

A COMPARATIVE STUDY OF EXTERNAL AND ENDOSCOPIC ENDONASAL DACRYOCYSTORHINOSTOMY – A PRELIMINARY REPORT.

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ABSTRACT : *This prospective study was done to compare the results of external and endonasal dacryocystorhinostomy (DCR). 6 patients were studied under each group. Success rate for external DCR was 93.3% and endonasal was DCR 100%. The technique, merits and disadvantages of both the procedures are discussed as well as the advantages of endonasal DCR highlighted.*

Keywords : Dacryocystorhinostomy, Endonasal, Endoscopy.

INTRODUCTION

Endoscopic endonasal dacryocystorhinostomy (DCR) is gaining popularity as the procedures leave no external facial scar and even in cases of lacrimal abscess, a nasal drainage can be performed and scar avoided (Das T, 1998). Although initially success rates were less than that of external DCR, improved techniques have presently shown excellent results (Shun-Shin et al, 1998). Also established is the fact that in failed external DCR, revision surgery is easier and more successful endoscopically as the surgeon is directly on the scar tissue (Shun- Shin et al, 1998).

Certain problems such as periorbital haemorrhage secondary to disruption of angular vessels, epistaxis caused by non visualization of intranasal structures, disruption of tear pump mechanism especially if the medial canthal tendon is affected, as well as CSF leak can be encountered in external DCR which can be avoided in the endonasal technique (Mercandetti M, and Mirante J.P., 1997).

There are very few prospective studies comparing the outcome of the two techniques. This study was done to compare the results of external DCR with the endonasal DCR with and without intubation.

MATERIALS AND METHODS

This study was conducted from July 1997 to July 1998 and thirty two cases of chronic dacryocystitis were included. They underwent a complete ophthalmology check up. Nasolacrimal duct obstruction was diagnosed by regurgitation of fluid and mucous on pressure over the lacrimal sac area and confirmed by syringing. A routine ENT check up to rule out

nasal infection, septal deviation, anatomical variation, sinusitis and allergy was carried out. Premedication used was 30 mg of pentazocine and 25 mg of promethazine I.M. one hour prior to surgery. The position adopted was supine, with a 15° head-up tilt to reduce bleeding. Nose was packed with 4% xylocaine in 1 : 2000000 adrenaline 10 minutes prior to surgery. An external block using 2 % xylocaine with 1 : 200000 adrenaline was given to anesthetize the supratrochlear, infratrochlear, supraorbital and infraorbital nerves (Mercandetti M. and Mirante, J.P., 1997). 4% of Xylocaine was instilled in the conjunctival sac and the inferior punctum was dilated. A lacrimal probe was passed into the lacrimal sac through the lacrimal canaliculus.

Infiltration with 1 : 200000 adrenaline in 2 % xylocaine was given at the insertion of the middle turbinate and the mucosa anterior to the middle turbinate and middle meatus. Using a 0 degree nasal endoscope, a curved sickle knife was used to remove a 1 cm² area of nasal mucosa anterior to the superior attachment of the middle turbinate (Fig.1).

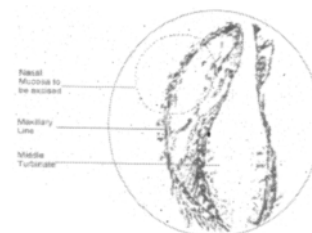


Fig. I : Endoscopic view of right nasal cavity demonstrating site of infiltration and area of nasal mucosa to be removed (dotted line).

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The lacrimal bone overlying the lacrimal sac was drilled away using a cutting burr. Backward cutting antrum punch was used to enlarge the bony opening. The anterior ethmoidal air cells may need to be opened in some cases and any sinus pathology cleared at the same time. The sac was identified and tented up with a lacrimal probe to avoid damaging the canaliculus and a sickle knife used to fashion an opening on the medial wall of the sac which was enlarged using Blakesley nasal forceps. The limits of the opening are canalicular opening above and the sac-duct junction below (Metson R.B., 1998). A zero degree endoscope was sufficient for the entire procedure.

