A REVIEW OF 120 CASES OF DACRYOCYSTORHINOSTOMIES (DUPUY DUTEMPS AND BOURGUET TECHNIQUE)

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Background: The study was conducted at the DHQ hospital Lakki Marwat from Jan, 1999 to Dec, 2002 to assess the intra and postoperative complications and success rate of external dacryocystorhinostomy (DCR) with suturing of the bridge between anterior flaps of nasal mucosa and lacrimal sac with the muscle layer. **Method:** We operated upon 120 patients suffering from chronic dacryocystitis (CDC). Females were 81 (67. 5%) and males were 39 (32.5%). Majority of the patients were between the age group 40 to 60 years. Indications for dacryocystorhinostomy (DCR) were epiphora, acute on chronic dacryocystitis and a mucocele. All the cases were operated under local anaesthesia with external approach and only anterior flap suturing and engaging it in the muscle layer. These patients were followed for a period of six months. **Results:** The overall success rate was 98.33%. The successful outcome was defined as symptomatic relief from epiphora and dacryocystitis and a patent nasolacrimal duct upon syringing. **Conclusions:** Dacryocystorhinstomy is a safe procedure under local anaesthesia. It is associated with minimal complications, which can be easily managed. This technique has a very high success rate and a short learning curve.

Keywords: External dacryocystorhinostomy, Chronic dacryocysttitis, Epiphora.

INTRODUCTION

Obstruction of the nasolacrimal duct results in disturbed outflow of the tears, commonly known as "epiphora". Epiphora remains one of the most bothersome complication of lacrimal system obstruction and has social implications. Almost a century ago in 1904, a French Ophthalmologist Adeo Toti[1], introduced an operation which he called "dacryocystorhinostomy" for the treatment of obstructive epiphora. He proposed that after creating an external approach to the lacrimal sac, its portion near to the canaliculi should be preserved and absorbed into the nose, by creating a window in the lateral wall of the nose.

Due to late failures, Toti's technique was modified by other surgeons. Dupuy-Dutemps and Bourguet[2] introduced mucosal anastomosis with suturing of the mucosal flaps. Suturing the anterior and posterior flaps of nasal mucosa with the lacrimal sac was suggested by Ohm[3]. Iliff[4] suggested suturing a rubber catheter into the sac. Routine use of silicone tube intubations as a useful adjunct to external dacryocystorhinostomy procedure was advocated by Older[5]. External dacryocystorhinostomy is the most popular operation done for nasolacrimal duct obstruction and the gold standard by which other methods can be measured and compared.[6]

The success rate of external DCR has been reported at between 80% to 99%, depending upon the surgeon's experience[7]. Various other methods to relieve the obstruction of nasolacrimal duct have been adopted excluding external DCR. These include endoscopic DCR[8], endoscopic laser nasal DCR[9], dacryocystoplasty[10], endoscopic radio frequency assisted DCR[11].

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. We are presenting our experience of external DCR with only anterior flaps suturing and engaging it in the muscle layer.

The objectives of our study were to determine the intra and postoperative complications and to determine the success rate of this technique.

MATERIAL AND METHODS

This prospective study was conducted at the District Headquarter Hospital Lakki Marwat, N.W.F.P. from January 1999 to December 2002. A total of 120 cases of DCRs were performed by a single surgeon in four years. All the patients were recruited from the outpatient department. Those patients who fulfilled the criteria were included in the study. The inclusion criteria consisted of patients having epiphora, CDC, mucocele and acute on chronic dacryocystitis. Patients with acute on chronic dacryocystitis were treated with systemic ciprofloxacin 500 mg for one to two weeks before surgery. Patients having canalicular or common canalicular blockade ascertained with probing, noticeable lid laxity, previous lacrimal surgery, patients younger than 15 years, suspicion of malignancy, radiation therapy, posttraumatic lids & bony deformity were excluded from the study. All the patients recruited for the surgery were evaluated. Complete ophthalmic examination was performed including visual acuity determination, corneal opacities or ulceration and other ocular co-morbidity were looked for. Patients were then assessed by performing lacrimal sac regurgitation test, syringing, probing and nasal examination. All patients were also systemically evaluated for diabetes mellitus and hypertension.

None of the patient was subjected to Schirmer's test, Jones test or dacryocystography because simple regurgitation, syringing and probing provided ample proof of level of blockade in the lacrimal system. A written informed consent was taken from all patients.

All the operations were performed under local anaesthesia. Nasal packing was done with gauze socked in 4% xylocaine and 1 in 100000 adrenaline. A proper packing of the nasal cavity helped in anaesthetizing the mucosa, achieved good haemostasis and provided good exposure of the nasal mucosa during surgery. The area surrounding the lacrimal sac was infiltrated with 2% xylocaine with 1 in 100000 adrenaline. About 4-5 cc of xylocaine was enough for successful anaesthesia of the area concerned. The DCR was done using the technique of Dupuy-Dutemps and Bourguet[2] until the formation of anterior and posterior flaps of the nasal mucosa and lacrimal sac. Remnants of the posterior flaps were excised. The anterior flaps of the nasal mucosa and lacrimal sac were stiched together to make a bridge. The bridge was latter on engaged in suturing of the muscle layer to prevent collapse and ultimate sump syndrome. The skin incision was closed with three 6/0 vicryt sutures.

