



TO EVALUATE THE FUNCTIONAL OUTCOME OF EXTERNAL DACRYOCYSTORHINOSTOMY (DCR) WITH AND WITHOUT INTUBATION

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ABSTRACT **AIM:** To evaluate the functional outcome of external dacryocystorhinostomy (DCR) with and without intubation. **METHODS:** A comparative randomized prospective study was conducted on 50 patients with epiphora having nasolacrimal duct (NLD) obstruction attending to the out-patient department of the Ophthalmology, Regional Eye Hospital, Kurnool between January 2016 to June 2017 were taken as the study group, and divided randomly into two (25 each) sub groups. 25 patients in group A underwent Dacryocystorhinostomy without silicone tube intubation and 25 patients in Group B underwent Dacryocystorhinostomy with silicon tube intubation. **RESULTS:** At the end of our study the success rate was 84% in group A (Dacryocystorhinostomy without silicon intubation) and 96% in group B (Dacryocystorhinostomy with silicon intubation) in total of 50 patients with 25 patients in each group. The p value was less than 0.05 and by conventional criteria; this difference is considered to be extremely statistically significant. **CONCLUSION:** There are more chances of success rate for External Dacryocystorhinostomy with silicon intubation than External Dacryocystorhinostomy without silicon intubation in patients with nasolacrimal duct obstruction.

KEYWORDS : Dacryocystorhinostomy (DCR), Silicon Tube Intubation, Nasolacrimal Duct(NLD)

INTRODUCTION

Epiphora is an annoying symptom, embarrassing the patient both socially and functionally.¹ It is the main presenting symptom of **chronic dacryocystitis** (CDC) and is a common ophthalmic problem.² Dacryocystitis is a common infection of the lacrimal sac and it results from nasolacrimal duct (NLD) obstruction. Chronic tear stasis or secondary infection occurring in this condition can lead to acute exacerbation of chronic dacryocystitis, mucocele, chronic conjunctivitis, corneal ulcer, orbital cellulitis in untreated cases. The definitive treatment for chronic dacryocystitis in adult is dacryocystorhinostomy (DCR)

External dacryocystorhinostomy [DCR] is a well proven procedure to relieve the epiphora due to NLD obstruction first described by Adeo Toti, a French Ophthalmologist in 1904, where in after creating an external approach to the lacrimal sac, a part of it near to the canaliculi was preserved and absorbed into the nose, by creating a window in the lateral wall of the nose.³

In the search to increase the success rate, many causes for failure like poor surgical technique, intranasal adhesions, fibrous obstruction at the common canaliculus, closure of the osteotomy, and fall of the mucosal flap were identified.^{4,5} Among these causes development of scar tissue at the osteotomy site, seen endoscopically, was considered to be the main cause of failure.⁶

To overcome the adhesions at osteotomy site, application of antifibrotic agents like mitomycin C or the placement of stents like silicon tube at the site of the osteotomy were done to increase outcome.^{7,8} There is a growing tendency to use **silicone tubes** in external dacryocystorhinostomy to improve outcomes.⁹

MATERIALS AND METHODS

Complete history was taken and a thorough clinical examination was done. Preoperatively, lacrimal sac syringing, thorough rhinological checkup was done in to exclude grossly deviated nasal septum, nasal polyps, hypertrophied turbinate and atrophic rhinitis. All routine investigations including hemogram, bleeding time, and clotting time were done. Local antibiotics were started a week before surgery. Nasal decongestants were started 24 hr prior to the surgery. Written and informed consent were obtained from all the patients.

External DCR was performed in both subgroups, but in one subgroup the track was intubated with silicon tube and in another subgroup external DCR was done without intubation.

All external dacryocystorhinostomy operations were performed under local anaesthesia. After anaesthetizing nasal mucosa with 2%

xylocaine with adrenaline, packing of the ipsilateral nasal cavity was done with lignocaine jelly soaked roller gauze, the tip of which was soaked in 1:1,00,000 adrenaline.

