

# Late Probing for Congenital Nasolacrimal Duct Obstruction

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**Purpose:** To report the results of late nasolacrimal duct probing in patients with congenital nasolacrimal duct obstruction (NLDO).

**Methods:** This retrospective study was performed on a consecutive series of patients with congenital NLDO who underwent late (after 15 months of age) nasolacrimal duct probing for the first time.

**Results:** Over a period of five years, 158 patients including 75 (47.4%) male and 83 (52.6%) female subjects with mean age of  $3\pm 4.2$  years (range, 15 months to 37 years) underwent initial probing for NLDO. Nasolacrimal duct probing was performed unilaterally in 78% and bilaterally in 22% of the patients. Success rate was 75% overall, 72% in unilateral cases and 83% in bilateral instances. Success rate was not correlated with age at intervention.

**Conclusions:** Nasolacrimal duct probing seems to be reasonably successful for treatment of congenital NLDO in patients older than 15 months who are seen for the first time. Silicone intubation or dacryocystorhinostomy should be reserved for refractory cases.

**Key words:** Lacrimal Duct Obstruction

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## INTRODUCTION

Nasolacrimal duct obstruction (NLDO) is one of the most common congenital abnormalities which is reported to occur in 1.75 to 20% of infants.<sup>1</sup> Patients usually present with epiphora, however purulent discharge may be observed in cases associated with dacryocystitis. The site of obstruction is most often in the inferior portion of the nasolacrimal duct at Hasner's valve. However obstruction may occur at any level of the nasolacrimal system including the puncti, canaliculi, common canaliculus and the Rosenmuller valve. Obstruction can be present simultaneously at more than one site, for example

with a dacryocoele, obstruction exists at both Hasner and Rosenmuller valves.<sup>2</sup>

Most cases of congenital NLDO improve spontaneously by delayed canalization and do not require surgical intervention. Difference of opinion exists between surgeons regarding the optimal time of intervention in persistent cases. Some authors advocate earlier nasolacrimal duct probing which may be performed under local anesthesia and believe it prevents morbidity.<sup>3-5</sup> On the other hand, others state that 96% of these cases improve spontaneously up to the age of one year with no need for intervention.<sup>6-12</sup> The current study was performed to evaluate the success rate of nasolacrimal duct

probing in patients with congenital NLDO after the age of 15 months, when most authors believe the procedure has a low success rate.

## METHODS

This retrospective study was performed on hospital records of patients with congenital NLDO and at least 15 months of age who were referred to Labbafinejad Medical Center from September 1996 to September 2001 and underwent nasolacrimal duct probing for the first time. Only patients operated by attending physicians and followed for at least two months were included in this study. Patients with acute dacryocystitis, punctal or canalicular abnormalities, craniofacial anomalies, tumors, and abnormalities of the eyelids or orbits were also excluded from the study.

Probing was performed according to a uniform protocol under general anesthesia: after dilatation of the superior punctum and passing a Bowman probe through the nasolacrimal duct, irrigation was performed from the superior punctum with normal saline containing gentamicin (40 mg/ 100 ml) and was drained from the nasopharynx on the same side. Immediately after probing, all patients received a single dose of intravenous cefalotin (10-20 mg/kg). Postoperative regimen included gentamicin 1% and dexamethasone 1% eye drops every six hours for one week, and nasal naphazoline 1% drops every 8 hours for three days. The procedure was considered successful in the event of cessation of epiphora or purulent discharge under normal physiologic circumstances. Surgical success was assessed in relation to age, sex, and laterality.

## RESULTS

During the 5-year period of the study, a total of 198 subjects older than 15 months of age underwent initial probing. Forty patients were excluded because some were operated by residents or fellows, and others had inadequate or poorly documented follow-up. The remaining 158 cases included 75 (47.4%) male and 83 (52.6%) female subjects. Mean age at the time of intervention was  $3 \pm 4.2$  years ranging from 15

months to 37 years (including a 37-year-old patient who had been symptomatic since birth).

Overall, initial probing was successful in 118 (74.7%) cases and failed in 40 (25.3%) cases. Unilateral and bilateral probing was performed in 123 (77.8%) and 35 (22.2%) subjects respectively. Out of 123 patients with unilateral obstruction, 89 cases (72.1%) and of 35 patients with bilateral obstruction, 29 cases (82.8%) were assessed as successful ( $P=0.3$ ). No significant difference was noted in success rates (Chi-square test,  $P=0.6$ ) among different age groups (Table 1).

**Table1** Success rates of initial nasolacrimal duct probing in different age groups

Age (months)	Total number	Successful cases
15-24	104	79 (76.0%)
25-36	31	21 (67.7%)
37-48	10	9 (90.0%)
49-60	5	3 (60.0%)
>60	8	6 (75.0%)
Total	158	118 (74.7%)

Chi-square test,  $P=0.6$ .

## DISCUSSION

Our study demonstrated the effectiveness of initial probing for congenital NLDO in patients over 15 months of age and that success rate does not decrease with increasing age. The significance of the current study is that the number of cases exceeds that in most previous reports. Yap and Yip<sup>8</sup> reported on 17 Asian children over one year of age, the study of Burns and Kipioti<sup>2</sup> was based on 36 cases, and El-Mansoury et al<sup>7</sup> reported 129 cases older than 13 months. The cause of paucity of similar subjects in the literature is spontaneous improvement in the majority of patients with congenital NLDO. Our study also differs because success criteria were based on postoperative examination, not on self-reported forms sent to parents<sup>13</sup> or paraclinical tests such as lacrimal sac echography.<sup>14</sup> Our study revealed no difference between unilateral and bilateral cases in terms of success rate; in fact success rate was higher in bilateral cases (82.8% vs 72.1%) which is in contrast with Santosh's report<sup>15</sup> who reported better results in uni-ateral cases.

In conclusion, initial probing seems to be effective in congenital NLDO in older patients and should not be withheld in children who are referred late. Since expenses incurred by the family do not depend on patient age<sup>16</sup> and because our study in addition to many others<sup>17-22</sup> demonstrates that success rate does not decrease with increasing age, it seems reasonable to delay probing in infants whose symptoms are not bothersome.

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