Injection tranexamic acid 500 mg was given on the table to prevent postoperative bleeding. The nasal pack was removed on the following day and skin sutures after ten days. The patients were advised chloramphenicol eye drops three times daily and ointment twice daily for two weeks and oral Erythromycin 500 mg & diclofenac acid 25 mg twice daily for one week.

The follow up was scheduled on 1st & 2nd postoperative day, after ten days, after one month and after six months of the surgery. Syringing was done on tenth day for assessing the patency of the lacrimal system. A successful outcome was defined as resolution of symptoms like epiphora and discharge and a patent lacrimal system on irrigation.

RESULTS

One hundred and twenty patients underwent dacryocysto-rhinstomy with this technique.
Females (81) (67.5%) outnumbered males (39) (32.5%). Majority of patients were between 41 and 60 years of age (80%) [table No.1]. All the patients were operated under local anaesthesia with none requiring general anaesthesia.

During surgery, bleeding from nasal mucosa occurred in 9 patients (7.5%) and bleeding from nasal bone in 5 (4.16%) patients. Nasal mucosal tearing was seen in 4 (3.33%) patients. Surgery was uneventful in 102 (85%) patients. [table No.2]. No complication like bleeding from nose wound infection or cellulites was seen in the immediate postoperative period. The overall success rate was 98.33% after an average follow up of six months. Only 2 (1.66%) patients still bothered with trouble-some epiphora and required further surgery. The cause of failure in one patient was collapse of the bridge between anterior flap of the nasal mucosa and lacrimal sac and in the other previously unidentified canalicular stenosis.

Table-1: Age distribution

Age in years	Number	Percentage
31-40	24	20
41-50	44	36.66
51-60	52	43.34
Total	120	100

Table-2: Complications during surgery

Complications	*Number*	**Percentage**
Bleeding from nasal mucosa	9	7.5
Bleeding from nasal Bone	5	4.16
Nasal mucosal tearing	4	3.33
Uneventful	102	85
Total	120	100

DISCUSSION

The aim of dacryocystorhinostomy (DCR) is to leave the patients with a patent rhinostomy in order to create a low pressure lacrimal bypass system and hence relieve his or her epiphora, dacryocystitis or mucocele. DCR has been accepted as a highly successful procedure in dealing with epiphora from nasolacrimal duct obstruction.

We performed the external DCR with the technique of Dutumps and Bourguet[2] in which only the anterior flaps are sutured with a slight modification of suturing of the bridge with the muscle layer. This useful procedure increased the success rate of DCR.

Females were predominant in our study. Eighty-one (67.5%) female patients were operated as compared to 39 (32.5%) male. Similar female preponderance is also shown by Ali and Ahmad[11] (89.6%) and Talpur, Jatoi and Khan[12] (74%). A little lower percentage of females is also reported by Ahmad[13], where (58.30%) patients underwent DCR were females. Women have significantly smaller dimensions in the lower nasolacrimal fossa and middle nasolacrimal duct. Hormonal changes that bring about a generalized de-epithelization in the body may cause the same within the lacrimal sac and duct. An already narrow lacrimal fossa in women predispose them to obstruction by the sloughed off debris[14]. Moreover an injudicious use of cheep and adulterated eye cosmetics applied on the wrong side of eyelashes can also play important role in obstruction of nasolacrimal system.

Majority of our patients were between 41 & 60 years of age (80%). Similarly Ali and Ahmad[11] reported that 70.8% of their patients were between 31 & 50years, while Dareshani[15] pointed 52% of the patients between 30-60 years.

We operated all our patients under local anaesthesia. Selection of proper anaesthesia is vital for the success of a procedure. Local anaesthesia has advantages over general anaesthesia because it is relatively cheap and safe and when properly administered is as effective as general anaesthesia. In a study of Hurwitz of 120 patients, 98 (81.7%) were operated under local anaesthesia and 22 (18.3%) had general anaesthesia[16]. Ten percent of Ahmad cases were operated under local anaesthesia[3] while Talpur operated all patients under general anaesthesia[12].

Our success rate was 98.33% after a follow up of six months. Our study compares well with other local and international studies. Khan & Kundi[17] reported a success rate of 97% in a review of 200 cases with blocked tear duct. Welham and Wulc[18] showed a success ate of 96% on 204 cases Dareshani and associates[15] showed a success rate between 94.2% and 97.6% whereas Ashraf[19] quoted 100% success in his results.

There are still 5 to 10% of patients in which the procedure does not succeed in controlling epiphora. The cause of failure in our study was collapse of the bridge between anterior flaps and previously unidentified canalicular stenosis. Other causes of failed dacryoscytorhinostomy include fibrous tissue growth, inappropriate size or location of bony ostium, common canalicular obstruction, scarring within the rhinostomy, intervening ethmoid sinus air cells, interference of middle turbinate, sump symdrome and active systemic disease[20 & 21].

No major intraoperative or postoperative complications were seen in our study. Bleeding from nasal mucosa occurred in 9 (7.5%) patients, bleeding from nasal bone in 5 (4.16%) patients and nasal mucosal tearing in 4 (3.33%) patients.

External DCR is still the most effective surgical procedure for majority of patients with epiphora. This technique has a high success rate under local anaesthesia and with a short learning curve. Routine intubation is not required unless indicated.

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