

Outcome and Complication of *Paediatric Dacryocystorhinostomy* at Mardan Medical Complex Ophthalmology Unit

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Abstract:-

➤ Objectives:

To assess the results and risks of dacryocystorhinostomy (DCR) operations on patients with nasolacrimal duct obstruction while taking into account variables like gender distribution, side involvement, anesthesia type, and long-term follow-up.

➤ Methodology

This study involved the prospective enrollment of 23 patients, all of whom gave their guardians' informed consent. Many DCR procedures were carried out, most of which were left-sided. A silicon tube was used in certain circumstances, and it was taken out after three months. Either local or general anesthesia was used, and all patients were monitored for six months following surgery in order to evaluate the results of the procedure and any problems. We extensively recorded and analyzed the gender distribution, side involvement, type of anesthesia, success rates, and complications.

➤ Results

39% of the 23 patients who were part in the study were female, and 61% of them were male. 69.56% of DCR procedures were carried out on the left side. DCR procedures had an 88.9% success rate, with 21 out of 23 patients being successful. There were two cases of epistaxis, eleven cases of emphysema, and one case of canalicular injury among the observed complications. There were no reports of granuloma development or tube extrusion. Seven patients underwent surgery under local anesthesia, while sixteen underwent general anesthesia.

➤ Conclusion

DCR has a good success rate and a low frequency of complications when treating nasolacrimal duct occlusion. The findings highlight how crucial it is to carefully evaluate variables like the kind of anesthesia and the application of supplemental tools like silicon tubes in order to maximize surgical outcomes. For patients with nasolacrimal duct obstruction, DCR appears to be a safe and effective therapeutic option with encouraging outcomes. Larger sample numbers and longer-term follow-up are necessary for validation of these results and investigation of other factors impacting surgical outcomes.

Keywords:- Dacryocystitis, Pediatric, Dacryocystorhinostomy, Silicon Tube, Local Anesthesia, General Anesthesia, Complications, Success Rate.

I. INTRODUCTION

Up to 20% of neonates are affected by congenital epiphora. Congenital nasolacrimal duct obstruction, or CNLDO, is the collective term for conditions that typically originate from insufficient development of the lower end of the tear duct with persistent web membrane at the site of Hasner's valve or bone deformities. Within the first year of life, spontaneous resolution has been observed to occur 90% of the time. Many youngsters found that conservative techniques, like lacrimal sac massage and medical treatment, were successful in circumstances when occlusion did not resolve on its own. Nasolacrimal endoscopic assisted probing and irrigation are beneficial in many situations that remain unresolved after conservative therapies fail in the first year of life. Nevertheless, the child's age has an inverse relationship with the maneuver's success rate¹⁻⁴. When conservative

medical treatment or ineffective probing fails to relieve congenital nasolacrimal duct obstruction, lacrimal intubation has become a commonly utilized operation. Pediatric DCR is initiated when NLDO is not responding to less intrusive treatment modalities like probing and intubation, or when it is linked to recurrent dacryocystitis. Such circumstances were previously given external DCR. But of days, endoscopic DCR is more typical⁵⁻⁸. A recommended approach for the care of individuals presenting with epiphora has been presented by these study⁹⁻¹⁰. Endonasal dacryocystorhinostomy is an efficient and safe method for treating epiphora.

II. MATERIAL AND METHODS

A cohort of 23 patients with nasolacrimal duct obstruction received dacryocystorhinostomy (DCR) surgeries as part of this prospective study. This was carried out at the eye department, Bacha Khan Medical College/ Mardan Medical Complex, Mardan, from January 2023 to December 2023, All patients' guardians gave their informed consent prior to participation, guaranteeing ethical compliance. A detailed analysis of patient demographics, including gender distribution, was conducted as part of the study, which included 39% female and 61% male participants. There was a clear anatomical preference as 16 patients had DCR procedures performed primarily on the left side, while only 7 instances were performed on the right. In fourteen individuals, a silicon tube was used during the treatments; it was removed after a regular three-month time. With seven patients having local anesthesia and sixteen undergoing general anesthesia, the anesthesia regimens varied, demonstrating the flexibility in procedural management catered to specific patient demands. Six months of postoperative surveillance were used to thoroughly assess the results of the surgery and any possible side effects. Careful observation during this time frame made it possible to record any negative outcomes or issues resulting from the DCR processes. In addition to assessing the success rate of the procedures, the evaluation also included an assessment of consequences such as epistaxis, emphysema, and canalicular injury. Remarkably, every patient was meticulously monitored, guaranteeing comprehensive data collection and reducing the possibility of bias resulting from incomplete follow-up. With the help of this sound technique, the effectiveness and safety profile of DCR in the treatment of nasolacrimal duct obstruction are thoroughly understood, paving the way for well-informed clinical practice decision-making.

