

## Original Article

# A Study of Conventional Dacryocystorhinostomy Operation without Silicon Tube Intubation in a Secondary Hospital

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### Abstract:

Dacryocystorhinostomy (DCR) is a bypass surgery in which an anastomosis is made between the medial wall of the lacrimal sac & the lateral wall of the nasal mucosa by cutting the intervening bone at the level of middle meatus to restore the flow of tears when the obstruction is beyond the common canaliculus. The only successful treatment of chronic dacryocystitis is DCR. The aim of this study was to evaluate the surgical intervention of conventional external DCR without silicon tube intubation. This prospective study was conducted at General Hospital, Faridpur from July 2012 to June 2014. Eighty cases with chronic dacryocystitis were selected for the study. We excluded the patients with lacrimal fistula, failed DCR and gross nasal pathology like deviated nasal septum, grossly hypertrophied inferior turbinate, atrophic rhinitis, nasal tumour, and polyp from our study. The patients' mean age at the time of surgery was 41.9±8.1 years ranged from 30 to 60 years. The operation was done under local anaesthesia by applying same technique. Then the patients were followed up for 12 months. In this study, we observed recurrence in five patients (6.25%) and complications from DCR are infrequent and not sight threatening. There were seven patients with reactionary haemorrhage, one wound infection, three wound gap, two epicanthal fold, one granuloma formation and five failed DCR. The success rate is 93.75% who underwent external DCR for the management of epiphora due to nasolacrimal duct obstruction.

**Key words:** Dacryocystitis, nasolacrimal duct obstruction, epiphora, DCR.

### 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 & annoying epiphora<sup>1</sup>. This commonest external eye disease is always secondary to the obstruction in the nasolacrimal duct (NLD) and in a majority of cases the cause is obscured. Though it is not directly a blinding disorder, its complications like acute exacerbation, orbital cellulitis, corneal ulcer & even panophthalmitis

may lead to blindness. Almost a century ago in 1904, a French Ophthalmologist Adeo Toti<sup>2</sup>, introduced an operation which he called Dacryocystorhinostomy (DCR) for the treatment of obstructive epiphora. It was Dupuy-Dutemps and Bourguet, in 1920-1921, who suggested that the lacrimal and nasal mucosa should be finally anastomized to create an epithelial-lined fistula<sup>3</sup>. DCR allows tears to drain directly into the nasal cavity from the canaliculus via a new low-resistance pathway. Numerous modifications in various surgical steps of the original DCR operation has been introduced over the years for a better surgical outcome without really altering its basic concept. These procedures include conventional external DCR with or without silicon tube intubation, endoscopic DCR and endonasal DCR with Holmium or KTP LASER<sup>4</sup>. However, external DCR remains the gold standard for the treatment of such obstruction<sup>5</sup>. Good outcome depends on the site of obstruction, etiology, any previous surgery and surgeon's experience<sup>6</sup>. Success is measured by two indicators: anatomic patency of the nasolacrimal system determined by saline irrigation and functional outcome defined as resolution of epiphora.

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## Materials and Methods:

This prospective study was carried out at General Hospital, Faridpur, Bangladesh from July 2012 to June 2014. Total number of eighty cases with chronic dacryocystitis, both male and female were included for the study. We excluded the patients with lacrimal fistula, failed DCR and gross nasal pathology like deviated nasal septum, grossly hypertrophied inferior turbinate, atrophic rhinitis, nasal tumour, and polyp from our study. The patients' mean age at the time of surgery was  $41.9 \pm 8.1$  years ranged from 30 to 60 years. The investigations done included sac patency test, X-ray of PNS in occipito mental view, bleeding time, clotting time and ECG. The operation was done under local anaesthesia by applying same technique. Nasal pack soaked with lignocaine, adrenaline and haemostatic agent is given on the same side. An incision of 2 cm in length, one-third of it lies above medial palpebral ligament and 8 to 10 mm from the medial canthus is made. The skin, orbicularis oculi muscle, and nasal periosteum with the insertion of the medial canthal tendon were dissected and retracted. The lacrimal sac is separated from medial wall and floor only. A bony osteum 12mm x 12mm size is made by cutting frontal process of maxilla and lacrimal bone. Mucosal flap of lacrimal sac and nasal mucosa are made. Both flaps are sutured with 6-0 vicryl. Wound is closed in layer by layer. Nasal pack was removed after 24 hours.

