Patients Eagerness for 2nd Eye External Dacryocystorhinostomy after the Satisfactory Surgery of 1st Eye in Tertiary Care Hospital of Islamabad Suburbs

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ABSTRACT

Objective: To determine patient satisfaction with successful external dacryocystorhinostomy for one eye and patients' preference time for second eye dacryocystorhinostomy after the first surgery.
Study Design: Prospective longitudinal study.
Place and Duration of Study: Department of Ophthalmology, HBS General Hospital, Islamabad Pakistan, from Jan 2018 to Dec 2020.
Methodology: A sample of 37 patients was calculated. All selected patients underwent bilateral external dacryocystorhinostomy and were followed for six months. Patient satisfaction was measured using a treatment satisfaction scale.
Results: A total of 37 patients were included in the study. The mean age of patients was 33.5 ± 3.1 years. Satisfaction with 1st eye external DCR was extremely satisfied in 14 (37.8%), satisfied in 14 (37.8%), neutral in 2 (5.4%), dissatisfied in 6 (16.2%) and extremely dissatisfied 1 (2.6%). 31 (83.8%) prefer second eye surgery in ≤1 year after first eye DCR, while 6 (16.2%) prefer second eye surgery after more than one year of first eye DCR surgery. The majority of females prefer ≤1 year duration for second eye DCR surgery as compared to males 25 (67.7%) vs 6 (16.2%), (p=0.03). Anatomical success and functional success were insignificantly associated with satisfaction of first eye DCR surgery of patients (p=0.793 and p=0.482)
Conclusions: High satisfaction with first eye dacryocystorhinostomy and greater preference for second eye dacryocystorhinostomy was found in patients coming to tertiary care hospital in Pakistan.

Keywords: Dacryocystorhinostomy, Satisfaction, Preference.

How to Cite This Article: *Matloob A, Akhtar W, Yousafzai E. Patients Eagerness for 2nd Eye External Dacryocystorhinostomy after the Satisfactory Surgery of 1st Eye in Tertiary Care Hospital of Islamabad Suburbs. Pak Armed Forces Med J 2022; 72(3): 1051-1054. DOI: https://doi.org/ 10.51253/pafmj.v72i3.8072*

INTRODUCTION

Dacryo-cystorhinostomy (DCR) is a standard technique for nasolacrimal duct (NLD) obstruction management.[1] DCR is one of the most common oculolastic surgery procedure.[2] The principle of surgery is to reestablishing patent communication between the lacrimal sac and nasal cavity.[3] It is equally effective for acquired NLD obstruction and secondary acquired NLD obstruction (as in chronic nasal inflammation, trauma associated with midfacial defects, sinus inflammation and dacryocystitis).[4] Acquired NLD blockage is a common disorder that is more likely to affect females than males. It also has a successful outcome in functional obstruction of outflow due to lacrimal pump weakness.[5,6] There are two main types of DCR, namely, external DCR and endolaser DCR. Even after the advent of endolaser DCR, many surgeons still prefer external DCR over endolaser DCR because of the high success rate reported in the former and cost effectiveness.[7]

Modern external DCR was first described in 1904 and later modified and has remained the gold standard in the treatment of nasolacrimal duct obstruction.[8] External DCR is used for lacrimal obstruction drainage cases (nasolacrimal duct obstruction, distal canalicular obstruction and common canalicular obstruction). In this procedure, the patients went through the skin incision and bone drilling (anterior lacrimal crest and lacrimal sac fossa) to reach in lacrimal sac.[8]

Even after the advent of minimally invasive surgical techniques and endolaser dacryocystorhinostomy, the traditional external DCR is still performed similarly, except for minor alterations. However, the success rate has improved over the years due to better preoperative evaluation with radiological investigations, better instruments, absorbable suture material and anaesthesia procedures. External DCR has 80 to 99% success rate depending on surgical expertise. It remains the gold standard by which other procedures are being measured.[9]

Fear of any surgical procedure is very obvious. However, in nasolacrimal duct obstruction, patients usually have long-term symptoms, and patients do not prefer surgery because of fear regarding this procedure, such as fear of the long surgical procedure, anaesthesia, facial scar, prolonged intubation etc.

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Received: 28 Jan 2022; revision received: 23 Apr 2022; accepted: 25 Apr 2022

Untreatednasolarimal duct obstruction has vision, life-threatening complications, and compromised quality of life. Continuous epiphora is also aesthetically displeasing and a source of discomfort in performing routine tasks like reading, near work, watching TV, sports etc. Our main objective was to determine patient satisfaction (using the Treatment satisfaction scale) with successful external dacrycystorhinostomy for one eye and patients' preference time for second eye dacrycystorhinostomy after the first surgery.

METHODOLOGY

We conducted a prospective longitudinal study at the Department of Ophthalmology, HBS General Hospital, Islamabad Pakistan. The study duration was two years from January 2018 to December 2020. A sample size of 37 patients was calculated using a WHO calculator (frequency of second eye DCR: 5%, 95% confidence interval and margin of error: 7%).[10] Patients were selected through non-probability consecutive sampling.

