



## Management of Failed Dacryocystorhinostomy With Silicone Tube Intubation

### KEYWORDS

:EDCR(external dacryocystorhinostomy), Failed DCR, bony osteum

### Dr.G.S.Ramesh kumar

Professor, Department of Ophthalmology, Siddhartha medical college, Old Government general hospital, Vijayawada Andhra Pradesh, India.

### Dr. V. Tripura MS

Senior resident , Department of ophthalmology, Siddhartha medical college, Old Government general hospital, Vijayawada, Andhra Pradesh, India.

### ABSTRACT AIM

To determine the causes of failed DCR and postoperative results of secondary external DCR with silicone tube intubation

#### MATERIALS AND METHODS

12 patients of failed DCR were retrospectively studied from January 2009 to December 2013. All the patients with persistent tearing and regurgitation of fluid were included in the study. Patients with cannalicular block and nasal pathology were excluded from the study. RESULTS

The most common cause of failed DCR was intact sac and inadequate size of bony ostium. The success rate after secondary surgery was 90.91%

#### CONCLUSION

Proper identification of sac and making adequate size of bony ostium can prevent failure of primary DCR. Secondary DCR with silicone tube intubation gives good results for failed DCR

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### INTRODUCTION

Ever since Toti proposed dacryocystorhinostomy in 1904 dacryocystorhinostomy underwent many modifications but the basic principal of creating bony ostium and anastomosis of sac with nasal mucosa remained unchanged. Various studies on external dacryocystorhinostomy had success rate of 80-98%, but in spite of high success rate there were also failures. Various studies have stated various causes for failure of dacryocystorhinostomy<sup>1-4</sup>. This study is aimed at determining causes and further management of failed dacryocystorhinostomy

### MATERIALS AND METHOD

Data of 12 patients were retrospectively studied at government general hospital from January 2009 to December 2013. Patients complaining of tearing or regurgitation of fluid after 3 months to 18 months after dacryocystorhinostomy surgery were included in this study. After taking the demographic details, a complete ocular examination was done including ROPLAS (Regurgitation on pressure over the lacrimal sac), syringing and probing. ENT consultation was sought to rule out any high posterior deviation of septum blocking the rhinostomy. All patients greater than 55 years and less than 10 years, regurgitation of fluid through same puncta and patients with gross nasal anomaly were excluded from the study. All the surgeries were done by single surgeon under local anaesthesia. Patients were followed up for 1 year.

### TECHNIQUE OF REOPERATION

All surgeries were done under local anaesthesia. A nasal packing was done with ribbon gauze soaked in 2% xylocaine jelly and injection adrenaline. A local infiltration was given with 2% xylocaine and adrenaline solution blocking infraorbital and supratrochlear nerves along the line of incision and periosteum<sup>5</sup>. The skin was painted with 10% povidine-iodine solution. A skin incision of 10 mm was made through the original scar. Skin was undermined and blunt dissection of orbicularis muscle was done to expose the bone. Medial palpebral ligament was identified and cut if present or anterior edge of bony ostium was identified. Periosteal elevation was done superior and inferior to bony ostium and inspect for anastomosis and then cut the anastomosis. Then pathology of sac and ostium is noted. Now a probe was passed through canaliculi to identify the sac remnants. The size of ostium was increased to 1.5cm<sup>2</sup>. The fibrosed nasal mucosa is excised and virgin mucosa was identified. Silicone tube intubation from both puncta was done and edges of tube were tied and placed in nasopharynx. Then approximation of nasal mucosa and sac was done if adequate nasal mucosa is present if not the anterior wall of sac is sutured to periosteum with 6/0 vicryl. Then the wound is closed in layers. Bandage is applied. Nasal pack was removed next day. Sutures were removed on day 7. All patients received systemic antibiotic and anti-inflammatory tablets post operatively for one week. Topical antibiotic drops and nasal decongestant drops were given

for a period of 3 months. After discharge patients were reviewed and syringing was performed at one week, six weeks, three months and 1 year.

