

Modified External Dacryocystorhinostomy With Silicone Tube Intubation

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Abstract

Background: Different modifications of external dacryocystorhinostomy can be employed to treat obstruction in cases of epiphora.

Methods: Interventional study; Sixty adult cases of nasolacrimal duct obstruction were treated with modified external dacryocystorhinostomy with silicone tube intubation. The patients were followed to assess the success rate of the procedure. Instead of suturing the anterior and posterior flaps of lacrimal sac and nasal mucus membrane, a piece of tissue from both structures 0.8 and 1.2 cm respectively was excised. Silicone tube was passed through these into external nostrils

Results: Age of the patients ranged from 20 to 60 years, with a male to female ratio of 1.4:1. There were 25 right and 35 left eyes. There was no bilateral case. The follow up period to determine the success and failure was 1-2 years.

Conclusion: Modified External Dacryocystorhinostomy with Silicone tube intubation yields high success rates in cases of epiphora

Key Words: Modified External Dacryocystorhinostomy; Epiphora

Introduction

Epiphora due to nasolacrimal duct obstruction is a common ophthalmic problem which may be congenital or acquired. Adult nasolacrimal duct obstruction is usually unilateral and less common than congenital cases.^{1,2} 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. Older techniques using silicone tube with suturing of mucosal flaps, increases the long term success rate. However, epiphora may remain in some patients even after successful DCR with intubation.³

The present study was intended to modify the traditional method of creating surgical fistula between the lacrimal sac and middle meatus of the nose. Instead of suturing the anterior and posterior flaps of lacrimal sac and nasal mucosa respectively, a small piece of tissue was excised from both flaps. The

silicone tube was passed through it and tied in such a way that cut end and knots are just internal to nostrils.

Patients and Methods

The study was conducted from July, 2005 to July, 2008. All the patients between 20 to 60 years of age, who presented with epiphora or mucocele, were entered in the study. Majority (80%) of the patients were operated under local anaesthesia. Syringing, probing, regurgitation test and Jones dye test were done before hand. In all the patients nasal packing was done half an hour before surgery with 4% xylocaine and 1:1000 adrenaline. 2.5 cc of 2% xylocaine and adrenaline (1:10000) was injected at the surgical site and massage done for five minutes.

Procedure: In sixty patients adult onset nasolacrimal duct obstruction, modified external DCR with intubation was performed. Lacrimal intubation set (DCR) 23G, 11.5cm with metallic probe made by Eagle Industries Ltd. USA was used in every patient. A vertical incision, 6mm medial to medial canthus with no. 11 surgical blade, about 20 mm in length was given. The orbicularis muscle fibers were separated. The self retaining retractor exposes the surgical field. Medial palpebral ligament was incised. Lacrimal sac retracted laterally and periostium overlying the anterior lacrimal crest was incised and retracted. The circular osteotomy of about 1.5cm in size with smooth edges was created by punch. A small circular hole of about 0.8 cm was made in lacrimal sac by excising its medial wall. About 1.2 cm circular hole is created in nasal mucus membrane. The silicone tube is passed through punched lacrimal sac, nasal mucus membrane holes and out through ipsilateral nostril. Hemostasis achieved in surgical area by applying gauze pack soaked in 1:10000 adrenaline for two minutes. The suction was done during surgery and bipolar cautery used only where absolutely necessary. The blood clot removed from surgical area. Wound closed with 6/0 vicryl, muscle and skin separately. At least five knots were applied to silicone tube just inner to nostril and about 1cm tube left outside to be cut short on third day. Nasal packing was done which was removed on second post operative day.

Results

. All cases were unilateral (Table 1). The DCR tube was removed between 6-9 months. The patients

were followed up from 1 - 2 years. Operation was considered successful if there was no epiphora at the end of one year. Success rate was 95% and failure rate 5%. Failure was caused by accidental early removal of silicone tube, infection in surgical area and chronic sinus disease.

Table 1: Laterality

No. of Patients	Laterality		% age
60	Right side	25	41.73 %
60	Left side	35	58.30 %

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. ⁴ Local studies revealed varied results. The procedure is standardized, but little variation in different surgical hands can affect the surgical outcome. ⁵⁻⁷ The main idea is to create a fistula between the lacrimal sac and middle meatus of nose

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.

Table 2: Comparison of Success Rate

Author	Year of Study	Success Rate
Current study	2008	95 %
Zaman et al	2005 ⁸	95 %
Advani et al	2004 ⁵	95 %
Baig et al	1999 ⁹	87 %
Dareshani et al	1996 ¹⁰	94-98 %
Ashraf MA	1998 ¹¹	91 %

Many surgeons in Pakistan have performed the external DCR with intubation with good results⁸⁻¹¹. In modified surgical approach for DCR with intubation our results are comparable with others (Table 2). The follow up period was from 9 months to 1 year in all these studies.

Nowadays Endolaser surgery is very much in vogue. The higher cost and lack of required expertise are few of the mentionable obstacles. All this necessitates studies to compare results of modified surgical procedure and endolaser surgery. ^{12,13}

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