

Comparative Outcome of Endoscopic Versus External Dacryocystorhinostomy to Rhinostomy in Patients of Nasolacrimal Duct Obstruction

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ABSTRACT

Aim: To compare the success rate of external and endoscopic dacryocystorhinostomy in patients with nasolacrimal duct obstruction.

Study design: Comparative study

Methods: The patients were divided in two groups for comparison. The success rate of endoscopic group was better (95%) as compared to the external group(78.3%) with the endoscopic group having the advantage of absence of an external facial scar. Data was entered and analyzed with SPSS version 17. Quantitative variable like age was presented by calculating mean and standard deviation. Qualitative variables were presented by calculating frequencies and percentages.

Results: In this study out of the 120 patients, 89 (74.2%) were females and 31 (25.8%) were males. we compared two groups of lacrimal sac surgery. Group 1 underwent external dacryocystorhinostomy and group 2 underwent endoscopic dacryocystorhinostomy. Group 1 was operated by ophthalmologist at Lahore General Hospital Lahore, while group 2 was operated by the ENT department at Lahore General Hospital.

Keywords: Nasolacrimal duct, rhinostomy, endoscopic, obstruction

INTRODUCTION

Nasolacrimal duct obstruction is a common problem and leads to bother some epiphora and dacryocystitis¹. Dacryocystorhinostomy DCR is a procedure that creates a bypass fistula between the lacrimal sac and the nose to provide an alternative pathway for lacrimal outflow. An osteotomy is created adjacent to the middle meatus of the nose followed by an anastomosis of the lacrimal sac and nasal mucosa². The external DCR procedure originally described by Toti in 1904³ is performed through a skin incision approximately 10 mm medial to the medial canthus. Overall success rate of this procedure is greater than 95% in several studies⁴. The main disadvantage to the external approach is the presence of a cutaneous incision with the possibility of cutaneous scarring. Early descriptions of endonasal DCR came from Caldwell in 1893⁵. Recent improvement in endoscopic equipment have lead to a resurgence of interest in this technique. Various studies describe different success rates of endoscopic endonasal DCR that range from 89% to 98%².

This study was conducted to compare the success rate of external and endoscopic dacryocystorhinostomy in patients with nasolacrimal duct obstruction

Operational definition: This study was conducted to compare the success rate of endoscopic dacryocystorhinostomy with external dacryocystorhinostomy. Success being defined as complete or partial relief of epiphora plus patency on syringing at 1 year follows up.

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MATERIAL AND METHOD

This comparative study was conducted in the Department of ENT, Islam Medical College/ Islam Teaching Hospital, Sialkot from 1st November 2017 to 31st October 2018. Permission was sought from the institutional Ethical Committee to start our research. Sample size was 120 patients. Sampling technique used was non probability purposive sampling. Patients diagnosed to be having lacrimal duct obstruction on syringing were included in the study. While patients having canalicular obstruction, assessed by syringing were excluded from the study.

Data collection procedure: 120 lacrimal systems of 120 patients coming to Islam Teaching Hospital from 1st November 2017 to 31st October 2018 were selected. The patients were selected after detailed ENT examination and opinion from the ophthalmology department. Patients filling the inclusion criteria with isolated lacrimal duct obstruction were included in the study. The patients were randomly divided into two groups 1 and group 2. Informed consent was taken from the patients. Group 1 underwent endoscopic DCR while group 2 underwent external DCR. Silicone lacrimal tube was removed 12 weeks after surgery. Outcome was compared at 7th postoperative day, 1st month, 3rd month, 6th month and 1 year. Success being defined as complete or partial relief of epiphora plus patency on syringing at 1 year follows up. A standard Performa was used for data collection and the following variables were recorded including age, gender, relief of epiphora on 7th post operative day, 1 month, 3 month, 6 month and one year consecutively. Success rate of either of the procedures in terms of relief of epiphora and patency of syringing at interval of one year was labeled and charted

in the table. Informed consent for surgery was taken. Demographic profile and relevant data was recorded on research tools.

Data was entered and analyzed with SPSS version 17. Quantitative variable like age was presented by calculating mean and standard deviation. Qualitative variables were presented by calculating frequencies and percentages.

