



TO COMPARE THE RESULTS OF EXTERNAL DCR WITH AND WITHOUT SILICONE TUBE IN CHRONIC DACRYOCYSTITIS.

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ABSTRACT

Purpose: To study the result of silicone tube insertion in external dacryocystorhinostomy (DCR). **Methods:** During external DCR for primary nasolacrimal duct obstruction carried out between January 2013 to February 2015. A total 60 patients with primary nasolacrimal duct obstruction were taken for DCR surgery. The patency of lacrimal drainage system was evaluated with lacrimal syringing. Silicone tube intubation was added to surgery in 30 consecutive patients and was not used in 30 consecutive patients. Lacrimal syringing in the third month were recorded. Surgical success was accepted as the patency of the formed ostium with lacrimal syringing. **Results:** Success rate was 90%

(27/30) in patients with silicone intubation, and 86.67% (26/30) in without intubation. The difference between the groups was not found as statistically significant ($p > 0.05$). Cases in which intubation was avoided had a large lacrimal sac and a wide nasal cavity. **Conclusion:** This study shows that the silicone tube implantation is not necessary in the surgery. External DCR with silicone intubation is safe and effective surgery in patients whom we expect less favourable outcome. The complications associated with silicone intubation are negligible.

KEYWORDS: external dacryocystorhinostomy, silicone tube.

INTRODUCTION

A DCR is the treatment of choice for most patients with acquired NLD obstruction. Surgical indications include recurrent dacryocystitis, chronic mucoid reflux, painful distension of the lacrimal sac, and bothersome epiphora. For patients with dacryocystitis, active infection

should be cleared, if possible, before DCR is performed.^[1] Nasolacrimal duct obstruction is treated by external dacryocystorhinostomy, while surgeons are performing this procedure in different ways. Suturing of anterior and posterior lacrimal and nasal flaps and use of rubber catheter in the sac are the variedly employed techniques. Silicone tube with suturing of mucosal flaps, increases the long term success rate.^[2] Since its introduction by Gibbs in 1967, intubation with silicone tubes has been widely used in lacrimal duct surgery.^[3] In order to address the issue of enhancing the success rate the causes of failure must be studied in depth. Literature on this subject^[4] points to reclosure of the stoma as the most frequent cause for failure of dacryocystorhinostomy. Reclosure is due to scarring, adhesions and granulation tissue formation. Vishwakarma et.al^[5] and group performed a prospective study on effect of Silicone stenting in endoscopic dacryocystorhinostomy, on 272 patients reported a higher success rate. In the literature, while the success rates of DCR with silicone tube intubation are seen, there is a paucity of data regarding comparative studies. Therefore, we studied the DCR surgeries with and without silicone tube intubation to search the effect of silicone rod to the success rate of surgery. Silicone intubation increases cost and prolongs postoperative followup periods of the patients. Based on current medical evidences and our experience, silicone intubation is mainly indicated in DCR surgery in selected cases of distal or common canalicular obstructions and routine intubation can be avoided in cases with primary nasolacrimal duct obstruction. The aim of the study was to assess the rate of success of silicone tube intubation as compared to patients that this method was not used.

MATERIALS AND METHODS

A total 60 patients were operated for DCR surgery between august 2013 and December 2015. All patients had primary nasolacrimal duct obstruction and no previous surgery done for nasolacrimal duct obstruction. A complete ophthalmologic examination was performed. The patency of lacrimal drainage system was evaluated with lacrimal syringing. All patients were examined carefully. Informed consent was taken from all patients. Silicone tube intubation was added to surgery in 30 consecutive patients and was not used in 30 consecutive patients. lacrimal syringing in the third month were recorded. Surgical success was accepted as the patency of the formed ostium with lacrimal syringing. All cases were done by a single surgeon.

Exclusion criteria were canalicular stenosis, epiphora due to adenexal, corneal, conjunctival diseases, and age less than 20 years of age. Patients not came for regular follow up were excluded.

