate of external DCR, to find the most common age group of the patients affected by chronic dacryocystitis and to find out the most common complication of external DCR with and without silastic tube.

MATERIALS AND METHODS

SAMPLING TECHNIQUE - By simple random sampling method, patients fulfilling the inclusion criteria were divided into two group A & B.

INCLUSION CRITERIA– Primary acquired nasolacrimal duct obstruction (PANDO) with history of epiphora of more than 4 weeks duration, patients with positive regurgitation test (ROPLAS), patients with patent upper, lower and common canaliculi, patients more than 18 years of age, patients with no medical history.

EXCLUSION CRITERIA – Patients with previous history of DCR, patients with history of facial or nasal trauma, patients with nasal mucosal pathology, patients with acute dacryocystitis.

This study was conducted at North Bengal Medical College and Hospital, Darjeeling, West Bengal in year 2019 and 2020. 60 patients were included in the study. Patients were divided into two groups A and B randomly with 30 patients in each group. Patients less than 18 years, with acute dacryocystitis, lacrimal abscess, history of trauma or previous surgery, stenosed canaliculi, blockage of common canaliculi and with nasal pathology were excluded from the study. All patients were recruited from the outpatient department of North Bengal Medical College and Hospital, Darjeeling. All patients underwent a detailed ophthalmic examination and systemic evaluation for diabetes mellitus and hypertension. Standard external DCR was performed on all patients, with suturing of the anterior flaps of the lacrimal sac and nasal mucosa and trimming of the posterior flaps of the lacrimal sac. 30 patients in Group A underwent DCR with silastic tube and 30 patients in group B underwent DCR without silastic tube. The first dressing was changed after 24 hours. In group B irrigation of the lacrimal passage was done to ascertain the patency of the newly formed ostium and to wash out any blood clots and debris in the passage. Irrigation was not done in group A patients.

Patients were then followed after 1 week, 6 weeks, 3 months and 6 months. Successful outcome was defined as resolution of epiphora and discharge and patency of the passage on syringing.

Silastic tube is an inert, rubber like material which is flexible and has stainless steel probes at both ends. One end is introduced into the upper punctum and the other end is introduced into the lower punctum. The tubes are passed through the rhinostomy site and nose, and then tied inside the nose. This study was designed to compare the outcome of external dacryocystorhinostomy with silastic tube intubation and without silastic tube intubation.

RESULT

At the end of 6 months, DCR with silastic tube has success rate of 93.3% and DCR without silastic tube has success rate of 86.7% with p value of 0.389. One patient had epistaxis and wound infection at 1 week post operatively, two patients had difficult stent detection and one patient had self extrusion of the silastic tube. In total, 60 DCR procedures were performed. Females were predominant, Twenty-three (76.7%) females in the intubated group and Twenty (66.7%) females in the non-intubated group were operated as compared to 7 (23.3%) males in the intubated group and 10 (33.3%) males in the non-intubated group with mean age of 37±9.88 years in group A and 39.60±10.72 years in group B. Age, sex, and side were found to have nonstatistical significance among groups (p>0.05). The distribution of case characteristics among the 4 study groups are shown in (Table 1), (Figure 1). Success rate was more in DCR with silastic tube than DCR alone, total success rate with silastic tube intubation was 93.3% as compared to DCR alone with success rate 86.7%, with p-value (p>0.05)(Table-2)(Figure 2).

