



Original Article

To Study the Outcome of Bowman's Probing for Congenital Nasolacrimal Duct Obstruction in Children under two years of Age

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Abstract

Aim- To determine the success rate of probing for congenital nasolacrimal duct obstruction in children under 2 years of age and to compare success rate of early and late probing in such children.

Material and Methods- The study was done in 55 children undergoing probing for congenital nasolacrimal duct obstruction. The children were divided in two groups. Group – I (6-12 months) and group- II (13-23 months). The procedure was performed with Bowman's probe under general anesthesia. Patients were seen in OPD at 1st day, 1st week, one month and 3rd month 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.

Results- The success rate in group I was 96.66% and 80% in group II. The overall success rate by single probing was 89.9%. The decrease in success rate after 13 months was statistically significant ($p < 0.001$)

Conclusions- Delay in initial probing beyond 13 months of age results in decreasing success as well as increasing complications of therapy.

Key Words –nasolacrimal duct obstruction, probing, general anesthesia, bowman's probe.

INTRODUCTION

Epiphora is defined as abnormal over flow of tears due to excessive secretions of tears or due to obstruction of the lacrimal passage. Congenital nasolacrimal duct obstruction is the commonest disorder leading to epiphora. It is usually due to failure of canalization of nasolacrimal duct at its lower end. Canalization of nasolacrimal duct usually takes place at the end of 6 months of intrauterine life, however, it may be delayed for several weeks or months after birth. The diagnosis

of congenital nasolacrimal duct obstruction can usually be made on the basis of a clear history given by the parents of a child having a watery /discharging eye from or within the first few weeks after birth. Some children develop mucopurulent discharge that may be constant or intermittent. Controversy exist regarding the natural course and proper management of congenital nasolacrimal duct obstruction. some advice waiting until it is evident that problem will not resolve spontaneously. Before going for

probing. standard surgical procedure for these children with persistent obstruction is probing of lacrimal system under general anesthesia. timing of probing has long been a controversial topic. probing has been advocated at presentation or after a short period of conservative treatment irrespective of the age of the child. It has been reported that delay in probing after 1 year is associated with lower rate of success and this worsens with age. The purpose of this study is to know the outcome of bowman's probing for congenital c in children under 2 years of age and to compare success rate of early and late probing in children under 2 years.

MATERIAL AND METHODS

The study was conducted on 55 patients with congenital epiphora attending the OPD of the upgraded department of ophthalmology of tertiary care centre in jammu. The patients age under 2 years of age of either sex, not responding to conservative line of management, willing to do surgery under general anesthesia, patients with no previous history of probing, trauma, punctual agenesis and associated ocular diseases were included in the study. The patient with previous history of probing, patients with lid mal-position, acute dacrocystitis and incomplete follow up, patients with ocular disorders such as congenital glaucoma, neonatal conjunctivitis, corneal abrasion and keratitis were excluded from the study. The children were divided into two groups, Group I(6-12 mnths) and Group II(13 -23 mnths). The initial examination included looking for the lacrimal puncta, assessing lid and facial anomalies, rule out conjunctivitis, allergic inflammation and other causes of epiphora in children. The diagnosis of congenital nasolacrimal duct obstruction was based on history of epiphora or discharge beginning during 1st few wks of life, recurrent mucopurulent discharge and on clinical examination reflux of contents of lacrimal sac on pressure. The procedure was performed under general anesthesia, Probing was done by bowman's probe through lower puncta in all

cases. The probe was introduced into the canaliculus until medial wall of the lacrimal fossa was felt, at this point the probe was turned and introduced into the nasolacrimal duct and gently advanced into the obstruction. The breaking of the membrane was felt as the probe advanced into the obstruction. Each patient received tobramycin eyedrops, 3 times daily for 3 wks .Patients were seen the OPD at day 1, 1st wk,1st month and at 3rd month 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.

RESULTS

Total of 55 childrens under 2 years of age with occlusion of the nasolacrimal duct were treated by probing. Of 55 cases, 30 were aged 6-12 mnths (Group-I) and 25 cases were aged 13-23 mnths (Group-II). Overall success rate for cure by single probing was 89.09%). Out of 30 cases in Group I (6-12mnths), 29 were cured by single probing achieving a cure rate of 96.66% . In Group II(13-23 months), out of 25 cases, 20 were cured by single probing decreasing the success rate to 80%.The decrease in success rate after 13 months was statistically significant ($p<0.001$) by chi-square analysis. In Group I, there were 14 females and 16 males. In Group II, there were 10 females and 15 males. Total number of females were 24 (43.63%) and males were 31 (56.36%).

DISCUSSION

The study was undertaken in upgraded department of ophthalmology of tertiary care centre in jammu. Aim was to study outcome of Bowman's probing for congenital nasolacrimal duct obstruction in children under 2 years of age and to compare success rate of early and late probing in congenital nasolacrimal duct obstruction in children under 2 years of age. Total of 55 children under 2 years of age with nasolacrimal duct obstruction were treated by single probing under general anesthesia.

