

DCR (dacryocystorhinostomy) With or Without Intubation

M HUSSAIN S AKHTAR S AWAN

Department Of Ophthalmology, PGMI, Lahore.

Correspondence to : Dr Mumtaz Hussain

137 patients with episodes were operated in a teaching hospital from 1988-1998. The patients were divided in two groups. In group one patient with dacryocystorhinostomy (DCR) were intubated by silicon rod or tube with a success rate of 94.7% and other group was without intubation where success rate was 77.8% showing there by significant difference and advantage of intubation.

Key words: dacryocystorhinostomy

Preliminary documented DCR is attributed to Woolhose in 1724. and Monoo 1735, by transfixing the lacrimal sac into the nose. Various workers contributed improvement in surgery. In 1904 Totil, designed the osteotomy of lateral nasal wall and medial wall of lacrimal sac, without sutures. In 1920, Ohn, sutured the flaps. Silicon tubes, were first used by Quickert and Dryden in 1970.

Patients and Methods

We selected 137 patients of epiphora in Eye out patient department of LGH, Lahore with typical clinical signs, of long duration with muco-purulent discharge. Majority had positive regurgitation test. We did not culture the regurgitant material. Chronic dacryocystitis in adults is associated with an increased proportion of Gram Negative bacteria which may be reservoir of post operative intraocular infection.

Ch. Dacryocystitis is frequently seen in children and middle aged and surgery offers satisfactory treatment³. Patients were subjected to relevant investigations and tests to confirm the diagnosis. Investigation included Dye test (Flourescien), Syringing/Probing and Dacryocysto graphy (DCG)

We started our study in June 1988 to December 1997. Among 137 patients males were 48 and female were 89. (1:1.8), almost similar to the study already conducted and published in PJO Age ranged from 5 years to 80 years. 14 patients had lacrimal fistula.

Table: Sex distribution

No of Pts.	Male(%age)	Female(%age)
137	48(34)	89(66)

Table 2, Age distribution

n=	5-20 Yrs	21-40 Yrs	41-60 Yrs	61-80 Yrs
137	28	66	38	5

Table 3: Clinical features.

Clinical Features	n=	%age
Lac Fistula	14	10.2
Pyocele	85	62.1
Mucocele	38	27.7

Table 4 - Showing the laterality of disease(n= 137)

Laterality	Male	Female	Total
Right	19	35	54
Left	29	54	83

Table 5 - Showing Various Topical Medication.

Medicine Used	n=	%age
Chloramphemicol	67	49
Tobramycin	5	3.6
Gentimycin	43	30.9
Polymixin, bacitricin, Neomycin	22	16.1

After clinical evaluation, we could get a vague history of syringing and probing in 56 patients, without any significant relief of more than 2 weeks.

Flourescien clearance time was noted in all patients which did not clear even after half an hour.

Dacryocystography (DCG) was done in 42 cases. Distended sac was well delineated and upper end of nasolacrimal duct was blocked in all cases. Fig No. 1. A combination of syringing/probing and macro dacryocystography helps in accurate lacrimal assessment, particularly for canalicular stenosis⁵.

We examined the nasal cavity routinely in our series, and referred two patients to ENT department for polyps and defected nasal septum respectively. After the ENT treatment these patients were operated for dacryocystorhinostomy.

Nasal examination is necessary to perform so as to assure the adequate space adjacent to planned internal ostium. Patients are advised to stop taking, aspirin or aspirin containing drugs and anti inflammatory drugs so as to avoid bleeding at least two weeks ago⁷.

Procedure.

We performed dacryocystorhinostomy under general anaesthesia in 14 case, these were children. Rest of the surgery was done under local anaesthesia. Nares of these patients were packed, with xylocain 2% and adrenaline 1 in 200,000, soaked cotton gauze on affected side of nasal cavity. Thereby producing nasal decongestion and hemostasis, per operatively.

For local infiltration we injected 10cc of xylocain 2% with adrenaline 1 in 200000 1cm medial to the inner canthus it diffused subcutaneously around and in deeper tissues anaesthetising the branches of superior orbital nerves. We massaged the area for 10 minutes.

Incision and Exposure of Lacrimal sac.

Seven mm medial to inner canthus 1.5cm linear incision was made. Curvilinear insion, result in bowstning scar⁸. Incision made parallel with relaxed skin incision lines are the best. Orbicular fibers were dissected to expose medial palpebral ligament, an important land mark, for lacrimal sac, and anterior lacrimal crest, thereby exposing the sac, which is dissected from its base. Mastoid retractor was used for exposure, hemostasis and to keep the angular vessels medially away from surgical field.

Bony hole formation:

Suture line between the frontal process of maxilla and lacrimal bone was recognized and fractured, 1 X 1.5cm vertical hole with broad base is carefully nibbled with bone nibbler. We positioned the hole inferiorly for gravitational flow of secretion, and avoid stagnation¹.

Designing the flaps.

H - Shaped incisions are made in nasal nucosa and lacrimal sac, thereby designing two anterior and two posterior flaps. Anterior flaps are made longer than posterior flaps - lumen of sac was examined carefully for any tumor mass or dacryolith. 9.

