

## Outcome of External Dacryocysto-Rhinostomy (DCR) Operation Without Silicone Tube Intubation

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### ABSTRACT

**Background:** Dacryocysto-rhinostomy (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 aim of this study was to evaluate the surgical intervention of conventional external DCR without silicon tube intubation.

**Methods:** This study was conducted at Jahurul Islam Medical College Hospital, Kishoregonj, from July 2016 to January 2018. Fifty cases with chronic dacryocystitis were selected for the study. The operation was done under local anaesthesia. The patients were followed up for 3 months.

**Result:** The mean age of the patient at the time of surgery was  $40.9 \pm 13.1$  years ranged from 16 to 65 years. Male to female ratio was 1:2.1. There were three patients with reactionary haemorrhage, one wound infection, two with wound gap, one epicanthal fold and one granuloma formation. There were no failed DCR in this series.

**Conclusion:** Conventional DCR is the most common oculoplastic surgery performed for managing 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 and annoying epiphora.<sup>1</sup> This commonest external eye disease is always secondary to the obstruction in the nasolacrimal duct (NLD). Though it is not directly a blinding disorder, its complications like acute exacerbation, orbital cellulitis, corneal ulcer and 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 anastomosed 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

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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.

### Materials and Method

This prospective study was carried out at Jahurul Islam Medical College Hospital, Kishoregonj from July 2016 to January 2018. Total number of fifty 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 operation was done under local anaesthesia. 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 12 mm 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. First postoperative syringing was done on 3<sup>rd</sup> day after operation. The postoperative follow up was done at 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> week postoperatively. Syringing was repeated once in every month for three months to assess the patency of lacrimal system. Successful DCR was defined as clinical disappearance of epiphora. All information were documented in a predesigned proforma keeping in mind the aim of the study.

### Result

In this study, out of 50 cases 16 patients (32%) were male and 34 patients (68%) were female, with a female to male ratio was 1: 2.1. The patient's mean

age at the time of surgery was  $40.9 \pm 13.1$  years ranged from 16 to 65 years. Peak incidence of dacryocystitis was found in 41-50 years age group (Table-I). First postoperative syringing was done on 3<sup>rd</sup> day after operation. The postoperative follow up was done at 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> week postoperatively. Syringing was repeated once in every month for three months to assess the patency of lacrimal system. In this study, we observed complications from external DCR are infrequent and not life threatening. There were seven patients with reactionary haemorrhage, one wound infection, three wound gaps, two epicanthal fold and one granuloma formation (Table-II). There were no failed DCR patient up to three months of observation by sac patency test (SPT).

Table-I: Age distribution of the patients (n=50):

Age in years	No. of Patients (%)
10-20	04 (8%)
21-30	11 (22%)
31-40	10 (20%)
41-50	14 (28%)
51-60	10 (20%)
61-70	01 (2%)
Total	50 (100%)

Table-II: Complication related to the procedure:

Complications	No. of Patients (%)
Reactionary hemorrhage	03(6%)
Wound infection	01(2%)
Wound gap	02(4%)
Epicanthal fold	01(2%)
Granuloma formation	01(2%)

### 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 50 cases 16 patients (32%) were male and 34 patients (68%) were female, with a male to female ratio was 1: 2.1. The patient's mean age at the time of surgery was  $40.9 \pm 13.1$  years ranged from 16 to 65 years. Peak incidence of dacryocystitis was found in 41-50 years. The lowest incidence was in the age group of 61 to 70 years age group. 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 complications from DCR are infrequent and minor. There were three patients with reactionary haemorrhage, one with wound infection, two with wound gap, one epicanthal fold and one granuloma formation. These complications were managed by antibiotic and dressing. And all patients were recovered successfully. There were no failed DCR patient upto three months of observation by sac patency test. The success rate is 100% 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. 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 complications in his study were minor like this study and included scar formation (8.6%), wound infection (5.3%) and granuloma formation (3.2%).

### 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.

**Conflict of interest:** none

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