Out of 55 children were cured by single probing with overall success rate 89.09%. the present study is comparable to study conducted by Robb who reported a success rate of 90%. Stager recorded overall success rate of cure by initial probing as 92% and Basar in 2005 reported a cure rate of 75% with initial office probing and irrigation.

The result of the present study revealed a significant trend of decreasing success with increasing age. from 6-12 months the cure rate was 96.66% and from 13-23 months the cure rate was 80%. This was comparable to studies conducted by Robb who reported a high success rate in a small number of patients undergoing probing under general anesthesia. in his studies success rate dropped from 100% (prior to 6 months of age) to 84 % (after 24 months of age) and Katowitz and Welsh noted a greater than 98 % success rate with probing prior to 6 months of age, decreasing to 96% between 6 and 13 months of age and then dropped significantly to 77% or below after 13 months of age. Similarly, Stager et al. reported that a 94% cure rate was achieved in patients less than 9 months old but in patients 9 months of age and older, the success rate decreased to 84% with one office probing under topical anesthesia. Kashkouli et al. in 2003 found an overall cure rate of 89% and 88.6% in patients aged 13 to 18 months and 19 to 24 months, respectively.

In present study, the decrease in success rate after 1 months was statistically significant ($p < 0.001$ by chi square analysis). This was comparable to studies reported by Katowitz and Welsh, that increasing age at the time of initial probing was associated to a very significant degree with a decreased cure rate ($p < 0.0001$ by chi square analysis). Similarly Stager et al reported that decrease in success rate after 6 months was statistically significant ($p < 0.001$ by chi square analysis) and Mannor et al. stated that success of nasolacrimal duct probing was negatively correlated with increasing patient age at the time of probing ; 92%,89%,80%,71% and 42% at the age 12,24,36,48, and 60 months respectively.

In present study, overall 59 eyes (90.76 %) were cured by single probing. In Group I, 35 eyes (97.22%) and in Group II, 24 eyes (82.75%) were cured. This percentage was comparable to study done by Katowitz and Welsh. According to them in the group under 13 months, 277 eyes were probed and 96.4% were cured with initial probing. In the group over 13 months of age, 168 eyes were probed and only 94 (55.9%) responded to initial probing. In another study, Baker reported 860 eyes of children aged 3 to 14 months of age were probed in office without general anesthesia and 94% were cured with initial probing. Similarly Kushner reported 148 eyes at an average of 8 months. Of these 148 eyes, 132 (89%) were relieved of the symptoms by one probing.

In the present study, there were 31 males and 24 females. Out of these 27 males (87.09%) and 22 females (91.6%) were cured by single probing. It was not statistically significant ($p < 0.5$ by chi square analysis). This was comparable to study conducted by Mannor et al. showing that gender (female vs male) did not correlate with probing outcome.

In present study, a Bowman's probe was used in all cases. Bowman's probe of appropriate size was used in all cases keeping in view the diameter of the horizontal canaliculus (0.5). Many authors recommend using a specific size of Bowman's probe. Guerry and Kendig used number 1 and Jones and Wobig recommend number 0 or number 1 probe. None of these authors discusses the fact that there is no standardization among the instrument manufacturers with respect to sizes of Bowman's probe.

In this prospective study, all probing was performed under general anesthesia, because it reduces the potential for trauma to delicate structures of the lacrimal drainage system and soothed the apprehension of the child and his or her parents. Some authors also recommended that probing procedure should be done under general anesthesia as it is a safe and viable option as a primary surgical modality in the treatment of children. Koke reported that probing is not an

office procedure and that general anesthesia is essential. Hanovar and associates did all probing procedure under general anesthesia in their studies. Similarly, Mac Ewen performed probing in children under general anesthesia so that the procedure could be controlled and attention paid to the site and the nature of the obstruction. El-Mansoury recommended probing after 13 months of age under general anesthesia.

Some authors prefer topical anesthesia for probing in children. Stager et al. believed that probing under topical anesthesia was probably less psychologically traumatic to infants than general anesthesia which involved blood drawing, restraining the child while holding the anesthesia mask and finally disorientation and separation anxiety in the recovery room. Basar et al. also preferred topical anesthesia for probing in children.

In the present study, the outcome of probing at one week postoperative follow-up was highly correlated with the final result at 3 month follow-up. The cure rate was same for 1 month and 3 months follow ups. Hence, it seems that the early results could represent the final results in probing for congenital nasolacrimal duct obstruction.

Kushner found the same outcome in 21 Of 23 patients at 6 week and 1 year follow-up. Kashkouli et al. found the same outcome at 1 week, 1 month and 3 months follow up.

No specific causes for initial failure in 6 patients were recorded. Complications such as creating a false passage, cellulitis and mild bleeding from the punctum have not been seen in the patients.

CONCLUSION

Delay in initial probing beyond 13 months of age results in decreasing success as well as increasing complications of therapy To achieve better results initial probing should be performed prior to 13 months of age under general anesthesia.

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