

Long term results after probing for congenital nasolacrimal duct obstruction

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Abstract

The long term results of probing for congenital nasolacrimal duct obstruction were reviewed using a parental questionnaire issued to both treated and age-matched control groups. On follow up 4-13 years after probing in childhood 30% of patients still had symptoms of epiphora or discharge. Surprisingly, a similar high symptom rate was found in the controls, such that there was no statistically significant difference in the rate of symptoms between the two groups. Probing had therefore apparently reduced the symptom rate to a level close to normal for the age group concerned. All studies on the incidence of congenital nasolacrimal duct obstruction must be interpreted with reference to the known high rate of spontaneous resolution as a clear trend has been demonstrated towards a lower incidence of symptoms the longer the follow up after probing. This finding would support a policy of delay before further intervention in patients with mild residual symptoms after a technically successful probing.

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Epiphora in infancy is most commonly the result of a failure of canalisation of the distal end of the nasolacrimal duct.¹⁻³ Congenital nasolacrimal duct obstruction results in watering and/or sticky eyes which can be distressing to both child and parent. The standard management is probing of the duct, and many studies report a high success rate using this form of treatment.⁴⁻⁷ While generally a straightforward procedure complications have been reported including secondary stenosis.^{8,9}

The timing and requirement for such probing has been challenged by emerging evidence of a high rate of spontaneous resolution during the first year of life¹⁰⁻¹³ and perhaps later.¹⁴⁻¹⁵ Little attention has been paid to the longer term results in patients discharged after probing for congenital nasolacrimal duct obstruction. In this study the persistence of symptoms in a treated population is compared with that of an age-matched control group. The association of these symptoms with colds and allergies was examined and an attempt was made to ascertain the extent and severity of the symptoms in the two groups by asking if treatment was being actively sought.

Method

Examination of the theatre record books identified 168 children who underwent probing of the nasolacrimal duct for watering and/or sticky eye between 1979 and 1988. The age of the patient at the time of probing was noted.

Only children who were being probed for the first time as a treatment for congenital nasolacrimal duct obstruction and were less than 10 years of age at the time of probing were included. Children undergoing both unilateral and bilateral probings were studied; no attempt was made during analysis to differentiate between the former and the latter.

Of the 168 children included only 156 could be located via the medical records database. A questionnaire was sent to the parents of each child inquiring about such symptoms as watering and/or sticky eyes either now or in the past. We asked if anything was associated with the symptoms such as colds or allergies. The parents were also asked if they were actively seeking treatment if their child was still symptomatic.

The form of the questionnaire was a simple tick box type and a prepaid envelope was enclosed.

A questionnaire format was used for this study rather than recall and examination of the patient for two reasons. Firstly, from previous experience we are aware that parents are unwilling to bring back their asymptomatic children for research studies and a low attendance rate would have been unreliable because of potential bias towards symptomatic attenders; secondly, in this condition it is the parents' response to questioning that frequently determines treatment even if there are no clinical signs at the time of examination.

The names of 168 children who underwent a squint operation during 1979-88 were selected to act as a control population. Selection was made by identifying the next child in the theatre book, after the probed child's name, who had undergone a squint operation and who was under the age of 10 years. Questionnaires were sent to the parents of the 163 children who could be located by the medical records database.

Two mailings were required to achieve the following reply rates - probing: 156 questionnaires sent, 122 replies (78.2%) (female: male 57:65); controls: 163 questionnaires sent, 115 replies (70.5%) (female: male 61:54). The average age of the children who had undergone probing was 9.9 years at the time of the questionnaire compared with 10.3 years for the control children ($p=0.3$) (Fig 1).

Statistical analysis was carried out using χ^2 and Student's *t* tests.

