

Management of nasolacrimal duct obstruction in children: How is it changing?

Nasolacrimal duct obstruction (NLDO) in children is congenital in most cases. Noncanalization of the inferior caudal end of the duct is the most common cause. Spontaneous resolution of the obstruction occurs in 96% of affected children in the first year in the natural course and conservative management is the mainstay.^[1] Traditional treatment is a hydrostatic massage of the sac. Although there are proponents of early probing, most surgeons prefer to delay their intervention to the age of about one year. Success rates for primary probing are up to 97% during the first year.^[2] Good success rates have been reported in older children as well (88% at age 12–101 months, mean 33 months).^[3] Factors implicated in failure of probing include improper technique, late age of probing, anatomical variations (complex NLDO), inferior turbinate hypertrophy/impaction, or associated nasal pathology.^[4]

Endoscopic visualization and endoscopy-assisted probing have added a new dimension to the procedure and helped in achieving better success rates (94%–97%), especially in complex NLDO, failed probing, and associated nasal pathology. Endoscopy during probing helps identify and sometimes successfully manage variations such as submucosal entry, elastic membrane at the Hasner's valve, tight inferior turbinate and hard stop due to bony obstruction at the end of NLDO.^[5] Techniques that are especially helpful in complex or failed cases include repeat probing, endoscopic-assisted probing, balloon catheter dilation, silicon intubation, and inferior turbinate infraction. Balloon catheter dilation allows greater dilation of the duct and is less invasive than intubation. However, the success rates limited to 82% in primary cases and 77% in failed cases,^[3] and the high cost of the procedure are dampeners. Success rates for silicon intubation in congenital NLDO at 95% for <12 months, 92% for 12–24 months, 84% for 24–45 months, and 84% for failed cases are encouraging.^[6] It serves as a useful tool in complex NLDO and previous failed probing. Inferior turbinate infraction is an extremely useful tool as it allows for creation of space for canalization of the NLDO and better endoscopic visualization. I have had extremely gratifying results with the procedure in cases of failed probing.

Dacryocystorhinostomy (DCR) for NLDO in children is reserved for cases which fail to resolve with repeated probing or any of the above procedures. Most surgeons prefer to wait till the child reaches an age of 3 years before embarking on a DCR to avoid compromising on the bony growth. The procedure may be carried out as external DCR (EXT DCR) which is the “gold standard” procedure or endonasally. The endonasal procedure has been traditionally carried out with an endoscope. The endoscopic endonasal approach has been shown to have high success rate.^[7] Furthermore, a nonendoscopic endonasal approach which retains the benefits of the endonasal approach without some of its disadvantages has been used by some surgeons.

This issue carries a study by Botha *et al.*,^[8] which compares the results of nonendoscopic nasal (NEN DCR) approach to DCR with the gold standard technique of EXT DCR. The study is important as it is a relatively large series (79 eyes over a 4-year period) and presents the results of nonendoscopic nasal approach in children which have not been reported earlier. The nonendoscopic approach has the advantage of obviating the need for expensive instrumentation and has a less steep learning curve. The study provides important information even though the groups are not strictly comparable and there are a large number of variables affecting the outcome. The study shows that the success rates (median follow-up 16 months) with primary NEN DCR were lower (75%) as compared to EXT DCR (100%) (median follow-up at 12 months). The causes of failure were granuloma formation at the ostium (most common), small ostium, mucosal flap obstruction or canalicular obstruction. The failures were seen even though the intraoperative use of anti-metabolites (MMC 0.04% for 3 min) was more common in the NEN DCR group (56.45%) than in the EXT DCR group (10%). The authors attribute the larger failure rate to healing by secondary intention as no flaps are created in the technique. The authors could achieve a successful outcome in all their failed cases through a second intervention. The authors have advocated modification of their surgical technique to fashion and retain a nasal mucosal flap to approximate the large lacrimal sac flap. The study shows that NEN DCR technique, though has its advantages of avoidance of an external scar, is time saving (37 min vs. 47 min for EXT DCR) and has a fair success rate, falls short of the gold standard EXT DCR technique in results.

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The management of congenital NLDO is evolving. Nasal endoscopic-assisted probing of lacrimal passages is helping gain better understanding and management of the condition and its variations. Techniques for management of primary cases as well as failed probing have improved and successful outcomes can be ensured in more cases than ever before.

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