Inclusion Criteria: Patients aged 1 to 55 years, both gender and diagnosed with bilateral nasolacrimal duct obstruction (NLDO), patients with bilateral epiphora and bilateral decryositis requiring bilateral external DCR were included from the study.

Exclusion Criteria: Patients with nasal pathologies and unilateral decryosititis were excluded from the study.

Ethical approval was taken from the respective institute (IRB: APPl: EC 01/01/02/2021). Written consent forms were taken from all participants.

Preoperative evaluation of lacrimal passages was performed by probing and syringing to confirm the diagnosis for NLDO, and nasal examination for DNS, nasal polyp and any other nasal pathology was performed by an ENT consultant. External DCR was recommended after pre-op assessment and determined by the presence of bothersome epiphora symptoms and positive regurgitation reflux. All patients who presented with acute dacryocystitis were initially treated with systemic antibiotics, and incision and drainage of the abscess were done in one patient. A single surgeon performed all surgeries.

The standard surgical procedure was performed on all patients under hypotensive general anaesthesia. After aseptic preparation, LA injection of 2% Lidocaine with 1: 100,000 Epinephrine was injected subcutaneously in the medial canthal area. Punctum was dilated and nasal packing soaked in Lignocaine and Adrenaline done. Skin is incised with (15 No Bard-Parker) blade 10mm medial to the medial canthus. Blunt dissection of the orbicularis was done, and the medial canthal tendon was divided. The periosteum was incised with the blade. Periosteum elevated with periosteum elevator, and lacrimal sac reflected to expose operation site at lacrimal fossa. Osteotomy created in anterior lacrimal crest with Kerrison punch to create approx. 10mm ostium, nasal mucosa was exposed. Anterior and posterior flaps were created in the lacrimal sac and nasal mucosa. The posterior flap was excised; a silicon tube was placed through both canaliculi and tied to the nasal cavity. The anterior flap was sutured with 6/0 vicryl. The wound was closed in two layers. Nasal packing was done with antibiotic-soaked gauze.

Postoperatively all patients were prescribed oral antibiotics (ciprofloxacin) twice daily for 7 days, antibiotic and steroid combination eye drops given thrice daily for two weeks and ointment at night for 1 month. The nasal pack was removed on the next postoperative day, and skin sutures were removed on the sixth postoperative day. All patients were followed on day-1, week-1, month-1, three months, and six months after surgery, according to the clinical course. Silicon tube was removed after six months in all patients except one patient whose tube dislodged accidentally after four months. Anatomical success was confirmed by intranasal endoscopic examination of the ostium, and functional success was confirmed by the absence of epiphora and positive fluorescein dye disappearance test performed after 6 months of surgery. We considered the recurrence of symptoms as a failure. We used the treatment satisfaction scale (TSS) for measuring patients' satisfaction with first eye DCR (with 5 scores of extreme satisfaction and 1 score with extreme dissatisfaction).

Statistical Package for Social Sciences (SPSS) version 23.0 was used for the data analysis. Percentages were calculated for all the categorical variables like sex, satisfaction level and choice of the second surgery. Continuous variables like time delay between two surgeries and age mean and standard deviation were calculated. The Chi-square test was applied. The *p*-value of ≤0.05 was considered statistically significant.

RESULTS

A total of 37 patients were included in the study. There were 10 (27%) males and 27 (73%) females. The mean age of patients was 33.5 ± 3.1 years. There were 9 (24.3%) patients in the age group 1-30 years and 28 (75.7%) patients in the age group 31-55 years. Causes

of DCR were facial trauma 15 (39.5%), 6 (16.2%) dacryosititis, 10 (27%) canalicular obstruction, 3 (8.1%) congenital nasolacrimal duct obstruction and fistula 3 (8.1%). Satisfaction with 1st eye external DCR was extremely satisfied in 14 (37.8%), satisfied in 14 (37.8%), neutral in 2 (5.4%), dissatisfied in 6 (16.2%) and extremely dissatisfied 1 (2.6%). Complications after the first eye DCR were found to be epiphoria 1 (2.7%), intraoperative bleeding 1 (2.7%) and postoperative ecchymosis in 1 (2.7%) patient. Anatomical success was found in 36 (97.3%), while functional success was found in 35 (94.6%) patients. Among all the patients, 31 (83.8%) prefer second eye surgery in ≤ 1 year after first eye DCR, while 6 (16.2%) prefer second eye surgery after more than one year of first eye DCR surgery.

The majority of females prefer ≤1 year duration for second eye DCR surgery as compared to males 25 (67.7%) vs 6 (16.2%), (p=0.03). Patients with age 31-55 years prefer ≤ 1-year duration of second eye DCR as compared to patients in age group 1-30 years age group 22 (59.5%) vs 9 (24.3%) (p=0.162). Causes and complications showed insignificant association with second eye DCR preference (p=0.458 and p=0.729), as shown in Table-I

Anatomical and functional success were insignificantly associated with satisfaction of first eye DCR surgery of patients (p=0.793 and p=0.482), as shown in Table-II.