Under aseptic precautions local anaesthesia consisting of 5-10 cc of 2% xylocaine with adrenaline 1: 1,00,000 was given. Lacrimal and periorbital area were painted with betadine, and parts are draped.

A curvilinear incision of 1 to 1.5cm in length was made 3-5 mm medial to the medial canthus starting 2mm above the level of the medial palpebral ligament.

The orbicularis muscle fibers were separated, lacrimal fascia is incised, medial canthal ligament was divided with a blunt dissector and the sac was separated from the lacrimal fossa. The periosteum overlying and medial to the anterior lacrimal crest was elevated with the help of Traquair's periosteal elevator. Lamina papyracea was fractured and nasal mucosa was stripped off from the lacrimal bone. Bony osteotomy of 10-12mm diameter was created with Citelli's punch. After anaesthetizing the eye with 2% xylocaine drops, upper punctum was dilated with punctum dilator. Bowman's probe was passed through the upper canaliculus to confirm the position of common canaliculus and the related parts of the medial sac wall and tenting of the sac wall noted. With the help of a Bard Parker 11 number blade, first lacrimal sac and then nasal mucosa were opened in H shaped fashion to form larger anterior and smaller posterior flaps, then Bowman's probe was removed.

The lower canaliculus was dilated using progressively larger lacrimal probes until the size 4 probe passes freely throughout the passage. One end of the silicon tube was passed through the lower canaliculus while other end through the upper canaliculus. So that a single silicone tube will traverse both canaliculi and their free ends lie in the bony ostium. Nasal packing was removed and 4-5cm cut piece of drip set tube was inserted through the ipsilateral nostril until it passes through the ostium. The silicone tube ends are then passed through the drip set tube which was retrieved out of the nostril. Anterior flaps of nasal mucosa and lacrimal sac were sutured by interrupted sutures with 6/0 vicryl, posterior flaps excised and Skin was sutured with 6/0 vicryl. Saline nasal drops and nasal decongestants (0.05% oxymetazoline) were advised post operatively. Nasal pack was removed after 24 hours. Lacrimal sac syringing was done on first post-operative day in non-intubated cases.

All patients were followed at 1st week, 2nd week, 1st month and 3rd month. Symptoms of patients were documented at each follow-up and classified as symptom free (no epiphora), improvement, and no improvement. lacrimal syringing was done after removal of the

silicone tubes . DNE was done in both intubated and non-intubated groups to see the site and size of ostium and also for the position of silicone tube in intubated cases during each follow up. At the end of 6 weeks the interpunctal portion of the tube was cut and free ends of the tube in the nose was pulled out with forceps .

RESULTS

A total of 50 patients were operated. Their ages ranged from 20 to 60 years and 5(10%) were male and female were 45(90%). All the patients were having acquired nasolacrimal duct obstruction. 25 patients in Group A underwent conventional Dacryocystorhinostomy without silicone intubation and 25 patients in Group B underwent Dacryocystorhinostomy with silicon intubation.

In group A, postoperative success was 84% and In group B, it was 96%. Both groups were compared by using chi-square test at 5% confidence interval and degree of freedom 1, chi-square test supports the hypothesis that there are more chances of success for external dacryocystorhinostomy with silicon intubation than without intubation. The p value was less than 0.05 and by conventional criteria this difference is considered to be statistically extremely significant.

