OPEN ACCESS

Clinical Practice Article

Surgical Outcome of Dacrystorhinostomy in Fistulous Dacryocystitis

Noman Ahmed[1], Arsalan Ahmed Shaikh[2], Munawar Ahmed[3], Ashok Kumar Narsani[4]
Muhammad Luqman Ali Bahoo[5]
[1-4]Department of Ophthalmology, Liaquat University of Medical and Health Sciences, Jamshoro, [5]CMH institute of Medical Sciences, Bahawalpur

ABSTRACT

Purpose: To study the surgical outcomes of Dacryocystorhinostomy (DCR) in fistulous dacryocystitis.

Study Design: Quasi Experimental study.

Place and Duration of Study: The detailed study was carried out in the Institute of Ophthalmology, Liaquat University Hospital Jamshoro, between September 2018 to August 2020.

Material and Methods: We analyzed the histories of 30 patients taking the DCR procedure and noted their mean age, standard deviation, follow-up time, complications and other details. We also reported the intraoperative anatomical results, postoperative analysis, and variable groups vs. outcomes post-surgery using SPSS Version 20.

Results: The mean patient's age was 44.2 ± 4.13years, where males to female percentages were 27% to 73%. We noted significant changes in patients with a success rate of 87% displayed by no relieved epiphora and lacrimal patency in 1 month, 3 months, and 6 months. The mean time of the patients was 4 months varying between 1 to 8 (months) and the variable group values vs. surgical outcomes showed no significant association between the variables (p-value ranging from 0.195 to 0.935).

Conclusion: Complications resulting in some patient's post-surgery are manageable and the surgical technique has a good success rate.

Key Words: (DCR) Dacryocystorhinostomy, lacrimal Patency, fistulous Dacryocystitis, Scarring.

How to Cite this Article: Ahmed N, Shaikh AA, Ahmed M, Narsani AK, Bahoo MLA. Surgical Outcome of Dacrycystorhinostomy in Fistulous Dacryocystitis. Pak J Ophthalmol. 2021, **37 (4):** 409-412.
Doi: 10.36351/pjo.v37i4.1265

INTRODUCTION

According to Chandler, the treatment of dacryocystitis dates backs to around 2000 years.[1] In the early days, a passage was created into the nose by making use of a hot cautery and puncturing the lacrimal bone.[2] However, research and development of nasal anatomy and physiology have widened our understanding of the disease, and, consequently, many new methods and techniques have emerged since then.[3] In 20th century, Dacryocystorhinostomy became the procedure of choice with favorable results.[4]

Dacryocystitis caused by nasolacrimal duct obstruction can be either chronic or acute. Fistulous Dacryocystitis usually occurs by inadequate or delayed treatment.[2] According to a study dacryocystitis occurs approximately one in a 3884 individuals. Gender

Correspondence: Noman Ahmed
Department of Ophthalmology
Liaquat University of Medical and Health Sciences, Jamshoro
Email: drdnas@gmail.com

Received: May 06, 2021
Accepted: August 13, 2021

difference shows that 75% of dacryocystitis patients are females.[5,6]

In this particular case series, we tried to find out the results of Dacryocystorhinostomy in patients with fistulous Dacryocystitis.

METHODS

This interventional case series was carried out in Liaquat University Hospital, Jamshoro. Thirty patients with fistulous dacryocystitis were selected by convenient sampling from September 2018 to August 2020. Acute as well as chronic cases were included in the study. Patients with lacrimal sac abscess were also recruited. Patients with a history of Dacryocystorhinostomy, previous maxillofacial surgery, nasolacrimal trauma, lacrimal neoplasm, congenital anomalies of the lacrimal drainage system and patients with compromised immune system were excluded.

All procedures were performed under local anesthesia. Local Anesthesia was given by injecting xylocaine 2% with adrenaline 1:100000. A curved incision was given at 1.3cm medial to the medial canthus. Orbicularis muscle was dissected by blunt dissection. The skin and the orbicularis muscle were retracted with four retractable 4 – 0 silk sutures. Lacrimal fossa was exposed and an osteotomy was created about 1.5 × 1.5 cm wide with Bone puncher until nasal mucosa was exposed. The next step was to make an H-Shaped incision in lacrimal sac and nasal mucosa. Posterior flap of nasal mucosa was sutured with the posterior flap of the lacrimal sac with 6/0 vicryl suture. Silicone tube intubation aided to suture the anterior fold of lacrimal sac with anterior nasal mucosa. The incision was closed in two layers. Follow-up examinations were planned on first post-operative day, first, third and then sixth month.

