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Five Years Audit Of External Dacryocystorhinostomy In Pediatric Patients

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Abstract

Objectives: The objectives of this study were "To assess the age , gender, laterality, peroperative complications and efficacy of external dacryocystorhinostomy (DCR) in pediatric patients (below 18 years of age) in relieving the nasolacrimal duct (NLD) blockage and chronic dacryocystitis".

Study Desgin: A prospective study.

Duration and Place of Study. Eye department, Mardan Medical Complex, Mardan, from 1st January, 2019 to 31st December 2023.

Materials and Methods: This Prospective study was conducted at the Eye department, Mardan Medical Complex, Mardan, from 1st January, 2019 to 31st December 2023. Universal sampling technique was used for this study. 51 pediatric were included in this study, having nasolacrimal duct obstruction and chronic dacryocystitis. Patients who had previously failed dacryocystorhinostomy were also included in this study. Those who had severe deviated nasal septum, nasal polyps or those with nasal bones fracture were excluded from this study. Success was defined as resolution of epiphora and normal tear film.

Results: All 51 patients underwent External dacryocystorhinostomy. 60.78% were males and 39.2% were females. Informed consent was taken from the parents or guardians. left-sided was involved in 64.7%while right side was involved in 35.29%. silicon tube was put in 58.8% cases and removed after three months. General anesthesia was used in 78.4% cases and local anesthesia in 21.5% cases. Follow up was done for six months. Intraoperative and post operative complications included epistaxis, eleven cases of emphysema, and one case of canalicular injury, one granuloma formation and one tube extrusion. There were no anesthesia related complications.

Conclusion: External DCR has a high success rate having less number of complications when treating nasolacrimal duct obstruction.

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

INTRODUCTION:

About 20% of newborn babies present with watery eyes with purulent material. the reason is the non-

canalization of the lower end of the tear duct with persistent web membrane at the site of Hasner's valve or bone deformities. In 90% of cases, spontaneous resolution occurs during the first year of life. Crigler massage and topical eye drop and ointment are beneficial during infection and very young age. When nasolacrimal duct does not open spontaneously in the first year of life, then endoscopic or non endoscopic probing and irrigation can be carried out. However, age of the child carries an inverse relationship with the success of the surgical procedure.[1-4] When topical treatment or probing does not resolve congenital nasolacrimal duct obstruction, then lacrimal intubation is carried out. Pediatric DCR is carried out when NLDO does not open after probing and intubation, or when it is linked to recurrent dacryocystitis. Then DCR is the procedure. There are three Dacryorhinocystotomy procedures: external DCR, Nasal endoscopic DCR and nasal non endoscopic DCR. Despite the availability of endoscopic DCR, external DCR remains a successful and efficient procedure.[5-8] Different studies have described the roadmap for the treatment of epiphora.[9-10]

MATERIAL AND METHODS

This prospective study was carried out at the eye department, Bacha Khan Medical College/ Mardan Medical Complex, Mardan, from January 01. 2019 to December 31. 2023 after getting ethical approval from the ethical committee vide letter **No. BKMC/ MMC/ EC 319 Dated 29th December, 2018.** All the 51 patients with nasolacrimal duct obstruction or chronic dacryocystitis were selected from the outpatient department through universal sampling technique. All the patients were examined for nasolacrimal duct obstruction or chronic dacryocystitis. Demographics were entered into a preformed proforma which included age, gender, address, contact number, laterality, any previous procedure like probing and irrigation. Previously failed DCR patients were also included. Opinion from ENT specialists was also sought. Those who had severe deviated nasal septum, nasal polyps or those with nasal bones fracture were excluded from this study. An informed consent was taken from the parents or guardians. Intraoperative and post operative complications were added at the completion of of the surgery and first postoperative day and subsequent visits (on 10th day. One month. 3months and 6months post operatively). Skin sutures were removed at 10th day and silicon tube at 3 months. This study adheres to the guidelines of Declaration of Helsinki.

RESULTS: Of 51 patients, 31 were male and 20 female patients as shown in table I. side involved in shown in Table II. In 33 patients, DCR was performed on the left side. In 31 patients, silicon tube was used . DCR was successful in 84% cases. It was performed in local anesthesia in 11 patients while it was carried out in GA on 40 patients. All the patients were followed for 6 months. None of the patients was lost during follow up.

Table: 1 Gender of patients- n=51

gender	No.	percentage
male	31	60.78%
female	20	39.2%

Table 2: Laterality of involvement n=51

Involved side	No.	Percentage

Left	33	64.7%
right	18	35.29%

Table III Anesthesia used in DCR n=51

Anesthesia	Number	Percentage
General	40	78.6%
Local	11	21.4%

Table no. V Silicon Tube use in patients n=51

Silicon tube used	30	58.8%
Not used	21	41%

Table 4 Success Rate

Outcome of surgery	no.	percentage
Successful	43	84%
Unsuccessful	8	15.68%

Table no. VI Complications of DCR surgery

S. No.	Complication	No. of patients
1.	Epistaxis	13 (25.49%)
2.	Emphysema	11 (21.56%)
3.	Canalicular damage	1 (1.96%)
4.	Tube extrusion	1 (1.96%)
5.	Granuloma formation	1(1.96%)

DISCUSSION:

51 patients undergoing dacryocystorhinostomy (DCR) were included in the study; 39% of the patients were female and the majorities, 61%, were male. In neonates, the most prevalent cause of epiphora is congenital nasolacrimal duct obstruction (CNLDO). At one year of age, 85–96% of cases resolve spontaneously. [11-12] Only a small percentage of DCRs (35%) were done on the right side, with the majority (64%) being done on the left. In 30 out of 51 cases, a silicon tube was used, and it was taken out after three months. DCR was shown to have an overall success rate of 84%, while 15.5% were unsuccessful. Eleven 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. The majority of patients were male in terms of gender distribution. Recurrent sinus and nasal infections and allergies cause the inflammation of the lower nasolacrimal duct resulting in excessive tearing of the eyes. For epiphora, endoscopic-guided NLD probing is a safe procedure but the success rate declines with increasing age resulting in high failure rate in older children. [13-14] The success rate of 84% indicates the effectiveness of DCR in treating nasolacrimal duct obstruction. Epistaxis (25%), emphysema (21.56%), canalicular injury (1.96%), granuloma formation (1.96%),an tube extrusion (1.96%) were documented as complications related to DCR. Leoni et al noted emphysema in 4 patients and agenesis of canine in one patient.[15] These results give clinicians guidance about the success rates and side effects of DCR and enable them for appropriate decisions and patients' education on available treatments for nasolacrimal duct obstruction.

CONCLUSION: This study reveals s that external dacryocystorhinostomy (DCR) is an effective procedure in children with high success rate (88.9%) in treating nasolacrimal duct obstruction or chronic dacryocystitis with a comparatively less complications.

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