III. RESULTS

Of 23 patients, 14 were male and 9 female patients. An informed consent was taken from the guardian of all patients. In 16 patients, DCR was performed on the left side. In 14 patients, silicon tube was used and removed after 3months. DCR was successful in 88.9% cases. It was performed in local anesthesia in 7 patients while it was carried out in GA on 16

patients. All the patients were followed for 6 months. None of the patients was lost to follow up.

Table: 1 Gender Details

Gender		Number(23)	Percentages
male		14	61%
female		9	39%
age	Below 10 year	12	52.17%
	Above 10 year	11	47.82%

Table 2: Sidewise Involment

Side Involved	Number(23)	Percentages
Left	16	69.56%
right	7	30.43%

Table 3: outcome of surgery

Outcome	Number(23)	Percentages	P-Value
successful	21	91.30%	0.02
Un successful	2	8.69%	

Table 4 Complications of DCR

S. No.	Complication	No. of patients
1.	Epistaxis	2
2.	Emphysema	11
3.	Canalicular damage	1
4.	Tube extrusion	nil
5.	Granuloma formation	nil

IV. DISCUSSION

23 patients undergoing dacryocystorhinostomy (DCR) were included in the study; 39% of the patients were female and the majorities, 61%, were male. Notably, informed consent was obtained from guardians for each patient. In newborns and early children, the most prevalent cause of epiphora is congenital nasolacrimal duct obstruction (CNLDO). By the time a child turns one year old, 85–96% of cases with this syndrome resolve on its own¹¹⁻¹². Only a small percentage of DCRs (30.43%) were done on the right side, with the majority (69.56%) being done on the left. In 14 out of 23 cases, a silicon tube was used, and it was taken out after three months. DCR was shown to have an overall success rate of 88.9%, with 21 out of 23 instances being successful. Seven patients underwent local anesthesia, while the remaining sixteen underwent general anesthesia. Notably, not a single patient was lost to follow-up throughout the six months that they were all observed. The majority of patients were male in terms of gender distribution, which may be due to sample characteristics in this study or a difference in gender in the prevalence of illnesses needing DCR. Prolonged rhinosinusitis and additional sinonasal comorbidities cause the lower nasolacrimal duct to become inflamed, which results in excessive tearing of the eyes. For epiphora, endoscopic-guided

NLD probing is a viable and safe primary therapy approach. However, research has shown that the failure rate of probing rises with age, with older subjects having lower results¹³⁻¹⁴. Given that left-side dominance is typical in operations involving the nasolacrimal duct, the increased incidence of left-side involvement in DCR is consistent with anatomical considerations. Consistent with other research findings, the success rate of 88.9% indicates the effectiveness of DCR in treating nasolacrimal duct obstruction. Future research could examine the reasons behind the majority of cases where general anesthesia was used, such as the intricacy of the surgery or patient preferences. Only a small number of cases of epistaxis, emphysema, and canalicular injury were documented as complications related to DCR. It is comforting to note that there is no evidence of tube extrusion or granuloma formation, suggesting that these problems are uncommon in the population under study. Patients with recurring or chronic dacryocystitis as well as intubation-resistant NLDO instances are eligible for the DCR surgery. To prevent any negative consequences on the growth of the nasal bones, surgeons typically prefer to wait until the child is between three and four years old before performing the procedure. Furthermore, compared to external techniques, sinonasal or nasopharyngeal disorders can be addressed in a single surgical session and require less time¹⁵. These results are important because they give clinicians knowledge about the success rates and side effects of DCR, which helps them make well-informed decisions and educate patients on available treatments for nasolacrimal duct obstruction. Nevertheless, more studies with bigger sample sizes and longer follow-up times could be necessary to confirm these findings and look into other variables affecting surgical outcomes.

V. CONCLUSION

Our research shows that dacryocystorhinostomy (DCR) has a high success rate (88.9%) in treating nasolacrimal duct obstruction, along with a comparatively low incidence of sequelae. The results highlight DCR's effectiveness as a therapeutic option that works, especially when anatomical factors need surgical intervention. Nevertheless, constraints including the limited sample size and single-center design call for careful interpretation of the findings, requiring additional study with bigger cohorts to corroborate our findings and generalize conclusions. We thank the patients and their guardians for their cooperation, which made the study easier to conduct, and the medical personnel whose commitment made sure the data was carefully collected and analyzed.

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