Probing for Congenital Nasolacrimal Duct Obstruction in Children Older than One Year Age

Associate Professor Dr Abdul Basir Safi
Senior Teaching Assistant Dr Ibrarullah Rahimi

Lecturers of Ophthalmology Department, Medical Faculty, Nangarhar University, Afghanistan

ABSTRACT

Tear duct probing and irrigation is a procedure used in the treatment of nasolacrimal duct obstruction. The success rate of probing for congenital nasolacrimal duct obstruction in children older than 1 year of age Hospital based cross—sectional observational study. The study was performed in Nangarhar university teaching hospital within a seventh months study duration. A retrospective study was done of consecutive children undergoing probing for congenital nasolacrimal duct obstruction. The children who had bilateral Nasolacrimal obstruction, just one eye was included in the study. The study period was from 1st june 2020 up-to 1stDecember 2020. A total of 56 children undergoing probing for congenital nasolacrimal duct obstruction. Right eye involvement was present in 22 (39.29%) cases and left eye in 34 (60.71%) cases. The children were divided into two groups. Group 1 (1 – 2 years) and group 2 (>2 years). The mean age of children in group I was 19.45 ± 3.68 months and in group ii. 32.71 ± 17.04 months. There were 42 male and 14 female children. The success rate in group I was 89.29% and in group II. 87.57%. failure was more in group II (21.43%) as compared to group I (10.71%). Probing is highly successful in the older age group (78.57%) and should remain the first line of treatment in older children.

Keywords: *Probing, Congenital, Nasolacrimal, Obstruction*

INTRODUCTION:

Obstruction of the nasolacrimal drainage system is extremely common in the patients, occurring in as many as 20 – 30 % of newborns. But only 1 % to 6% of these children become symptomatic. Spontaneous resolution occurs in 80 – 95 % of affected infants by one year of age. In patients in whom the condition persists, the common cause is failure of the nasolacrimal duct to canalize. The timing of probing for congenital nasolacrimal duct obstruction has been a matter of debate in recent years. When the condition persists beyond several months, early office probing gives good result.

An equally effective approach is conservative management until 9 – 12months of age awaiting spontaneous resolution. Followed by hospital – based probing for persistent obstruction. a confounding question is whether probing is less successful when delayed, perhaps due to prolonged inflammation in the lacrimal duct system or could the apparent decline in success rate in older children is due to accumulation of more severe obstruction as less severe obstruction clears spontaneously. it has been reported that delay in probing beyond 12 months is associated with a lower rate of success and this worsens with increasing age.

Conversely, there are studies which indicate that primary probing continues to be an effective treatment well beyond 2 years of age and that the cure rate does not vary markedly with age. There are thus no clear guidelines for management of congenital nasolacrimal duct obstruction, especially for older children. This study was undertaken to elevate the results of probing in children aged 12 months and above in Nangarhar Jalalabad population. We conducted this study in the patients presenting to Nangarhar Teaching hospital eyes ward.

Material and Methods:

A retrospective study was done of consecutive children undergoing probing for congenital nasolacrimal duct obstruction. Those who had bilateral involvement, only one eye was included in the study.

The children were divided into two groups, Group I (1 to 2 years) and group II (>2 years). The study period was from 1stjune 2020 up-to 1stDecember 2020. The initial examination included looking for the lacrimal puncta, assessing anomalies of the lids or face, ruling out conjunctivitis, allergic inflammation and other causes of epiphora in children. The diagnosis of congenital nasolacrimal duct obstruction was based on history of tearing and / or discharge and on clinical examination as evidenced by epiphora beginning during the first few weeks of life. Recurrent mucopurulent discharge. And reflux of the contents of lacrimal sac on pressure. the procedure was performed under general anesthesia. A probe was used in all cases. Probing in all cases was done through the upper puncta. The probe was introduced into the canaliculus until medial wall of the lacrimal fossa was felt, at this point it was turned and introduced into the nasolacrimal duct and gently advanced till resistance was felt. The breaking of the membrane was felt as the probe advanced into the obstruction. The patency of the nasolacrimal system was checked by obstruction of the upper puncta using a punctum dilator and irrigation with saline from the lower puncta. Each patient received **tobramycin 0.5** Eye drops four times daily for three weeks. Patients were seen in the clinic at one week, one month, and the at three months after probing. Success of probing was the main outcome measure and was defined as complete remission of watering, discharge and reflux of contents of the lacrimal sac on pressure at one week of the procedure. Data was analyzed by using the software SPSS 10.0.

