

Management of Congenital Nasolacrimal Duct Obstruction: Comparison of Probing Vs Conservative Medical Approach

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Objectives: The treatment of congenital nasolacrimal duct obstruction (CNLDO) continues to be a subject of controversy. Some authors advocate early probing and irrigation, whereas others recommend delaying until the child at least one year old. The focus of this study was to compare the results of conservative treatment for CNLDO with the results of probing and irrigation of CNLDO undertaken for children between the ages of 6 and 24 months.

Methods: A total of 128 patients (I 82 nasolacrimal ducts) with CNLDO were enrolled in a prospective clinical study at Prince Hashem Hospital in Zarka. Initially, all patients were treated conservatively with local hydrostatic massage and topical antibiotic drops. The patients were divided into four age groups. The first group was infants with CNLDO observed for spontaneous resolution during the second half of the year. The other three groups were between the ages of 6 and 24 months with a 6 month interval between each group. Patients of these three groups underwent probing under brief general anesthesia.

Results: Only 77.1% of the infants exhibited spontaneous opening of the CNLDO during the second half of the year. Initial probing undertaken on infants between the ages of 6 and 12 months has been associated with the opening of the lacrimal ducts in 94.1% of cases, whereas, using the same procedure for children between the ages of 12 and 18 months, the success rate was found to be 79.6%. Only 55.9% of obstructed nasolacrimal ducts were patent after probing undertaken on children between the ages of 18 and 24 months.

Conclusion: Results indicate that probing carried out on infants with CNLDO between 6 and 12 months significantly reduces epiphora compared with waiting for spontaneous resolution in infants with the same conditions. At the same time it gave significantly better results, compared to probing undertaken on older age groups.

Bahrain Med Bull 2000;22(1):

Epiphora in infancy is most commonly the result of a failure of canalization of the distal end of the nasolacrimal duct¹⁻⁴. CNLDO results in watering and/or sticky eyes, which can be distressing to both child and parents.

The standard management method is to commence with conservative treatment, then, the possibility of probing shall be taken into consideration if the above does not remedy the problem⁵⁻⁷. The timing for such probing has been challenged by emerging controversial

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conclusions regarding the rate of spontaneous resolution during the first year of life⁸⁻¹². Some authors consider that probing for CNLDO beyond one year of age is highly successful and postponement of the procedure until that time did not result in an increased rate of failures or complications¹³⁻¹⁷. From reviewed literature we noticed that spontaneous opening of the CNLDO mostly took place in the first 6 months of an infant's life, so we studied the possibility of performing probing after that age. Patients were divided into different age groups to determine the optimal age for probing.

METHODS

We studied 128 patients (182 nasolacrimal ducts) with CNLDO. The age range was between 6 and 24 months. The patients were divided into four age groups; the first group consisted of 30 infants (48 nasolacrimal ducts) between 6 and 12 months of age. They were treated with local massage and antibiotic eye drops and were observed for spontaneous resolution during the second half of the year. The other three groups were arranged according to the age at which probing was undertaken, starting from 6 months old and with an interval of 6 months for each group (table 1).

Table 1. **Groups of patients according to the age at the time of Probing**

<i>Groups of Patients</i>	<i>Number of Patients</i>	<i>Number of Nasolacrimal Ducts</i>	<i>Age in Months</i>
Second	32	51	6-12
Third	38	49	12-18
Fourth	28	34	18-24
Total	98	134	-

Patients, who were probed for the first time for CNLDO, have been included in the study. Patients undergoing both unilateral and bilateral probing were observed. Other possible causes of epiphora such as ectropion and allergy were ruled out by careful examination of the anterior segment prior to probing.

Probing was performed under brief general anesthesia with a Bowman probe through either the upper or lower puncta following dilation; saline was then irrigated through the lacrimal canula.

After probing the patients were placed on antibiotic steroid combination eye drops, four times a day, for 10 days. Patency was verified after four weeks, through a clinical examination on tear meniscus, lacrimal punctum for the presence or lack of discharge regurge and in questionable cases a fluorescein dye disappearance test was performed. Statistical analysis was carried out using the Normal Deviate (Z) test for comparisons of differences in proportional data. The statistical tests were two-tailed, with a probability level of 0.05 used to declare statistical significance.

RESULTS

The patients who have been observed, consisted of 64.3% female and 35.7% male. The percentage of bilateral CNLDO for each age group was different (Table2).

Table 2. **Percentage of bilateral nasolacrimal ducts obstruction at study groups**

<i>Groups of Patients</i>	<i>Bilateral obstruction in</i>
First	60
Second	59.4
Third	28.9
Fourth	21.4

The relation between the age and cure rates after first probing was studied and the results are shown in figure 1.

Figure 1.

Ninety four percent (48/51) of the second group of infants were asymptomatic compared with 79.6% (39/49) of the third group of children ($P < 0.05$). Fifty six percent (19/34) of the fourth group children were asymptomatic (compared with those of the second group, $P < 0.001$, and those of the third group, $P < 0.02$).

Spontaneous opening of the nasolacrimal ducts in infants of the first group was observed in 37 ducts out of 48 (77.1 %). Accordingly, it can be noticed that probing undertaken during that time resulted in significantly more improvement ($P < 0.02$) than waiting for spontaneous opening of the nasolacrimal ducts as illustrated in figure 2.

Figure 2.

DISCUSSION

This prospective study compared the results of initial management for congenital nasolacrimal duct obstructions, on patients of different age groups. It has been concluded that probing reduces the incidence of watering and discharge for infants aged 6 -12 months more successfully than those in the older age groups. Comparing the cure rate of probed infants to that of spontaneous resolution, which was observed in infants of the same age group, it can be noticed that there was a high percentage cure rate in the former.

The early treatment of obstruction by probing shall reduce the need for long term antibiotic treatment with its possible side effects and regular attendance of parents to the doctor, with its resultant financial burden.

Owing to the results we obtained, our study supports the benefit of early probing which has been reported by others¹⁸⁻²⁰.

CONCLUSION

We advise parents of infants with CNLDO to treat the obstruction conservatively until the age of 6 months and to perform probing between the ages of 6 and 12 months.

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