Journal of Neonatal Surgery
ISSN(Online): 2226-0439
Vol. 14, Issue 11s (2025)
https://www.jneonatalsurg.com

OPEN ACCESS

Successful Congenital Nasolacrimal Duct Obstruction Probing In A 11 Years Old Boy With 1 Year Follow Up: A Case Report

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Cite this paper as: Yogita Shinde, (2025) Successful Congenital Nasolacrimal Duct Obstruction Probing In A 11 Years Old Boy With 1 Year Follow Up: A Case Report. *Journal of Neonatal Surgery*, 14 (11s), 16-19.

ABSTRACT

One common cause of epiphora in babies is congenital nasolacrimal duct obstruction (CNLDO). 5% to 20% of people have it, however only 2% to 6% will require treatment. An 11-year-old boy complained of having an excreted and watery eye since birth when he arrived at the hospital. The outcome of the dye disappearance test is +4. It was decided to do probing operations on the patient. After probing, there was positive fluorescein flow in the nasolacrimal duct. A dye disappearance test was conducted one week following the probing procedure, and the results are negative. Patients no longer report having sticky and watery eyes. The CNLDO's management is still debatable. For children less than 36 months, probing can be the main course of treatment with a success rate of 78–93%. The success rate is even lower for older kids. The best moment to go more into the CNLDO is still up for discussion. The high rate of patient success with probing over the age of two indicates that probing may be tried before a more elaborate intervention is considered.

Keywords: *Congenital nasolacrimal duct obstruction, probing, dye disappearance test*

1. INTRODUCTION

While only 2–6% of affected individuals would require intervention, With a prevalence rate of 5% to 20%, congenital nasolacrimal duct obstruction (CNLDO) is a common cause of epiphora in newborns [1]. In the first year of life, epiphora affected about 20% of babies, and over 95% of these babies had symptoms by the time they were one month old [2].

On the other hand, anatomic nasolacrimal duct obstruction is far more common in stillborns, occurring in around 73% of cases. Usually by three to four weeks of age, this spontaneous perforation happens, but if it doesn't, CNLDO symptoms become apparent [3]. During development, the nasolacrimal duct opens on the medial surface of the upper and lower eyelids as well as beneath the inferior turbinate in the nose. It spreads towards the nose and eye, starting at the inferomedial region of the orbit. Most typically, a membrane known as the Hasner valve at the end of the nasolacrimal duct causes obstruction in this drainage system from birth [4].

Patient and observation

Patient Information: An 11-year-old child complained of occasionally having discharge and having a runny right eye when he arrived at the hospital. the complaint was realized by the patient's mother since the patient was born but felt increasingly burdensome since the patient was 2 years old. Complaints are not accompanied by complaints of blurred vision or red eyes. Previously, the patient had been examined by a doctor when he was 2 years old and was advised for surgery.

Clinical Findings: Visual acuity in both eyes 5/5 with normal intraocular preassure, anterior and posterior segment of both eyes showed no abnormality, there is only a watery and discharge in the right eye.

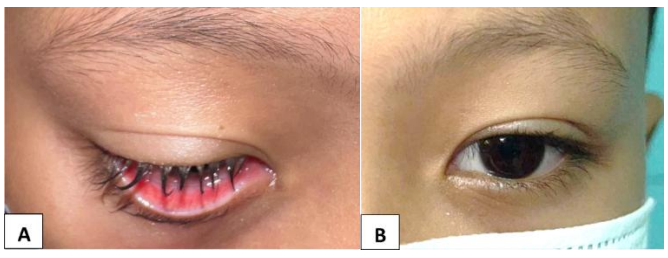

Figure 1

Diagnosis assessment: In the Dye disappearance test, +4 results were obtained in the right eye and 0 in the left eye. On the examination of Jones Dye Test 1, negative results were obtained in the right eye while in the left eye positive. Jones dye test 2 and also dacryocystography support examination to determine the extent of obstruction that occurs cannot be done due to uncooperative patients.

Diagnosis: Congenital nasolacrimal duct obstruction on the right eye.

Therapeutic Interventions: The patient is decided to undergo probing with general anesthesia as a diagnostic and therapeutic step before moving towards more invasive procedures in patients. The probing procedure was successfully carried out on the patient and when fluorescent fluid was given at the superior or inferior punctum the fluid could flow into the meatus and out through the nose.