RESULT:
A retrospective study was done of 56 consecutive children undergoing probing for congenital nasolacrimal duct obstruction. Right eye was involvement was present in 22 (39.29%) cases and left eye in 34 (60.71%) cases. The children were divided into two groups, Group I (1-2 year) and group (>2 years). the mean age of children in group I was 19,45 ± 3,68 months and in group II 32,71 ± 17.04 months. there were 42 male and 14 female children, the results of probing are represented in the table, the success rate in group I was 89.29 % and in group II 78,57%. the success rate of the entire cohort was 83,93 %. Failure was more in group II (21,43%) as compared to group I (10,71%).

The failed cases underwent second probing or dacryocystorhinostomy. The oldest child in this study was 5 years old and probing was successful in him. The results in children older than 24 months were very encouraging. none of the patients had any surgery or anesthesia related complication.

DISSCUSION:
Probing of the NLD is a standard therapeutic procedure in the management of the CNLDO, controversy, however exists regarding the outcome of probing in children older than 1 year.

The lacrimal drainage system begins forming at approximately 6 weeks of gestational age as a depression, known as the lacrimal groove and is usually completed at or near the time of the birth, the lower part of the nasolacrimal duct is formed by valve of hasner which is the last portion to open, atresia of the nasolacrimal duct or dacrostenosis is the most common cause of epiphora in pediatric population, it is thought to result from failure of the canalization of the column of epithelial cells that finally form the nasolacrimal duct. Probing has been a time-tested treatment for congenital nasolacrimal duct obstruction, but controversy exists regarding the timing of probing and its outcome in older children. According to the Cha DS et al study. the success rates of probing were 82 % for the 6 to 12 months age group, 79% for the 13 to18 month age group. And 78% for the individuals greater than 19 months in age Katowitz and Welsh reported a probing success rate of 98,2 % in subjects aged 0 to 6 months. 95,9 % in subjects age 7 to 12 months, 76,8% in subjects aged 13 to 18 month, and 54,1% in subjects aged 19 to 24 months. while in our study the success rate of probing in children between 1 – 2 years of age is 89,29% and above 2 years it is 78,57 % this is almost similar to the other studies.

Sturrock and colleagues reported a success rate of 72 % in the second year and 42 % in children more than 2year old age. Young and associates stated a cure of 54% in children probed after 2 years of age.

Table: probing results n = 56

Group	Total	Age in years	Male	Female	Success	Failure
1	28	1 – 2	20	8	89.29 %	10,71%
2	28	> 2	22	6	78,57%	21,43%

MacEven and associates found a cure rate of 85 % in a combined probing and nasal endoscopy among 40 children 10 – 89 months of age. Manor and colleagues found a negative correlation between the age and the success of probing El-Mansoury and colleagues found more than 90% success rate in late and very late probing for CNLDO.

There of CNLDO in children. Those who advocates of early probing suggest that early correction avoids duration of morbidity due to epiphora and chronic dacryocystitis. they also suggest that postponement of the procedure may result in decreased success with simple probing because of chronic inflammation and secondary fibrosis, early probing can be done without anesthesia as it is easier to restraint the infant.

Those who are in the favor of late probing say that spontaneous resolution occurs and there is no need of probing at first place. Kashkouli et al showed that congenital nasolacrimal duct obstruction can be either membranous or complex. The suggested that older children with membranous or simple obstruction will have a good success rate for probing irrespective of the age at probing. The complex obstruction (firm non membranous, or complicated) has been identified as a major risk for the probing failure, it seems possible that the success of probing is dictated not by the age at probing. But by the cause of obstruction. the simple or membranous obstruction is cured by simple probing while complex or more severe obstructions might not open by simple probing and may require intervention at a later age.

The big difference in our and others researches are that the patients whom came to use the types of obstruction were membranous and simple, which have a good success rate for probing.

CONCLUSION:

Probing is highly successful in the older age group (78,57%) and should remain the first line of treatment in older children.

Recommendation:

1. –Children who are older than one year of age don`t response to massage ،probing should remain the first line of treatment in older children
2. _After probing advice to mother to perform regularly massage on lacrimal sac
3. –If first probing failed do two more probing inter two months.

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