Results

Thirty seven (30%) of the probed children and 30 (26%) of the control children had symptoms of watering and/or discharge at the time of answering the questionnaire ($p=0.47$). A further 12 (10%) of the probed children had suffered

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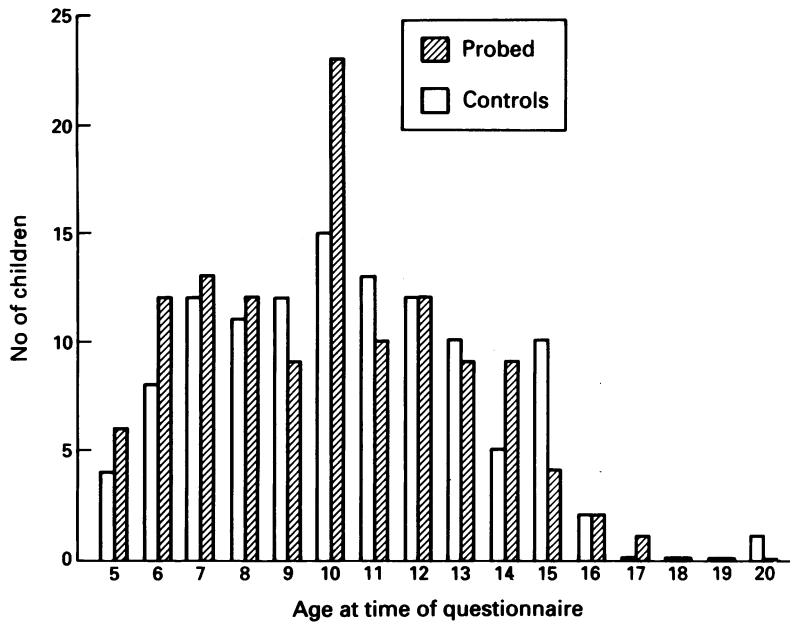


Figure 1 Age distribution of subjects in control and probed populations.

from watering and/or sticky eye(s) at some time since undergoing probing, but this had now resolved. This compared with nine (8%) of the control group who had previously been symptomatic ($p=0.567$).

Of those children who were still symptomatic 29 (97%) of the control group and 35 (95%) of the probed group felt that their symptoms were aggravated or initiated by colds, allergy, or windy weather. In nine (25%) of the currently symptomatic probed group and five (15%) of the symptomatic control group, the children's parents felt that their symptoms were sufficiently problematic to be seeking further treatment.

The effect of age at the time of first probing was

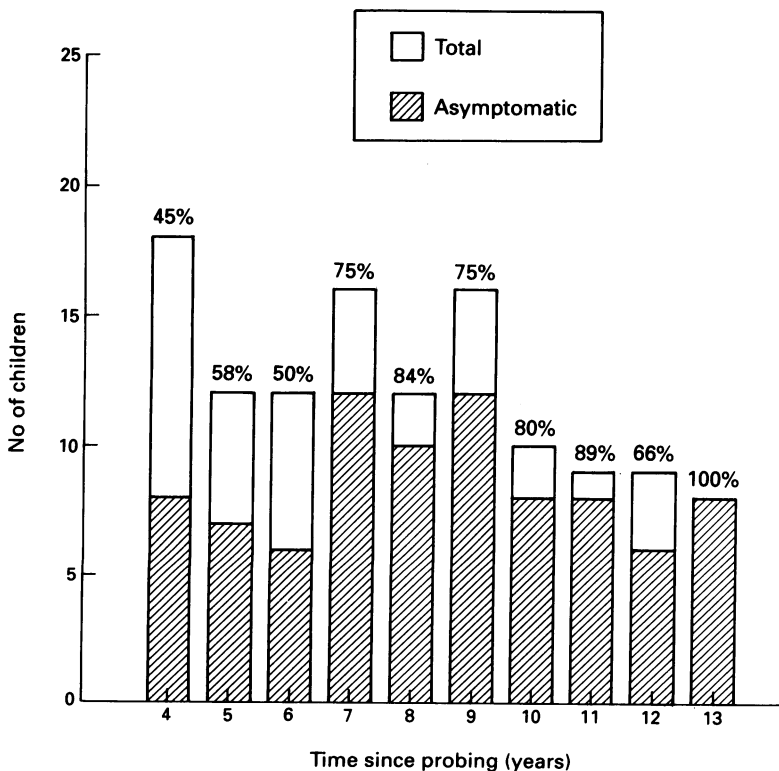


Figure 3 Improvement in symptom incidence according to time since probing. The numbers shown at the top of each column indicate the percentage cured at each age.