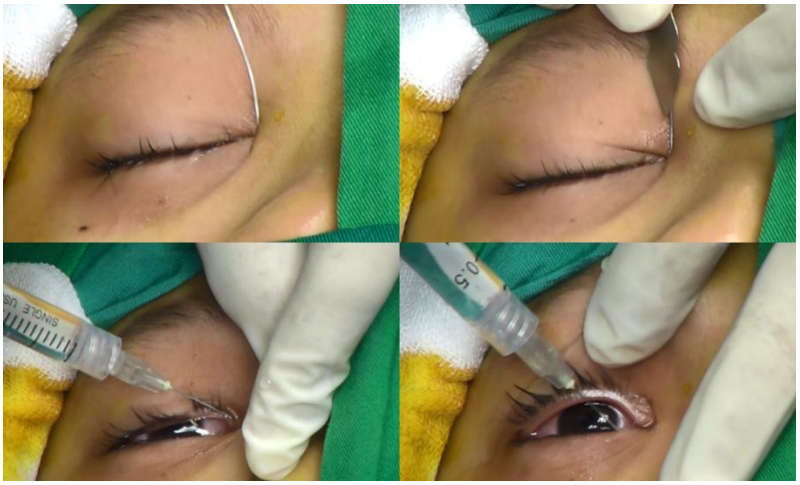

Figure 2

Follow-up and outcome of intervension:

The patient returned for control one week after the probing operation was completed and at this time the patient had no complaints of watery eyes or discharge in the eyes and another dye disappearance test was carried out in both eyes with grade 0 results or no residual fluorescent fluid was found in both eyes after 5 minutes. 1 year after the probing procedure, we tried to re-examine the patient's condition. There were no complaints in both eyes. We also performed a dye disappearance test on the patient and no residual fluorescent fluid was found in both eyes.

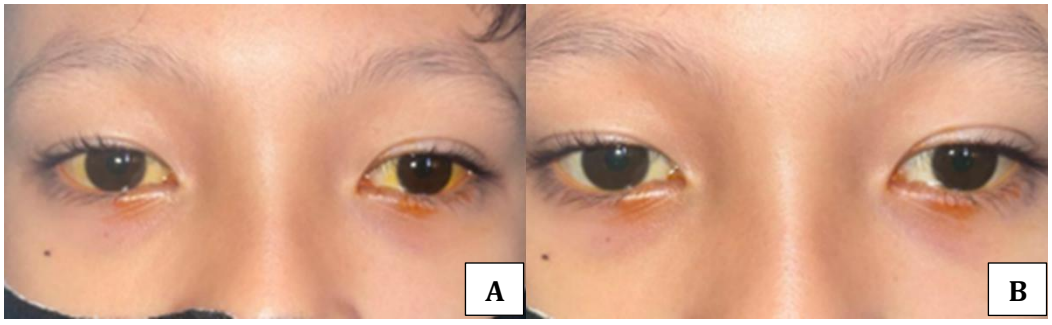

Figure 3

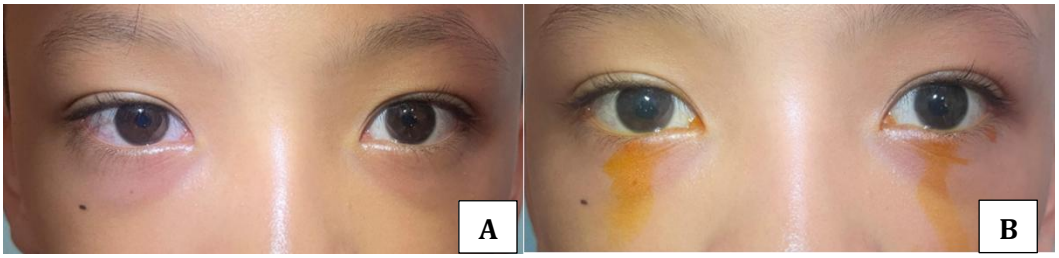

Figure 4

Patient perspective: " I feel that my right eye often produces tears and sometimes discharge appears which is quite disturbing for me in my activities for the past few years. Previously I was afraid to be treated because I was told that surgery would be performed. After my right eye was treated, I now feel comfortable in both eyes. There are no more complaints of eyes that often water or discharge so that I can do my activities comfortably. "

Informed Consent: The patient and their family were informed about the case, and they provided both verbal and written consent for the case to be published for the benefit of medical knowledge and public health.

