

Original Article

Endoscopic dacryocystorhinostomy without mucosal flap : Our experience

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Abstract

Background: The purpose of our study was to evaluate outcome of Endoscopic dacryocystorhinostomy without preservation of mucosal flap for the management of acquired nasolacrimal duct obstruction

Methods: A retrospective review of 26 patients were performed on patients who underwent Endoscopic dacryocystorhinostomy without preservation of mucosal flap from March 2007 to November 2010 at our hospital. Twenty six patients were operated and followed up postoperatively for five to six weeks with lacrimal syringing by ophthalmologists and diagnostic endoscopy done at third month and followed up until the formation of well formed ostium and patients became asymptomatic. Main outcome were subjective improvement in epiphora and persistence of anatomic patency of ostium.

Result: There were 26 patients operated, one is male and all others were female. The age of patients were ranging within 20 to 78 years (mean 36.65years). Every patients were followed up in the range of four months to two years (mean 6.2 months). Septoplasty was required in only one patient prior to DCR. Anatomic patency were confirmed by nasal endoscopy in twenty four patients (92%), remaining two had synechiae without ostium. One patient among 24 patients had ostium and lacrimal flow with intermittent epiphora. Our overall success rate with anatomical patency and without symptoms of epiphora is 88%.

Conclusion: Our results with endoscopic dacryocystorhinostomy are comparable with previously published outcomes. Our data suggest that endoscopic dacryocystorhinostomy without preservation of mucosal flap may be performed

Key words: Endoscopic DCR without mucosal flap; DCR; endoscopic

Introduction

Epiphora is a common problem encountered by ophthalmologists and ENT surgeons. Various concepts for epiphora i.e. hypersecretion of tears, lacrimal pump dysfunction and lacrimal duct obstruction are

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established. Acquired nasolacrimal duct obstruction, one of the common problems in the lacrimal drainage system, is a curable condition with a high success rate with the invent of Endoscopic dacryocystorhinostomy. The intra nasal approach for Endoscopic dacryocystorhinostomy was first introduced by Caldwell in 1893 and modernized by the endonasal endoscopic approach in 1989 by McDonough and Meiring¹. Massaro et al² in 1990 used an argon laser for osteotomy in

Endo DCR. In 1991 Gonnering³ et al used an endoscope with the argon laser, rather than the operating microscope for Endo DCR.

Methods

A retrospective review was performed on patients who underwent Endoscopic dacryocystorhinostomy without preservation of mucosal flap from March 2007 to November 2010 at our hospital. Twenty six patients were operated and followed up postoperatively for five to six weeks with lacrimal syringing by ophthalmologists and diagnostic endoscopy done at third month and followed up until the formation of well formed ostium and patients became asymptomatic. Main outcome were subjective improvement in epiphora and persistence of anatomic patency of ostium.

Procedure

Our surgical approach is based on the technique described by Wormald with selective modifications. All surgeries were performed under general anesthesia. The nasal mucosa was decongested with ribbon gauze soaked in 4% xylocaine with adrenaline.

The lateral wall of nose corresponding to lacrimal sac was infiltrated with 2% xylocaine with adrenaline. An incision was made 1 to 3mm above the axilla of the middle turbinate for a length of 8 to 10mm anterior to middle turbinate. Another parallel incision was made for a length of 8 to 10mm just above the insertion of inferior turbinate (Figure 1). Both incision were united posteriorly close to attachment of uncinate process (Figure 2) & mucosal flap was raised anteriorly and removed gently with Blakesley forceps exposing the bony area overlying lacrimal sac (Figure 3).

