

INTRODUCTION

Nasolacrimal duct obstructions (NLDO) are a common anatomic abnormality seen by pediatricians and pediatric ophthalmologists in routine practice. Infants with congenital NLDO often present with excessive tearing or discharge that can predispose them for local infections, such as conjunctivitis. While approximately 90% of cases of congenital NLDO spontaneously resolve by 1 year of age, the remaining 10% require surgical intervention. Common surgical procedures include simple blunt metal probing, silicone stent placement (monocanalicular or bicanalicular), and balloon catheter dilation.¹⁻² At Children’s Mercy Hospital, the initial treatment for persistent NLDO typically involves monocanalicular silicone stent placement. Failure of treatment by means of recurrence of symptoms is typically managed by repeat stenting or balloon catheter dilation. The objective of this study was to determine the treatment failure rate of primary monocanalicular silicone stent placement and to identify characteristics that may affect outcomes.

RESULTS

A retrospective chart review was conducted on all patients treated for congenital NLDO by means of probe with primary monocanalicular stent placement from January 1, 2011 through December 31, 2014. A total of 255 patients were eligible for the study after 214 charts were excluded based on prior procedures or no follow-up exam following placement of the stent. As some patients had bilateral NLDOs, 346 treated eyes were reviewed. For each eye, data was recorded regarding failure (need for reoperation), primary age, gender, laterality, stent location, surgeon, stent duration, premature extrusion, time to failure, and last encounter age.

RESULTS

Out of 254 unique patients, 50.8% (n=129) were male and 49.2% (n=125) were female. The mean age of all patients was 16.9 months (sd 6.6). Regarding laterality, 46.8% (n=162) of stents were placed in the left eye and 53.2% (n=184) were placed in the right eye. Regarding location of stent placement, 46.2% (n=162) were placed in the lower punctum, 43.6% (n=151) in the upper punctum, and 10.1% (n=35) had probing of the lower punctum and stenting of the upper punctum. 28.6% (n=99) of all stents had premature extrusion and were not present at the follow-up office visit. The mean stent time was 19.3 weeks (sd = 12.8).

Variable	p-value
Primary age	0.0397
Stent location	0.3358
Premature extrusion	0.3839
Surgeon	0.3027
Stent time	0.9633

Figure 1. A comparison of measures including primary age, stent location, premature extrusion, surgeon, and stent time between success and failure groups.

Out of 346 eyes, 89.9% (n=311) of the surgeries were successes and 10.1% (n=35) were failures. The mean age of successes was 16.7 months (sd 6.3), while the mean age of failures was 20.0 months (sd 7.1). In the success group, 87.5% of stents placed in the lower punctum were successes, and 93.4% of stents placed in the upper punctum were successes. 85.7% of those with both probing of the lower punctum and stenting of the upper punctum were successes. Stenting without premature extrusion had a success rate of 91.1%, while stenting with premature extrusion had a success rate of 86.9%.

CONCLUSION

Increased age of presentation is associated with a significantly increased risk of failure of primary monocanalicular stent placement. There is no significant difference in success rate based on gender, laterality, or stent location. There is no significant difference in success rate based on premature extrusion of stent. While different surgeons have varying success rates, there is no significant difference in success rate based on method. No significant difference in success rate is noted based on stent duration time. These success rates of monocanalicular stent replacement are consistent with those reported in current literature.¹⁻³ Up to this point, the literature has not reported success rates based on stent location or premature extrusion.⁴⁻⁵ Further research with larger sample sizes must be done to compare success rates of the various surgical procedures as well as the success rates in secondary treatments following failed primary stenting.

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