Posterior flaps were stitched first. Silicon rod or tube was passed from the puncti, canaliculi, sac anastomosis into the nose. Then anterior flaps were stitched, with 5/0 Ethibond. Suturing of anterior flaps only, has been reported with high success rate 4

Closure of skin incision:

Orbicular muscle and subcutaneous layer are sutured separately, with 5/0 ivory silk. Skin is closed by inturputed 4/0 black braided silk, wound dressed with antibiotic cream and nasal packing is removed. Nose and throat are examined for post nasal bleeding.

Results

Out of 137 dacryocystorhinostomies, 94 were intubated and 43 were not intubated. We kept these patients in wards for 5 days under observation for any symptom and haemorrhage post operatively skin sutures were removed at the time of discharge.

Intubated patients were advised to pull the silicon tubes five times a day through nose, so as to dislodge and drain the clots hard or dried secretions along the passages. We advised them not to blow the noses, and to visit the out patients department every week for two weeks, every month for two months and finally after 6 months, for removal of tube.

Seven patients reported after 4-6 weeks with broken tubes while pulling through nose. 87 patients had proper visits and follow up where we removed their tubes after 4-6 months. On every visit they were questioned and examined for discharge, redness or irritation. We asked our patients specially for bitter taste after chloramphenicol instillation into throat. Flourescience clearance time was 3 to 10 minutes in intubated patients.

In intubated series of 94, two patients, reported recurrence of muco-purulent discharge with regurgitation after 3 yrs., 60 Yrs. old woman and 19 year girl. Third patient was young boy of 7 yrs. Who had recurrence after 1 Yr. These three patients were total failure (3.2%).

After 6 Yrs of surgery two young ladies (22 Yrs) reported the recurrence of epiphora again, we performed syringing for cleanliness of passages, procedure was not successful. Total success rate is 94.7%. 8 patients occasionally complained of watering on sneezing and coughing or while lying in supine position in bed.

In group II of 43 patients with simple DCR, we had repeatedly irrigated the passages by syringing at 1st, 11nd and 111rd weeks so as to wash the passages and keep them clear.

8 patients were total failure after 1-2 years. They were of 8-25 Yrs. Ages. Their young ages had caused high periosteal proliferation to bone formation and closure of bony hole, syringing did not help the passage of fluid into throat.

5 patients had off & on watering and no discharge, which aggravates with nasal catarrh. In this group we could not follow 7 patients after surgery. The rest of the patients were satisfied. We had not performed DCG in recurrent cases. The success rate was 77.8%.

Complications

Four patients among intubated had elongations of the puncti upper and lower both while pulling the silicon tube. This is more in children. Erosion of skin and underlined tissue, is also reported in literature 10. Pyogenic granuloma has also been reported⁷.

Discussion

Intubated patients were more satisfied and happy becoming epiphora free. However some patients are sensitive of the tube in their eyes and nose. This is compromised with the passage of time, when they feel healthy.

Intubated group is significantly relieved of their problem. This comprises 94.7% that were comfortable and satisfied as compared to that group of simple DCR which is 77.8%.

Intubated group has not to undergo syringing later on, while simple group (II) is not only the responsibility of

surgeon for syringing them but also the patient has to go to operation theatre for this minor procedure.

Intubation helps in maintaining the passages by epithelialisation and keeps them open and patent. As long as the tubes are in situ they help drain the lacrimal secretions by capillary action. The passages do not develop any stricture, fibrosis and narrowing till these channels are healed with epithelialization when tubes are removed. Intubation is little more expensive procedure as compared to simple DCR, but this is more rewarding than to undergo subsequent procedures.

Failure in our series can be attributed to out pouching of the lacrimal sac because of previous probing and syringing or residual lacrimal sac collects secretion. Other causes of failure, documented in literature are as bony ostium opening into the anterior ethmoidal cells, common canalicular obstruction fibrous closure of osteum, sump syndrome, errors in size and positions of ostium and obstructive nasal pathology⁴.

Bony ostea are closed to small size, as has been reported to 1.8mm¹¹ as opposed to original size of 1x1.5cm. Failure in intubated group may be due to faulty technique or early removal of the tubes. We could not re-investigate these patients.

With careful technique success rate upto 97.6% is reported⁴. If there is failure this is reported in 2 months. Complications like haemorrhage, canalicular stenosis, corneal abrasions and scarring were not noted in our series¹⁰.

Miomycin C is used per operatively to keep the bony passages open and patent, where success rate is claimed to be 100%¹². It reduces the fibroblastic proliferation¹³. We had not used it in our study.

DCR is also done with argon, carbon-dioxide, potassium titan phosphate and holmium YAG lasers with 90% success rate¹⁴. Laser DCR has advantages like being, without open surgery, avoidance of skin incision, limitation of tissue injury, excellent hemostasis, out patient surgery and patients preference⁸. However according to some of authors, the endonasal laser dacryocystorhinostomy requires some adjunctive treatment to improve maintenance of nasal mucosal ostium open if it is to compete with external DCR successfully on ground other than cosmesis¹³.

In our series canalicular obstruction was not noted for which conjunctivo-dacryocystorhinostomy in literature

is advised the best surgical procedure¹⁴. Here fistula is created between conjunctiva and nasal mucosa obturated by glass tube¹⁵.

Conclusion

According to the study, the DCR should be Intubated at the time of surgery so as to minimize the complications and failure rate.

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