Both lacrimal bone & frontal process of maxilla were removed with kerison punch forceps & dissection was stopped at uncinate process

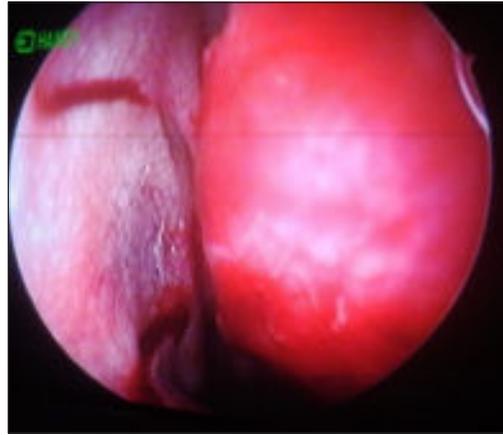


Figure 1: Site of Incision

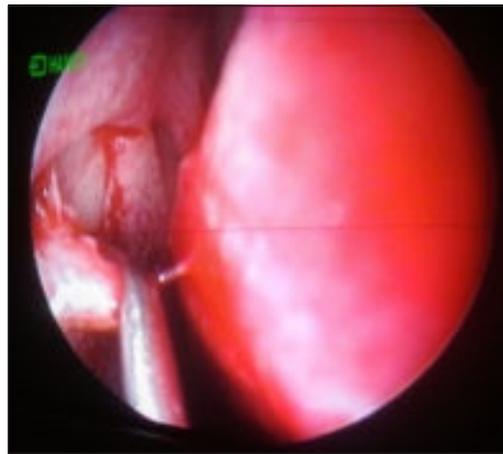


Figure 2: Posterior extent of incision

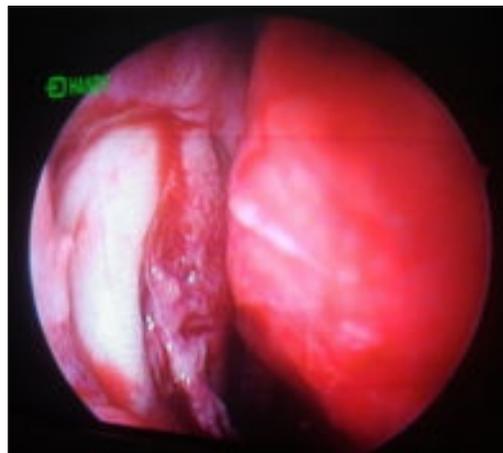


Figure 3: Lacrimal area after removal of mucosal flap

posteriorly. Bone removal was continued superiorly till the bone was too thick to punch. Gentle pressure was given inferior to medial canthus in the lacrimal sac area externally to make the lacrimal sac prominent intranasally. The medial wall of lacrimal sac was incised vertically with a sickle knife. Small horizontal cuts was made in these flaps both superiorly and inferiorly, so that they can be reflected and medial wall of lacrimal sac was gently trimmed with straight blakesley forceps and micro ear forceps, leaving only lateral wall of lacrimal sac . Free lacrimal flow was confirmed by lacrimal syringing with normal saline on the operating table itself.

Post operatively, oral antibiotics (cephalexin 750mg BD) for 5 days were given and topical antibiotics (chloramphenicol with dexamethasone drops) were given for 15 days was given. Alkaline douche was advised for 3 months. Follow up was done once in a week for five to six weeks and all patients underwent lacrimal syringing in ophthalmology department. Diagnostic nasal endoscopy was performed in all patients three months after surgery.

The success was assessed with the patency of ostium as well as the patient relief of symptoms. All the patients were followed up till they were free of symptoms

Result

In this study, twenty four patients (92%) had a well formed ostium with a free lacrimal flow to lacrimal syringing. Out of three symptomatic patients, one had a synechia in the region ostium and one had completely closed ostium and one had patent ostium with intermittent epiphora on exposure to cold (Figure 5). The overall success with both patency and symptom free is 88 %(23 out of 26 DCR's). But the anatomical success rate is 92 %(24 out of 26 cases). One patient required septoplasty at the time of surgery.