The data was collected and compiled. Statistical analysis was done using SPSS Version 20.Chi-square test was used for statistical significance.

RESULTS

There were 27% male patients. Mean age was 44.2 years ± 4.13. Maximum age was 55 years and minimum was 38 years.

The mean time for relief of epiphora was 4 ± 3.606 months.

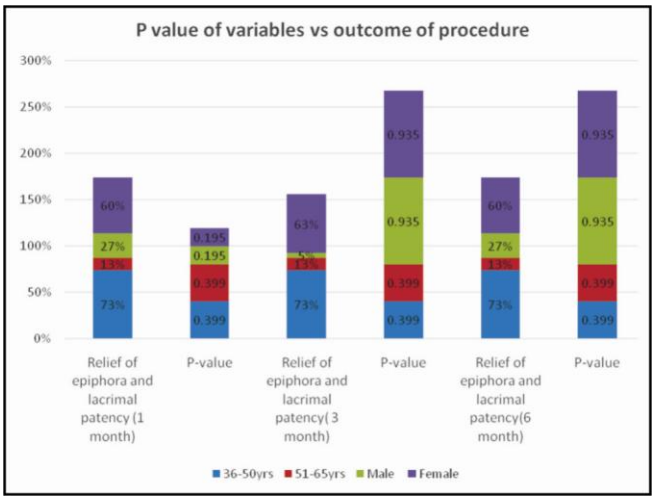

Figure-1: Age and Gender Versus Outcome on 1st month, 3rd month and 6-month follow-up.

About 87% patients (37% in 36 – 50 years old and 13% about 50yrs) of patients got relieved of epiphora and lacrimal patency in 1 month, three months, and six months with p-value being 0.399 in all respectively.

However, gender wise in 1st month 5% male and 63% females got relived with p-value being 0.935 and 3rd month repeat values just as 1st month were observed in male and female with p value being 0.935 which is not statistically significantly being more than 0.05.The surgery showed no complication in 70%, i.e., 21 cases out of 30, while 9 patients showed intraoperative hemorrhage (16.7%), laceration of the nasal mucosa (13.3%) *(Figure-2).*

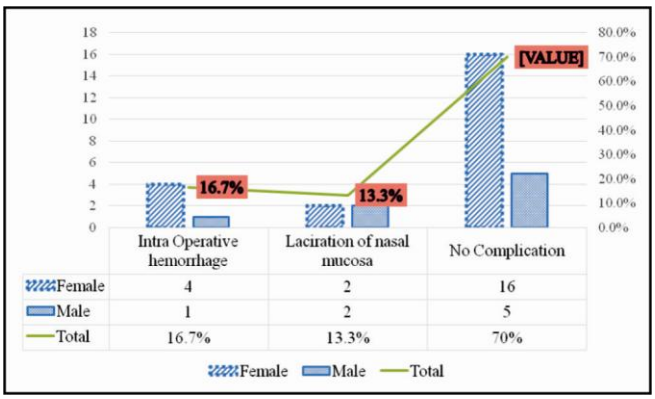

Figure-2: Complication in Fistulous Patients.

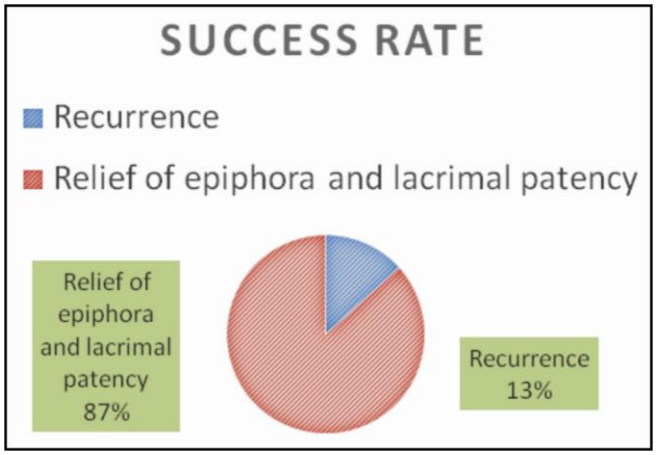

Figure 3: Postoperative Success Rate in fistula Patients.