DISCUSSION

External DCR is a very common surgical strategy in tertiary care hospitals in Pakistan. However, in our study, 38.7% of patients were extremely satisfied, and 38.7% were satisfied with their first eye DCR surgery. Moreover, epiphoria, intra-operative bleeding and postoperative ecchymosis were common complications of our study. Yenaid *et al*, reported that the satisfaction rate was 60% with DCR excessive tearing or epiphora is very common after nasolacrimal duct obstruction. Nasolacrimal duct obstruction may be congenital or acquired due to dacryocystitis or trauma. Trauma is also one of the important causes of nasolacrimal duct obstruction. Naso-orbito-ethmoidal fracture is the main cause of traumatic NLD obstruction.[11] Epiphora has a great effect on daily activities and has an impact on vision and quality of life. Work-related activities are highly affected, followed by outdoor activities, computer work, and interpersonal relationships. According to a study conducted by Shin *et al*, most of these issues are improved after dacryocystorhinostomy.[12] External DCR is a common and best surgical technique for managing epiphora due to nasolacrimal duct obstruction. Reported success rates of external DCR vary between 85-99%.[13] Despite the advent of endolaser DCR, external DCR is still criterion standard.[14]

Table-I: Association between Preference of 2nd eye DCR and other independent factors.

Gender	Preference for 2nd Eye DCR		p-value
	≤1 years	>1 years	
Male	6 (16.2%)	4 (10.8%)	0.03
Female	25 (67.6%)	2 (5.4%)	
Age			
1-30 years	9 (24.3%)	-	0.162
31-55 years	22 (59.5%)	6 (16.2%)	
Cause			
Facial trauma	14 (37.8%)	1 (2.7%)	0.458
Dacryosititis	4 (10.8%)	2 (5.4%)	
Canlicular obstruction	8 (21.6%)	2 (5.4%)	
Congenital nasolacrimal duct obstruction	3 (8.1%)	-	
Fistula	2 (5.4%)	1 (2.7%)	
Complications			
No	28 (75.7%)	6 (16.2%)	0.729
Epiphoria	1 (2.7%)	_	
Intra-operative bleeding	1 (2.7%)	_	
Post operative ecchymosis	1 (2.7%)	_	
Total	31 (83.8%)	6 (16.2%)	

Table-II: Association of satisfaction with anatomical success and functional success.

	Satisfaction (Treatment Satisfaction Scale)					p-value
	Extremely Dissatisfied	Dissatisfied	Neutral	Satisfied	Extremely Satisfied	
Anatomical Success						
No					1(2.7%)	0.793
Yes	1(2.7%)	6(16.2%)	2(5.4%)	14(37.8%)	13(35.1%)	
Functional Success						
No					2(5.4%)	0.482
Yes	1(2.7%)	6(16.2%)	2(5.4%)	14(37.8%)	14(37.8%)	

In the present study, anatomical success was found in 36 (97.3%), while functional success was found in 35 (94.6%) patients. The main causes of external DCR failure include the inadequate size of the ostium and sump syndrome.[15] The cutaneous scar is

the only main problem after external DCR for which endolaser DCR is usually preferred, but this should not be the main reason to approach DCR surgery even in young and cosmetically concerned patients as external DCR has a higher success rate as compared to endolaser. External DCR has an advantage over endoscopic, especially in acquired, posttraumatic and neoplastic cases.[16] Endolaser DCR is limited by specialized equipment, cost and steep learning curve.

All patients in our study had preoperative anxiety and fear regarding this procedure, such as fear of the long surgical procedure, anaesthesia, facial scar, prolonged intubation, failure, nasal bleed etc. Fear is a very important factor for the surgical delay and reluctance to seek early medical care.[17,18] Therefore, the critical role of first surgical procedure success is patient satisfaction and early decision for second surgical procedure.[19,20]

To the author's knowledge, there are no studies regarding surgical delay observed between two eyes in context to external dacryocystorhinostomy successful surgical outcome. Our study also indicates that a clear improvement of symptoms was seen in most patients irrespective of gender and age. This study will help ophthalmologists make decisions regarding DCR and help to understand patient satisfaction regarding this procedure.

LIMITATIONS OF STUDY

Our study has many shortcomings as our sample size is not large, and treatment cost-effectiveness was not measured

CONCLUSION

High satisfaction with first eye dacryocystorhinostomy and greater preference for second eye dacryocystorhinostomy was found in patients coming to tertiary care hospital in Pakistan. Fear of the patient regarding this procedure has vanished with a successful outcome in relieving symptoms, and the patient chooses to undergo a second nasolacrimal procedure soon after the first one.

Conflict of Interest: None.

Author's Contribution

AM: Data collection, WA: Data analysis, EY: Study write-up.

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