DISCUSSION

The aim of the present study was to compare the success rate of external dacryocystorhinostomy with and without silastic tube in chronic dacryocystitis in primary acquired nasolacrimal duct obstruction. The demographic characteristics of our patient population were similar to those described by others. Nasolacrimal outflow obstruction is much more common in women than in men. From the general data, the majority of treated patients (71.6%) were female, and 28.3% was male. Success rate in patients with silastic tube intubation was found better than patients with DCR without silastic tube, success rate in patients with DCR with silastic tube intubation was 93.3% and success rate in patients with DCR without silastic tube intubation was found 86.7%. with p-value (p>0.05). In 2009, Kaçaniku, performed external DCR in total 129 patients with 41 patients underwent DCR with silastic tube implantation and 88 patients without silastic tube implantation, and reported that the success rate was higher in the group with intubation (95.1%) compared to in the group without intubation (87.5%), but the difference was statistically insignificant (p>0.05). He proposed further prospective studies to confirm the beneficial effect of silicone intubation. Mohd Ayazbhat et al⁷ reported a success rate of 94.24% out of 70 procedures of external dacryocystorhinostomy with silicone tube intubation. Zia Muhammad et al⁸ reported a success rate of 98% in External DCR with silicone tube intubation in total 50 cases of primary nasolacrimal duct obstruction. AnilaMonkaet al⁵ reported success rate of 89% out of 53 dacryocystorhinostomy performed with silicone tube. Majority of the patients in this study were from rural population (88.3%). Chronic dacryocystitis in primary nasolacrimal duct obstruction seems to be more common in patients with unskilled workers with rural background (poor socioeconomic status) although it was not statistically significant. In our study, epiphora was the main chief complaint (100%). Similarly in Hakan Demirci et al⁹ tearing was the most common presenting symptom and present in all eyes (100%). Ghasemi H et al⁶ epiphora was the most common complaint before surgery (90.3%). In this study we found rare and benign complications in group A and no such complications in group B. In group A one patient had epistaxis and wound infection on third post-operative day. In Group A at 6 weeks of follow up, 1(3.3%) patient presented with self extrusion of tube, 1 patient presented with displaced tube along with conjunctivitis. Tube was re-positioned. Overall conjunctivitis was seen among 2 (6.7%) patients in Group A. Sajju et al² encountered no such complications in either of the groups with tube or without tube. AdemGül et al³ no complications were seen in either group except one patient had tube extrusion. In the study by Zaman et al¹⁰ 12 (30%) patients in DCR with silastic tube had bleeding from incision site and 10 (25%) patients in DCR without silastic tube had bleeding from incision site. In this study among the two failed cases in Group A, 1 (33.3%) had closed bony ostium and 1 (3.3%) patient with early self extrusion of tube had common canalicular block. Among the four failed cases in Group B, 3 (10.00%) patients had common canalicular block and 1(3.3%) had complete cicatricial closure of bony ostium. Common canalicular block was the most common cause of failure of External DCR(6.66%) with p>0.05.

CONCLUSION

External Dacryocystorhinostomy (DCR) is still today the gold standard surgical procedure for chronic dacryocystitis due to primary acquired nasolacrimal duct obstruction. This study showed that silastic tube placement improves the success rate of External DCR but there was no statistical significance. Tubes were well tolerated and the complications were rare and benign.

But silastic tube implantation increases the overall duration of the surgery. External DCR without tube also proved to have good success rate with minimum complications. So we have found that placing silastic tube has no such superiority to conventional DCR. However large sample size is required for further studies. In our opinion, placing silastic tube in external DCR is completely choice of surgeon which can be made intraoperatively. As with any study, the present study is also not free from limitations such as the study population was small, long term failure rate and complications beyond 6 months could not be assessed due to limited follow up period of 6 months in the study. Patients less than 18 years were not included in the study, absence of any guideline and tests to check for proper placement of the silastic tube. Our finding suggest that success rate was higher in DCR with silastic tube, although results were not statistically significant.

Ethical approval: The protocol and both the patient information sheet and the consent form was submitted to the Institutional Ethics Committee of North Bengal Medical College and Hospital for approval.

Conflict of interest: There was no financial conflict of interest.

Table 1: Shows age distribution of study population.