Postoperative treatment included systemic antibiotic, non-steroidal anti-inflammatory agent, antihistamine, Moxifloxacin eye drops and nasal decongestant drops. First postoperative syringing was done on 3rd day after operation. The postoperative follow up was done at 1st, 6th, 12th, 24th and 52nd weeks postoperatively. Syringing was repeated to assess the patency of lacrimal system. The outcome of conventional DCR operation can be measured by both anatomical and functional indicators. However, functional outcome is what matters to patients. It is being increasingly recognized that anatomic patency does not always results in good functional outcome. Some patients with an anatomically patent naso-lacrimal system still have epiphora symptoms. Hence, the functional outcome alone provides a good picture regarding DCR outcome. Successful DCR was defined as clinical disappearance of epiphora, failed DCR was defined as constant epiphora & blocked passage on syringing. All informations were documented in a predesigned proforma keeping in mind the aim of the study.

## Results:

In this series, out of 80 cases 31 patients (38%) were male and 49 patients (62%) were female, with a male to female ratio was 1: 1.3. The patient's mean age at the time of surgery was  $41.9 \pm 8.1$  years ranged from 30 to 60 years. The study suggested that there is a relationship between age and incidence of dacryocystitis. Peak incidence of dacryocystitis was found in 41-50 years. First postoperative syringing was done on 3rd day after operation. The postoperative follow up was done at 1st, 6th, 12th, 24th and 52nd weeks postoperatively. Syringing was repeated to assess the patency of lacrimal system. In this study, we observed recurrence in five patients (6.25%) and complications from external DCR are infrequent and not sight threatening. There were seven patients with reactionary haemorrhage, one wound infection, three wound gaps, two epicanthal fold, one granuloma formation and five failed DCR. The results are shown in tabulated form below:

**Table-I:** Shows distribution of age among the study group (N=80).

Age in year	No. of patient (%)
30 -40	21 (27)
41 -50	47 (58)
51 -60	12 (15)

**Table-II:** Postoperative complications among the study group.

Complications	No. of patients (%)
Reactionary hemorrhage	07(8.75)
Wound infection	01(1.25)
Wound gap	03(3.75)
Epicanthal fold	02(2.5)
Granuloma	01(1.25)
Failed DCR	05(6.25)

## Discussion:

DCR surgery has come a long way from the time of Adeo Toti but the 'ideal' one with a low or no recurrence, minimal complications and good cosmetic is still elusive. The most common measure of success of DCR used in previous studies has been the anatomic patency. However, in recent years, the importance of functional outcome after DCR has been recognized as an important end point since anatomic success is not always associated with functional success. In this

series, out of 80 cases 31 patients (38%) were male and 49 patients (62%) were female, with a male to female ratio was 1: 1.3. The patient's mean age at the time of surgery was  $41.9 \pm 8.1$  years ranged from 30 to 60 years. Peak incidence of dacryocystitis was found in 41-50 years. The study suggested that there is a relationship between age, sex and incidence of dacryocystitis. Ali MM et al<sup>7</sup> also observed female predominance in their study. They found highest incidence in 30-39 years age group (38.9%).

In this study, we observed recurrence in five patients (6.25%) and complications from DCR are infrequent and not sight threatening. There were seven patients with reactionary haemorrhage, one wound infection, three wound gap, two epicanthal fold, one granuloma formation and five failed DCR. The success rate is 93.75% who underwent external dacryocystorhinostomy for the management of epiphora due to nasolacrimal duct obstruction. Saxena RC<sup>8</sup> observed, in his study that simple external DCR without intubation has the lowest recurrence rate and minimum complications. He published report describing external DCR without intubation as a promising technique in the treatment of chronic dacryocystitis. He documented the recurrence rate of 13.5%. Besharati MR et al<sup>9</sup> has reported in their study that 187 cases with chronic dacryocystitis were treated with external DCR without intubation and the success rate was 98%. The less frequent complications included scar formation (8.6%), wound infection (5.3%) and granuloma formation (3.2%). These studies coincide with our observation.

### Conclusion:

Conventional DCR is the most common oculoplastic surgery performed for managing epiphora due to nasolacrimal duct obstruction. It is often considered to be a messy, laborious and non-rewarding surgery by most Ophthalmic surgeons. But it is safe and effective surgical method for the treatment of epiphora due to nasolacrimal duct obstruction.

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