DISCUSSION

Epiphora is an annoying symptom, embarrassing the patient both socially and functionally. It is the main presenting symptom of **chronic dacryocystitis** (CDC) and is a common ophthalmic problem.² Dacryocystitis is a common infection of the lacrimal sac and it results from nasolacrimal duct (NLD) obstruction. Chronic tear stasis or secondary infection occurring in this condition can lead to acute exacerbation of chronic dacryocystitis, mucocele, chronic conjunctivitis, corneal ulcer, orbital cellulitis in untreated cases. The definitive treatment for chronic dacryocystitis in adult is dacryocystorhinostomy (DCR). The aim of the surgery is successful outcome in the form of disappearance of epiphora. It remains our preferred primary procedure in the treatment of nasolacrimal duct obstruction and chronic dacryocystitis due to high success rate, reasonable operative time and patient comfort. An additional benefit to the classic external DCR is that it does not require expensive technology equipment and can therefore be performed in places with developing medical infrastructure. Success of the surgery is assessed both subjectively and objectively. Subjectively, resolution of epiphora and objectively, unobstructed flow with irrigation confirms the success. The most frequent complication in case of uneventful procedure is post operative excessive scarring. Differences in surgical technique and analysis of surgical outcome make it difficult to compare reports but it is generally recognized that Daryocystorhinostomy with silicon intubation is better than Daryocystorhinostomy without silicon intubation. In 1982, Older observed a success rate of 94% (by formal Jones testing) in 70 patients with nasolacrimal duct obstruction, suturing only an anterior flap of nasal mucosa to the periosteum near the anterior lacrimal crest and routinely intubating with silicon rubber. Rosen et al described their experience of routinely intubating 253 cases, suturing anterior flaps and excising posterior flaps. After 6 months of intubation, they described an overall success rate of 91.3%, success being defined by the absence of symptoms.

Other situations prompting intubation include previous acute dacryocystitis, poor flap creation, revision surgery, excessive bleeding, inflammatory disease and small sacs.

CONCLUSION

External dacryocystorhinostomy is a cost effective and routinely done procedure for the management of chronic dacryocystitis with success rate in the range of 90% to 95%. However to overcome the complications like scar tissue at osteotomy site, lacrimal intubation have been introduced to improve the success rate.

Silicon intubation during external DCR is also an effective means of treating canalicular blocks.

An additional benefit to external DCR with silicone tube intubation is that it does not require expensive high technology equipment and can therefore be performed in places with developing medical infrastructure.

To conclude, although external DCR is the gold standard procedure for NLDO, to further improve the success rate, silicon tube intubation can be considered for patients with chronic dacryocystitis with inadequate

nasal mucosa, small atrophic sac and in failed DCR cases.



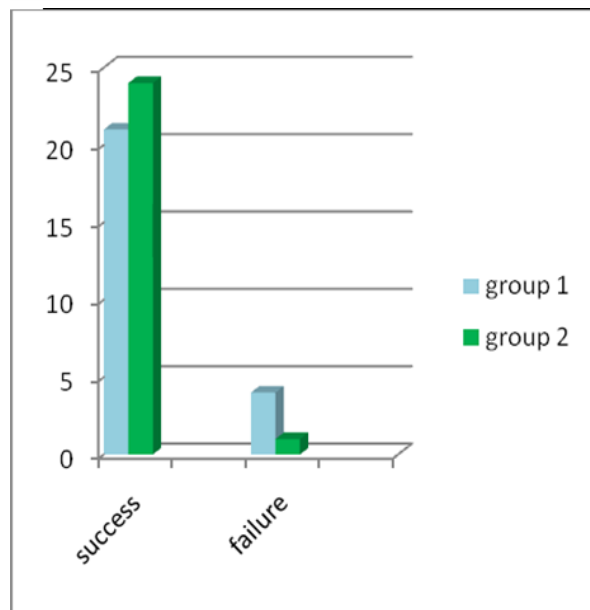
FIGURE 1:RETRIVAL OF TIED ENDS OF SILICON TUBE THROUGH BONY OSTIUM INTO THE NOSE



FIGURE 2 :SAC SYRINGING ON 1ST POD IN CONVENTIONALDCR

TABLE SHOWING SUCCESS RATE OF DIFFERENT STUDIES

STUDY	SUCCESS RATE	
	CONVENTIONAL DCR	DCR WITH SILICON TUBE INTUBATION
Mir zaman et al10	95%	97.5%
KacanikuG,Spahler et al11	87.5%	95.1%
Hussain et al12	77.8%	94.7%
Muhammad Afzal et al13	80%	92.5%
Ambili et al14	90%	95%
Present study	84%	96%



GRAPH SHOWING SUCCESS RATE IN SUBGROUPS

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