External DCR was done through a skin incision 10 mm medial to the medial canthus. About 4 mm of medial canthal tendon overlying the sac was snipped and the sac exposed. Initial opening in the bone was made using a periosteal elevator at the junction of the frontal process of the maxilla and the lacrimal bone and expanded using a bone

punch. Nasal mucosal and lacrimal sac flaps were fashioned and anastomosed.

RESULTS

There were 16 cases in each group. The age distribution is given in Table no. I. This shows that mean (SD) of the age of cases that had external DCR was 34.4 (19.2) as compared to those who had endonasal DCR 41.9 (15.8). Those who had external DCR were younger than the other group. 75% of those who had external DCR and 81.2% of those who had endonasal DCR were females. More females than males were in the study. This supports the suggestion that nasolacrimal duct obstruction is more common in females than in males (Hurwitz et al, 1996; Neller J 1929). All patients presented with the complaint of epiphora. The mean (SD) duration of complaints of external DCR group was 14.3 (9.4) months and that of endonasal group was 13.9 (9.1) months. Of the endonasal group, 10 of the cases un-

Table – I Age Distribution

AGE	EXTERNAL	ENDONASAL
<10	2	-
11-20	3	2
21-30	2	2
31-40	1	3
41-50	5	4
>50	3	5
TOTAL	16	16
Mean	34.4	41.9
SD	19.2	15.8

't'=1.207 , Not significant

Table –II : Duration of follow up

TIME	EXTERNAL		ENDONASAL	
	NO.	PERCENT AGE	NO.	PERCENT
AGE				
1 Month	9	60.0	6	40.0
3 Month	2	13.3	4	26.7
4 Month	4	26.7	2	13.3
5 Month	-	-	2	13.3
8 Month	-	-	1	6.7
	15	100.0	15	100.0

• one person had blocked duct at 1 year follow up

• one person was lost to follow up.

derwent primary DCR and 6 of the cases were of revision DCR following failed external DCR. 7 underwent silastic tube intubation and 9 did not. There was no difference in results with and without intubation.

Success was defined as patency of duct on syringing at the last follow up. Among the cases who had external DCR one had a blocked duct at 1 year follow up (Table No. II). All the others were free from one month to twelve months. Among the endonasal DCR, one person was lost to follow up (Table No. II). Another case had granulation tissue growing at the ostium at 6 months review. This was removed endoscopically along with the stent and the duct was free following this. The success rate for external DCR was 93.8% and endonasal DCR 100%. The proportion of success was very high and was not statistically different indicating that same level of success can be achieved by both the methods.

DISCUSSION

The success rate of external DCR has been reported at 90% to 97% depending upon the surgeon's experience (McLachlan et al 1980). The success rate of primary endonasal DCR has been reported as 82% to 86% (Jokinen et al 1974, Rice et al 1990 and Shun-Shin et al 1998). Our success rate is comparable to the success rates described for external DCR.

Advantages described for endonasal DCR are many. Interference with the lacrimal pump mechanism is reduced. It offers the surgeon an opportunity for intraoperative examination of the lacrimal sac and the nasal cavity. Coexisting nasal and sinus pathology can be dealt with. Furthermore blood loss is minimal and there is less risk of cerebrospinal fluid rhinorrhoea (Mercandetti, M. and Mirante J.P., 1997). Surgeons trained in endoscopy can easily learn this procedure although for an ophthalmologist to perform this procedure an intensive training may be necessary.

Even in cases of lacrimal abscess, an internal drainage can be provided by doing an endonasal DCR, thus avoiding an incision and drainage followed by a second definitive procedure for the nasolacrimal duct obstruction (Das, T., 1998).

Though success rate is high, external DCR has certain limitations. Presence of a cutaneous scar, potential injury to medial canthal structures and cerebrospinal fluid rhinorrhoea are but a few of the disadvantages (Shun-Shin 1998).

In our series, there was no difference in results of stented and non-stented cases in endonasal DCR. Although most centres are using stent, it does not appear to affect the results.

CONCLUSION

Endonasal DCR is an advantageous procedure over external DCR. With widespread use of nasal endoscopic techniques, this surgery is gaining popularity over external DCR. Stenting after endonasal DCR is not mandatory.

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