2. DISCUSSION

Infant epiphora is frequently caused by congenital nasolacrimal duct obstruction (CNLDO), which has an incidence rate of 5% to 20% [1, 2], albeit only 2.6–7% of those affected will require treatment [3]. Most often, the pathophysiology of CNLDO involves an imperforate membrane at the distal end of the nasolacrimal duct, which is also referred to as the Hasner valve. Narrowing of the lacrimal drainage system and bone deformities, however, may be part of the pathophysiology in certain challenging instances [2]. Clinical signs and symptoms include crusting of the lashes, mucopurulent discharge, enlarged tear meniscus, and epiphora. The sensitivity and specificity of the fluorescein dye disappearance test are 100% and 85%, respectively, and it is employed to validate a CNLDO diagnosis. [1].

Membranous blockages that break with the probe may cause complete remission of symptoms. However, when the obstruction results from the inferior turbinate's bony protrusion into the nasolacrimal duct or when there is swelling in the duct. as a result of inflammation (dacryocystitis), probing might not be effective. Injuries to the nasolacrimal duct, canaliculi, and puncta, as well as the formation of a false channel, are possible side effects of probing [4].

For children younger than 36 months, probing can also be used as the main treatment; success rates range from 78 to 93%. The success rate is even lower for older kids. Failure rates of up to 28% have been reported in studies on older children, ages 25 to 60 months. Children between the ages of 49 and 60 months had a 43% frequency of complicated blockage, and only 33% of them responded well to probing [3]. Probing the nasolacrimal duct is often done on children older than one year. Research varies on the possibility that waiting to probe a child past the age of 13 months may lead to less success. When treating older children (those older than 18 months) with CNLDO, some ophthalmologists favor silicone intubation as the first surgical intervention [5].

Early on, probing appears to be more effective. However, late probing has demonstrated a notable 75–80% success rate in some cases. There is disagreement over the best time to probe. Delay in probing has been linked to lower cure rates, according to several additional investigations. According to Sturrock et al., 86% of patients who were probed before the age of one year were rectified, compared to 72% of patients who were probed between the ages of one and two years and 42% of patients who were examined after the age of two. In patients examined after the age of two, Young et al. reported a 54% cure rate [5].

Delaying probing beyond 13 months is associated with lower cure rates because of fibrosis caused by chronic inflammation in the lacrimal drainage system with ageing [6]. Our study's overall success rate of 78.75% is in line with earlier research. Patients were split into two groups: those who had not yet reached the age of one year and those who had. In children under one year old, the overall success rate was 85%. Similar results, 86% in children under one year old, were reported by Cassady. 94% of toddlers under 8 months old who were probed successfully, according to Havins and Wilkins [7].

3. CONCLUSION

Although probing has shown encouraging outcomes in the management of CNLDO, there is still disagreement on the best time to intervene. Even though probing has a much lower success rate in patients older than two years, probing should always be the initial intervention before thinking about more complicated interventions. Age does not affect the success rate of initial and repeated nasolacrimal duct probing, which has been demonstrated to be a safe and effective treatment option for the majority of patients. Additionally, probing has been shown to yield positive outcomes in children older than 12 months, making it a compelling second line strategy [7]. We argue that, in light of these findings, the first treatment of choice for kids with CNLDO should be probing.

Competing interests

The authors declare no competing interest.

Authors' contributions

Patient management: S, Data collection: MHB, Manuscript drafting: MHB, S. Manuscript revision: S. All authors approved final version of the manuscript.

List of figures

Figure 1: Inspection of both eyes showed watery and discharge in the right eye (A) and normal left eye (B)

Figure 2: In order to clear the blockage at the duct's lower end, nasolacrimal duct probing entails inserting a probe into the lacrimal sac and down through the duct.

Figure 3: One week follow up, Result of dye disappearance test (A) early, (B) no fluorescein in the conjunctival sac after 5 minutes.

Figure 3: One year follow up, (A) normal anterior segmen, (B) No residual fluorescein on the conjunctival sac after 5 minutes.

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