We concluded the success rate by relieving epiphora and lacrimal patency at the end of the last follow-up to be 87%, while 13% showed recurrence *(Figure-3).*

DISCUSSION

Dacryocystorhinostomy has proved to be an effective procedure for treating chronic dacryocystitis.[7,8] In a previous study, fistula excision with external DCR proved to be an effective procedure for fistulous DCR.[9]

In our study, mean age was 44.2 years. This was consistent with a previous study which showed a mean age of 42.4 ± 7.6 years.[9]There were 73% females in our study whereas Islam et al had 62% females indicating female prepondrance.[10]

The mean (average) time of the patients was 4 months (bracket 1 – 8 months), and the standard deviation was 3.606 months. Another *study* by Lee et al, recorded a post-operative follow-up period of 11.01 ± 16.3 months (ranging from 4 to 10.8).[11] The values of the post-surgery outcomes vs. patients gender and age showed no significant association between the variables (p-value ranging from 0.195 to 0.935) and similar was observed in one *such study* where p-value were insignificant ranging from 0.193 to 0.895.[12]

The complication rate of the surgical procedure observed in our population was 30%, i.e., only 9 cases out of 30 showed complications from intraoperative hemorrhage (16.7%), laceration of the nasal mucosa (13.3%). However, elsewhere, a negligible complication rate of 28 %.was noted by *Rahman et al*.[13]

Further to our findings, the success rate is seconded by the relief of epiphora and lacrimal patency at the end of the last follow-up in 87% of patients, while 13% showed recurrence. Similar findings were done by *Khan et al,*[14] found a 97.1% success rate in the DCR technique. In a local study by *Mumtaz* and his friends the success rate was recorded at 94.7%.[15]

Similarly, *Pradhnya*[16] and colleagues found a success rate of 82.61% cases after DCR technique. *Elsewhere* when follow-up was taken for the surgical outcomes after 12 months, DCR cam successful both in the anatomy and functionality with success percentage of 94.7%.[17]

One such local *study* of DCR conducted on 100 patients, showed scarring on 85 patients which was invisible and only 4 patients showing some visibility.[18] Another *research* on 36 subject undergoing DCR technique showed 95% function success and no scars after 3 months' follow-up.[19] *Akaishi* et *al*, showed promising outcomes of DCR too.[20] A local study conducted on DCR on patients ageing 18 to 60 years showed successful lacrimal patency after 6 months follow-up.[21]

CONCLUSION

DCR technique was noted to be a successful technique in treating chronic conditions, and complications are manageable, and therefore, the procedure is good.Thus our success rate for the study suggests it is an efficient technique that takes reasonable operation time. However, there can be more improvement for better precision.

Ethical Approval

The study was approved by the Institutional review board/Ethical review board **(LUMHS/R.EC/I.O.L-07)**

Conflict of Interest

Authors declared no conflict of interest.

REFERENCES

1. **Ali, Mohammad.** Lacrimal Disorders and Surgery: Historical Perspectives. International Ophthalmology: September 2014; **34 (6):** 240-263.