The average follow up was 6.2 months

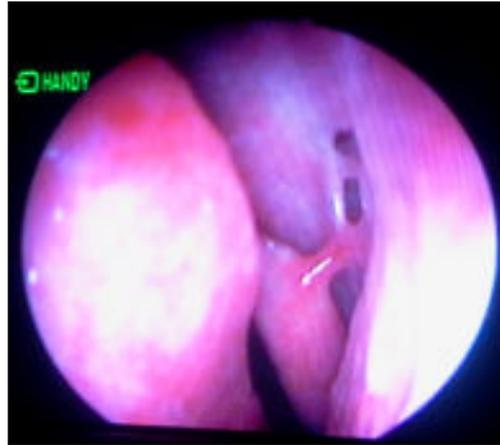


Figure 4: *Well formed Ostium*



Figure 5: *Ostium with free flow of tear*

Discussion

Sound knowledge of surgical anatomy along with refined techniques and good instrumentation need for the excellent success rate of Endoscopic Dacryocystorhinostomy comparable with that of External DCR⁴. The Wormald⁵ technique stresses the creation and preservation of mucosal flaps with proper approximation of mucosal edges lead to healing by primary intention. This technique, in their hands has been shown to produce a large and stable ostium with excellent functional outcomes⁶. However this technique is time consuming and improper

positioned mucosal flap lead to web formation or ostial stenosis⁷. In our study we removed mucosal flap raised early in the procedure and trimming of lacrimal sac by removing medial wall of lacrimal sac as described by Vijay R. Ramakrishnan, MD et al⁷. Few other investigators reported good success rate without preservation of mucosal or lacrimal flaps^{8,9}.

In our study, one patient with a well formed ostium with a good lacrimal drainage to lacrimal syringing and lacrimal flow appreciated even during Endoscopy complained of intermittent epiphora. This is consisted with previously reported results on DCR. Tearing is multifactorial and even patients with patent ostia may have tearing due to exposure keratopathy, poor lacrimal function or altered transmembrane absorption. Mansour et al¹⁰ in his study showed abnormal tear drainage function by scintigraphy in patients after DCR with patent ostia.

In our study, we encouraged patients using antibiotic eye drops post dacryocystorhinostomy for 15 days which was tried by Sinha V¹¹ et al in their study.

Long-term follow up by survey done by Durvasula VS¹² et al revealed that the watering eye had improved following surgery in 83 per cent which is comparatively lesser than that (88%) of our study. But their mean follow up period was 28.6 months which is higher than our mean follow up period of 6.2 months.

The overall success rate is 88% which is comparable with the study conducted by Suppamong Tirakunwichcha MD et al with the success rate of 84.6% while using mitomycin¹³.

The anatomic patency rate of 96.8% in post Endoscopic Dacryocystorhinostomy with mucosal flap technique in the study conducted by Tsirbas et al¹⁴ which is comparable with that of our study (92%)

S Harvinder et al¹⁵ in his study of 24 DCR's, 22 were patent after a mean follow-up of 21.5 months, yielding a success rate of 91.66% which is similar with that of our study. He followed the technique of mucosal flap without stenting.

In this study, eight left sided and eighteen right sided DCR's were performed, there was no difficulty in preceding the surgery depending upon the side of the procedure.

Conclusion

Various modifications were tried by many surgeons for the persistence of ostium in Endoscopic Dacryocystorhinostomy i.e. mucosal flap technique, ostium created by laser, usage of stent etc. The technique we describe encompasses important differences to previous methods. It involves removal of nasal mucosal flap, lacrimal syringing with saline during follow up and usage of antibiotic eye drops for promoting lacrimal flow during follow up. Skills are necessary in adequate removal of bone medial to lacrimal sac and smoothing of bone to promote the growth of nasal mucosa over it.

Results of this study with 92% anatomical patency and 88% complete resolution of symptoms are comparable with that of previous outcomes of mucosal flap techniques. The study strongly suggest mucosal flap may not be required to achieve successful outcomes.

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