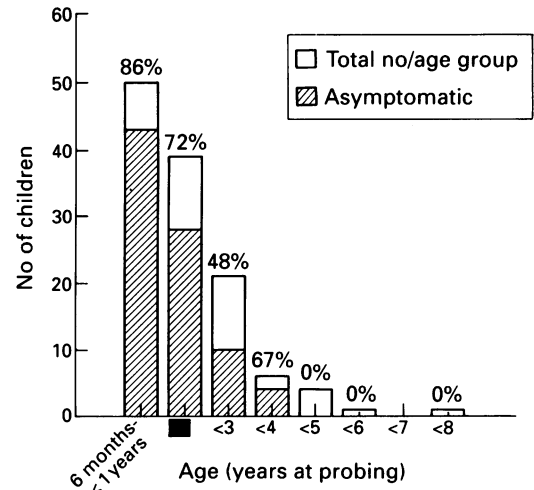


Figure 2 Cure rates according to the age at probing.

examined and the results are shown in Figure 2. Eighty six per cent (43/50) of those children probed under 1 year of age (6–12 months) were asymptomatic compared with 72% (28/39) of those children probed between 1 and 2 years ($p=0.1$).

Forty two per cent (14/33) of those probed after the age of 2 years were asymptomatic (compared with those probed under 1 year, $p<0.001$ and compared with those probed between 1 and 2 years, $p=0.01$).

The effect of the time since probing on the number of children with watering and/or sticky eyes is shown in Figure 3. Four years after probing 45% were asymptomatic and there was a clear trend to fewer symptoms with increasing time from probing.

Discussion

The main aim of our study was to examine the long term success rate of probing for congenital nasolacrimal duct obstruction. We found that 4–13 years after probing in childhood 30% of patients still had symptoms of epiphora or discharge. To our surprise there was a similar high incidence of symptoms in the controls (26%), resulting in no statistically significant difference between the treated and control groups.

The medical records of the control group were reviewed to confirm they had never attended with symptoms suggestive of nasolacrimal duct obstruction. All members of the control group had undergone strabismus surgery but we are not aware of any common link between this and lacrimal problems. It is therefore our contention that the control group is an appropriate one and that it reflects a surprisingly high incidence of epiphora and discharge in children in the general population.

There were other similarities between our two groups. In almost all of the symptomatic children in both groups the symptoms were considered to be associated with or aggravated by upper respiratory tract infection, allergy, or windy weather. Finally, of those who still had symptoms, 25% of the probed group and 15% of the control group were considered by the parents to have a problem sufficient to merit seeking medical advice. It therefore appears that in the children studied,

probing reduced the incidence of watering and discharge to a level close to normal for the age group. No adverse late effects of probing were identified.

The high symptom rates reported are in response to direct questioning about the presence of symptoms of watering and discharge and are not a reflection of the parents' perception of the existence of a clinical problem that required treatment. The clinical significance is that under normal circumstances only parents of the probing group would have been asked these questions. If they confirm symptoms then the clinician may decide to repeat the probing but our study suggests that for many children this may be inappropriate. There should be objective evidence of lacrimal outflow obstruction such as the fluorescein disappearance test.

The children in this study were not examined as we were not conducting a study to determine the cause or diagnosis of epiphora but to identify the frequency of the symptom. A clinically important observation is the clear trend to reduction in symptoms in the treated group with time since probing (Fig 3). This may be the result of facial growth during development resulting in an increase in the diameter of the lacrimal passages and consequent fall in flow resistance. Whatever the cause, this trend to continuing spontaneous improvement after probing justifies a delay before further intervention for mild residual symptoms.

Our study also supports the apparent benefit of early probing reported by others.¹⁶ We found an 86% cure rate in those probed at less than 12 months falling to only 42% when probing was

carried out after the age of 2 years. However, recalling the high rate of spontaneous resolution, these results must be interpreted with caution. Those patients who are still symptomatic at an older age may be more likely to have severe obstruction or a more complex anomaly, and therefore a higher failure rate.

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