2. **Taylor RS, Ashurst JV.** Dacryocystitis.]. In: Stat Pearls [Internet]. Treasure Island (FL): Stat Pearls Publishing; 2021 Jun 26. Available online at https://www.ncbi.nlm.nih.gov/books/NBK470565/
3. **Weinberg, D, Gupta R.** Dacryocystorhinostomy: An Update. American Academy of Opthaomogly.JUL 01, 2007.
4. **Herzallah I, Alzuraiqi B, Bawazeer N, Marglani O, Alherabi A, Mohamed SK, Al-Qahtani K, Al-Khatib T, Alghamdi A.** Endoscopic Dacryocystorhinostomy (DCR): a comparative study between powered and non-powered technique. J Otolaryngol Head Neck Surg. 2015 Dec 22; **44:** 56.
5. **Chen L, Fu T, Gu H, Jie Y, Sun Z, Jiang D, Yu J, Zhu X, Xu J, Hong J.** Trends in dacryocystitis in China: A STROBE-compliant article. Medicine (Baltimore). 2018 Jun; **97 (26):** e11318.
6. **Enright NJ, Brown SJ, Rouse HC, McNab AA, Hardy TG.** Nasolacrimal Sac Diverticulum: A Case Series and Literature Review. Ophthalmic Plast Reconstr Surg. 2019 Jan/Feb; **35 (1):** 45-49.
7. **Mukhtar SA, Jamil AZ, Ali Z.** Efficacy of external dacryocystorhinostomy (DCR) with and without mitomycin-C in chronic dacryocystitis. J Coll Physicians Surg Pak. 2014 Oct; **24 (10):** 732-5.
8. **Reddy, Dalli.** Clinical Study on Surgical Outcomes of Endoscopic Dacryocystorhinostomy (DCR) between Powered and Non-Powered Techniques. Journal of Evolution of Medical and Dental Sciences: Sept 2020; **9 (28):** 6810-6811.
9. **Ari, Suleyman & Cingu, Abdullah & Şahin, Alparslan & Ozkök, A & Caca, I.** The outcomes of surgical treatment in fistulous dacryocystitis. European review for medical and pharmacological sciences: Jan 2013; **17 (2):** 243-246.
10. **Islam, AKM & Hossain, Khandaker & Or Rashid, Md & Hossain, Md.** A Study of Conventional Dacryocystorhinostomy Operation without Silicon Tube Intubation in a Secondary Hospital. Faridpur Medical College Journal, 2016.
11. **Lee, M. J., Kim, I. H., Choi, Y. J., Kim, N., Choung, H. K., & Khwarg, S. I.** Relationship between lacrimal sac size and duration of tearing in nasolacrimal duct obstruction. *Canadian Journal of Ophthalmology*, 2019; ***54*** **(1):** 111-115.
12. **Fugita R, Santos C, Ribeiro S.** Epidemiological profile of patients with fistula in ano. J. Coloproctol. (Rio J.) [Internet], 2020 Mar; **40 (1):** 1-7.
13. **Rahman SH, Tarafder KH, Ahmed MS, et al.** Endoscopic dacryocystorhinostomy. Mymensingh Med J 2011; **20 (1):** 28-32.
14. **Mkh, Khan & Ma, Hossain & Hossain, Mohammed & Mz, Rahman.** Comparative Study of External and Endoscopic Endonasal Dacryocystorhinostomy for the Treatment of Chronic Dacryocystitis. Journal of Armed Forces Medical College, Bangladesh: April. 2012: 7.
15. **Mumtaz H, Saleem A. Saeed A.** DCR (dacryocystorhinostomy) With or Without Intubation. *Annals of King Edward Medical University*: July-Sept. 1988; ***4*** **(3):** 34-36.
16. **Sen P, Jain E, Mohan A, Kumar A.** Surgical Outcome of External Dacryocystorhinostomy With Silicone Intubation for Recurrent Lacrimal Abscess in Children Younger Than 6 Years. *Pediatr Ophthalmol Strabismus*, Feb. 2019; **56 (3):** 188–193.
17. **Fayers T, Dolman PJ.** Bicanalicular Silicone Stents in Endonasal Dacryocystorhinostomy: Results of a Randomized Clinical Trial. Ophthalmology, 2016 Oct; **123 (10):** 2255-9.
18. **Qidwai N, Dawood A, Hussain M, Inam M, Jafri A, Somro F.** Cosmetic and Functional Results of External Dacryocystorhinostomy with the Subciliary Incision in a Tertiary Eye Care Hospital, Karachi. PJO [Internet]. 17 Mar. 2020; **36 (2)**.
19. **Elbarbary HE.** Evaluation of the Cosmetic and Functional Outcomes of the Subciliary Incision for External Dacryocystorhinostomy. J Clin Exp Opthamol. 2018; **9 (720):** 2.
20. **Akaishi PM, Mano JB, Pereira IC.** Functional and cosmetic results of a lower eyelid crease approach for external dacryocystorhinostomy. Arquivos Brasileiros de Oftalmologia. 2011; **74 (4):** 283-285.
21. **Shahis E, Jafri A, Fasih U, Shaikh A.** External Dacryosystorhinostomy with intubation in shrunken fibrotic Sac in chronic dacryocyctitis. Pak L Opthalmol. Apr – Jun. 2020; **36 (2):** 23-5.

Authors' Designation and Contribution

Noman Ahmed; Assistant Professor: *Primary Surgeon, Concept, Design, Manuscript Preparation.*

Arsalan Ahmed Shaikh; Associate Professor: *Data Analysis, Statistical Analysis, Manuscript Editing.*

Munawar Ahmed; Associate Professor: *Literature Search, Data Acquisition, Manuscript Review and Approval.*

Ashok Kumar Narsani; Professor: *Concept, Design, Manuscript Review and Approval.*

Muhammad Luqman Ali Bahoo; Associate Professor: *Manuscript editing, Manuscript review.*