Age in Years	Type of External DCR	
	With Tube (Group A) N(%)	Without Tube (Group B) N(%)
15 - 25 yrs	5 (16.7%)	1 (3.3%)
26 - 35 yrs	7 (23.3%)	11 (36.7%)
36 - 45 yrs	12 (40.0%)	10 (33.3%)
46 - 55 yrs	5 (16.7%)	5 (16.7%)
>=56 yrs	1 (3.3%)	3 (10.0%)
Total	30 (100%)	30 (100%)

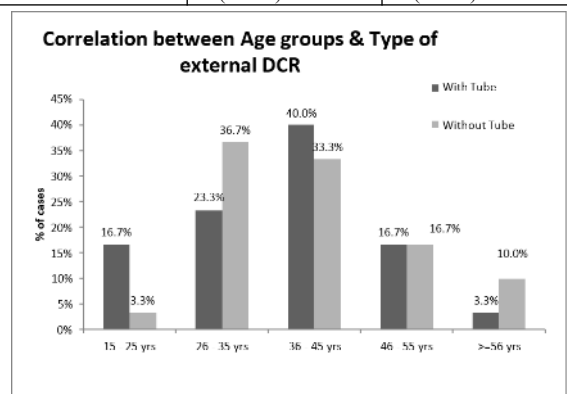


Figure 1: Shows correlation between age group and type of external DCR.

Table 2: Shows final outcome of external DCR with tube versus without tube.

Final outcome	Type of external DCR				p value
	With Tube		Without Tube		
	Frequency	%	Frequency	%	
Failure	2	6.7%	4	13.3%	0.671
Success	28	93.3%	26	86.7%	
Total	30	100%	30	100%	

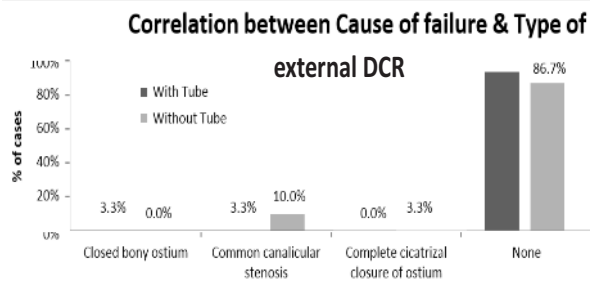


Figure 2: Correlation between cause of failure and type of external DCR.

REFERENCES

1. Mirza S, Al Barmani A, Douglas SA, Bearn MA, Robson AK. A retrospective comparison of endonasal KTP laser dacryocystorhinostomy versus external dacryocystorhinostomy. *Clin Otolaryngol Allied Sci.* 2002 Oct;27(5):347-51.
2. Saiju R, Morse LJ, Weinberg D, Shrestha MK, Ruit S. Prospective randomized comparison of external dacryocystorhinostomy with and without silicone intubation. *Br J Ophthalmol.* 2009 Sep.
3. Kaçaniku G, Spahiu K. The success rate of external dacryocystorhinostomy. *Med Arh.* 2009;63(5):288-290
4. Mohd Ayaz Bhat, Waseem Raja, Ambrine Asraf. Compare outcome in DCR with and without silicon tube implantation. *Ijcmr.* 2019; 6(3): C20-C21.
5. Monka A, Zhungli S. Silicone Intubation in External Dacryocystorhinostomy. *Ijsr.* 2015 Dec;4(12):1814-1816.
6. Muhammad Z, Tariq M, Jalis M, Khalid A. Is Silicone Intubation Necessary in Dacryocystorhinostomy?. *Pakistan Journal of Ophthalmology.* 2016 Dec;32(4):231-234.
7. Demirci H, Elnor VM. Double silicone tube intubation for the management of partial lacrimal system obstruction. *Ophthalmology.* 2008 Feb;115(2):383-385.
8. Ghasemi H, Asl SA, Yarmohammadi ME, Jafari F, Izadi P. External Dacryocystorhinostomy; Success Rate and Causes of Failure in Endoscopic and Pathologic Evaluations. *Iran J Pathol.* 2017;12(3):189-194.
9. Adem Gül, Mustafa Duran, Ertugrul Can, Hilal Eser Öztürk, Nursen Aritürk. The Effect of Silicone Tube Intubation in External Dacryocystorhinostomy. *Acta Med Anatol* 2015;3(1):1-4.
10. Zaman M, Babar TF, Abdullah A. Prospective randomized comparison of dacryocystorhinostomy with and without intubation. *Pak J Med Res.* 2005;44(2):75-78.