RESULTS

Table 1: Gender ratio

Gender	Frequency	Percentage
Male	31	25.8
Female	89	74.2
Total	120	100

Table 2: Age

Total number	100
Mean	38.37
St. Deviation	12.192
Minimum	10
Maximum	62

Table 3: Relief of epiphora a 7th day

Relief of epiphora at 7 th day	Type of procedure		Total
	External	Endosco pic	
Relief			
Count	53	57	110
Percentage	88.37%	95%	91.7%
Not relief			
Count	7	3	10
Percentage	11.7%	5%	8.3%
Total	60	60	120

P value: 0.322

Table 4: Relief of epiphora at 1 month

Relief of epiphora at 1 months	Type of procedure		Total
	External	Endosco pic	
Relief			
Count	50	57	107
Percentage	83.3%	95%	89.2%
Not relief			
Count	10	3	13
Percentage	16.7%	5%	10.8%
Total	60	60	120

P value: 0.075

Table 5: Relief of epiphora at 3 months

Relief of epiphora at 3 months	Type of procedure		Total
	External	Endosco pic	
Relief			
Count	47	57	104
Percentage	78.3%	95%	86.7%
Not relief			
Count	13	3	16
Percentage	16.7%	5%	13.3%
Total	60	60	120

P value: 0.014

Table 6: Relief of epiphora at 6 months

Relief of epiphora at 6 months	Type of procedure		Total
	External	Endoscopic	
Relief			
Count	47	57	104
Percentage	78.3%	95%	86.7%
Not relief			
Count	13	3	16
Percentage	16.7%	5%	13.3%
Total	60	60	120

P value: 0.014

Table 7: Relief of epiphora at 1 year

Relief of epiphora at one year	Type of procedure		Total
	External DCR	Endo DCR	
Complete relief			
Frequency	47	56	103
% within type of procedure	78.3%	93.3%	85.8%
Partial relief			
Frequency	0	1	1
% within type of procedure	0%	1.7%	0.8%
No relief			
Frequency	13	3	16
% within type of procedure	21.7%	5%	13.3%
Total	60	60	120

P value: 0.018

Table 1: Patency on syringing at 1 year

Patency on syringing at 1 year	Type of procedure		Total
	External DCR	Endo DCR	
Patent	57(95%)	60(100%)	117(97.5)
Not patent	3(5%)	0(0%)	3(2.5%)
Total	60	60	120

Table 9: Successful rate

Success rate	External DCR	Endoscopic DCR
Yes	47(78.5%)	57(95%)
No	13(21.7%)	3(5%)

P value=0.007

DISCUSSION

In this study out of the 120 patients, 89 (74.2%) were females and 31 (25.8%) were males. we compared two groups of lacrimal sac surgery. Group 1 underwent external dacryocystorhinostomy and group 2 underwent endoscopic dacryocystorhinostomy. Group 1 was operated by ophthalmologist at Lahore General Hospital Lahore, while group 2 was operated by the ENT department at Lahore General Hospital. On 7th postoperative day, 53(88.3%) lacrimal systems in group 1 showed relief of epiphora whereas 57 (95%) lacrimal systems in group 2 showed relief of epiphora. On 1 month follow up the values for relief of epiphora in group 1 were 50(83.3%) and 57(95%) in group 2. On 3rd month follow up, the values for relief of epiphora in group 1 reduced to 47(78.3%) whereas in

group 2 the values were stable at 57(95%). The values for relief of epiphora at 6 months were 47(78.3%) in group 1 and 57(95%) in group 2. On 1 year follow up the values were 47(78.3%) in group 1, while in group 2, one patient (1.7%) showed partial relief while 56 (93.3%) showed complete relief. On 6th month and 1 year follow up patency of the lacrimal systems in both groups was assessed by syringing and while 60(100%) lacrimal systems in group 2 were found to be patent, in group 1, 57(95%) lacrimal systems were found to be patent. On 1 year follow up, in group 2, in 1(1.7%) lacrimal system, the degree of relief of epiphora was partial and not complete but the patient was satisfied because there was no excessive tearing. According to the criteria of this study, the case was designated as successful. The reason for failure was found to be adhesion formation in the middle meatus and a smaller bony window. The criterion for a procedure to be successful was that, at one year follow up, there must be relief of epiphora, partial or complete, and, on syringing, and the lacrimal system must be patent. According to this criterion, the success rate of group 1 was 78.3% (47 lacrimal systems) and 95% (57 lacrimal systems) for group 2. This difference is statistically significant (P 0.007) and is comparable to the figures that are given in the international studies^{6,7}.

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