Descriptive methods and independent chi-square test were used for statistical analyses and a p value <0.05 was accepted as significant.

Surgical Method

External dacryocystorhinostomy were carried out under general anesthesia. General anesthesia is administered, an epinephrine-containing local anesthetic may be infiltrated into the surgical field to aid in hemostasis. Two gauge soaked with mixture of epinephrine and lidocaine were placed on the level of middle turbinate. The surgical incision was marked with a skin marker, and the surgical site was infiltrated with epinephrine and lidocaine mixture. The skin was incised starting from 8-10 mm medial to medial canthal ligament and extending in vertical direction as being 10-12 mm. Periosteum was found with blunt dissection and was incised with a scalpel. At this stage, anterior portion of medial canthal ligament was dissected for better dissection of lacrimal sac. The thinnest part of medial wall of the orbit was perforated and a 12x12 mm bony window was opened with a bone punch. A metallic probe was inserted from lower canaliculus after the puncta were dilated. A small incision with the scalpel at the tip of the probe, then H-type incision was made with the scissors on the lacrimal sac. The same H-type incision was also made on the nasal mucosa, then the mucosal flaps were sutured to the flaps of lacrimal sac. In the cases which silicone rods were used, silicone tube intubation was made after the posterior flaps anastomoses. The two ends of the silicone rod were retrieved from the nose and tied then pushed into the nose. Flaps and subcutaneous tissues were sutured with 6-0 absorbable suture and the skin with 6-0 silk suture. After the skin closure, lacrimal irrigation was made to clean the newly formed passage. Patients were discharged after recovery from anesthesia and called for third day and first week visit to make lacrimal syringing in patients who were operated external dacryocystorhinostomy without silicone tube. Silicone tubes were removed in the third month visit. Postoperatively all patients were treated with moxifloxacin 0.5% and tobramycin & fluromethalone eye drops four times daily for 3 months.

RESULTS

The mean age were 61.2 years (range, 32-76) in patients in whom silicone tube was used, and 54.4 years (range, 23-75) in patients that was not used. Female to male ratio

were 17/13 in silicone tube group, and 16/14 in silicone free group. 20 out of 30 patients in silicone group was operated from right side and also 17 out of 30 patients in silicone free group was operated from the right side. Success rate were 90 % (27/30) in silicone group, and 86.67% (26/30) in silicone free group. The difference between the groups was not found as statistically significant ($p>0.05$).

In silicone group, no punctal erosion, corneal erosion, and granuloma formation were seen for following 6 months in postoperative period.



Silicone tube in external dacryocystorhinostomy, left eye at first postoperative day.

DISCUSSION

DCR has been accepted as a highly successful procedure for nasolacrimal duct obstruction. The External Dacryocystorhinostomy with silicone tube intubation is traditional surgical procedure which yields 80 –90 % results depending upon the surgical techniques, surgeon's skill, associated nasal or systemic disease and response of patient to surgery.^[6]

Most importantly, the insertion of a silicone tube into the lacrimal drainage system during DCR may prevent postoperative obstructions by securing an open pathway during the healing process.

The shorter time, small osteotomy, less bleeding, controlled holes in lacrimal sac and nasal mucus membrane ensures good results. Early removal of silicone tube, infection in surgical

area and chronic nasal disease are the factors which can impend procedure failure in a limited number of cases.