**RESULTS**

Out of 12 cases, 8 patients were female and four were male, age ranging from 24 to 45 years (table 1). The average age of the patients undergoing repeat EDCR was 36 years (range 24- 45 years). 7 patients underwent DCR on the left side and 5 on the right side. The interval between primary procedure and present procedure ranged from 3 months to 18 months. Recurrence of symptoms following primary procedure was < 3 months in 67% of the patients and > 3 months in 33%. 8 patients complained of tearing and 4 patients had residual discharge with pressure on the lacrimal sac (ROPLAS positive). [Table 2]

**TABLE 1: AGE AND GENDER DISTRIBUTION**

Age Group (Years)	MALE	FE- MALE
24-29	-	2
30-35	-	3
36-40	2	1
41-45	2	2

**TABLE 2: SYMPTOMS**

SYMPTOMS	PATIENTS	NUMBER OF
TEAR- ING	8	
Regurgitation with pressure over sac	4	

The most common cause of failure of primary EDCR was small ostium (66.66%) followed by intact sac which accounts for 41.6% (Table 3)

**TABLE 3: CAUSES OF FAILURE OF PRIMARY EDCR**

CAUSES OF FAILURE	NUMBER OF SUBJECTS	PER- CENTAGE
Small ostium	8	66.66
Intact sac	5	41.6
Fibrosis of anastomosis	2	16.7
Granulation of ostium	2	16.7
Collapse of flaps	2	16.7
Common cannalic- ular obstruction	1	8.33

There was no regurgitation of fluid on syringing at the time of discharge from hospital in all the 12 revised cases. But with subsequent follow up 1 case developed regurgitation of fluid on syringing. The follow up of the cases varies from 6 months to 18 months. There was success rate of 90.91% on revised surgery

**DISCUSSION**

External DCR is gold standard for treatment of nasolacrimal duct obstruction, with over 90% success rate. Various

studies stated that average 10% failure rate (Table 4). The success rate in our study was 90.01%. Most of the workers have reported a very good success rate of DCR operation ranging from 94-97% 6-8. The most common causes of failure in our study were small bony osteum and sac abnormalities (Table 5) which was in par with other studies. The causes of failure commonly seen were Intact sac, Granulation tissue from the nasal mucosa closing, Small size of the bony osteum, too high or too low site of ostium, Inadequate size and fashioning of anastomotic flaps leading to kinking of the canaliculus.

**TABLE 4: SUCCESS RATE OF EDCR FOLLOWING FAILED DCR**

Author et al	Journal	Success rate
Dr. Ramesh C Gupta, Dr. Priyanka Gupta, Dr. R. N. Kushwaha <sup>9</sup>	Scholars Journal of Applied Medical Sciences (SJAMS)	92.4%
Richard a n welham <sup>1</sup> and Allan e wulc <sup>10</sup>	British Journal of Ophthalmology	85%
Our study		90.91

**TABLE 5: COMMON CAUSES OF FAILED DCR**

Author et al	Journal	Common cause
Dr. Ramesh C Gupta, Dr. Priyanka Gupta, Dr. R. N. Kushwaha <sup>9</sup>	Scholars Journal of Applied Medical Sciences (SJAMS)	Inadequate bony osteum and sac abnormalities
Undrakonda Vivekanand, Sarita Gonsalves	Indian journal of applied research	Inadequate bony osteum and sac abnormalities
Our study		Inadequate bony osteum and sac abnormalities

This study emphasizes the factors necessary for further increasing the functional success rate in DCR. Proper recognition of lacrimal sac/ sac remnants is important. The bony osteum must be sufficiently large (1.5cm<sup>2</sup> in diameter) to allow the sac to be completely incorporated with the nasal mucosa. Full thickness flaps should be properly fashioned out of lacrimal and nasal mucosa. Silicone tube intubation which is left for minimum of three months ensures epithelisation of tract so thereby increases the success rate.

**CONCLUSION:**

We hereby conclude that proper identification of lacrimal sac and its remnants and creating a bigger bony ostium, can reduce the failure rate of external DCR. Resurgery for failed DCR with silicone tube intubation yields good results

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