Silicone tube protects the passage by preventing granulation tissue formation in the site of osteotomy and anastomoses in the postoperative period and it prevents common canalicular obstruction. Some surgeons have preferred it for only complicated cases like unsuccessful cases, canalicular stenosis, and in cases of insufficient flap formations.^[7-9]

Buttanri *et al.*, used silicone tube in 69 patients with distal/common canalicular obstructions in external DCR surgery and reported the success rate as 76%. They implicated that silicone tube should be used in patients with distal or common canalicular obstructions. In their study, although most of the patients relieved after the removal of the tubes, epiphora was started again in 21% of the patients.^[10] Bayhan *et al.*, reported that they used silicone tube only in cases of distal/common canalicular stenoses, and small-fibrotic sacs.^[11]

Our study revealed no benefit in using Silicone stent as an adjunct in primary external dacryocystorhinostomy. Similar results were reported by Acharya *et al.*^[12], Kakkar *et al.*^[13] and Unlu *et al.*^[14] But Rahman MZ, Hossain MJ *et al.* were included 50 patients in the study and concluded that dacryocystorhinostomy with silicone tube intubation provides a better surgical results than without silicone tube intubation.

CONCLUSION

This study shows that the silicone tube implantation is not necessary in primary dacryocystorhinostomy surgery. External dacryocystorhinostomy without silicone tube is cost effective and time saving procedure. The complications associated with silicone intubation were negligible but it prolongs postoperative follow up periods of the patients.

REFERENCES

1. American academy of ophthalmology edition, 2011-2012; 7th pg 267.
2. Kim JH, Hwang SW, Choung HK, Lee JC, Khwarg S. Lacrimal silicon intubation for anatomically successful but functionally failed external DacryocystoRhinosotomy. Korean Journal of Ophthalmology, 2007; 21(2): 70-73.
3. Feng YF, CAi JQ, Zhang JY, Han XH. A meta-analysis of primary dacryocystorhinostomy with and without silicone intubation. Can J Ophthalmol, 2011 Dec; 46(6): 521-7. PMID: 22153640.

4. Selig YK, Biesman BS, Rebeiz EE. Topical application of mitomycinC in endoscopic dacryocystorhinostomy. *Am J Rhinol*, 2000; 14(3): 205-207.
5. Vishwakarma R, Sing N, Ghosh R. A study of 272 cases of Endoscopic Dacryocystorhinostomy. *Ind J Otolaryngol Head Neck Surg*, 2004; 5(4): 260-262.
6. Walland MJ, Rose GE. Factors affecting the success rate of open lacrimal surgery. *Br. J. Ophthalmol*, 1994; 78: 888-91.
7. Coban DT, Beden U, Sonmez B, Erkan D. Outcomes of external dacryocystorhinostomy and effects of the incision type on cosmetic and functional outcomes. *J Clin Anal Med*, 2011; 2(1): 21-4.
8. Anderson RL, Edwards JJ. Indications, complications and results with silicone stents. *Ophthalmology*, 1979; 86(8): 1474-87.
9. Ozay S, Bakbak B, Onder F. [Silicone tube indications, external dacryocystorhinostomy]. *MN Oftalmoloji*, 2005; 12: 152-5.
10. Buttanri IB, Serin D, Karslioglu S, Akbaba M, Fazil K, Acar B, Sevim MS. The outcome of silicone intubation and tube removal in external dacryocystorhinostomy patients with distal canalicular obstruction. *Eur J Ophthalmol*, 2012; 22(6): 878-81.
11. Bayhan SA, Recep ÖF, Düzen B, Hasıripi H [The results of external dacryocystorhinostomy operations performed with single flap and double flaps]. *T Oft Gaz*, 2008; 38: 371-4.
12. Acharya K, Pradhan B, Thapa N. Comparison of outcome following endoscopic dacryocystorhinostomy with external dacryocystorhinostomy. *Nepalese J ENT Head and Neck Surgery*, 2011; 2(2): 3.
13. Kakkar V, Chugh JP, Sachdeva S et.al. Dacryocystorhinostomy with and without silicon stent: A Comparative Study. *Internet J otolaryngo*, 2009; 9: 1.
14. Unlu HH, Toprak B, Comparison of surgical outcomes in endoscopic dacryocystorhinostomy with or without silicon intubation. *Ann Otol Rhinol Laryngol*, 2002; 111(8): 09.