

## Pediatric dacryocystorhinostomy

Pediatric dacryocystorhinostomy (DCR) by any route poses unique set of challenges owing to the anatomical factors and healing-related issues.<sup>[1-4]</sup> Narrower nasal cavities warrants the use of pediatric instruments, and the presence of a lower skull base and the desired boundaries of a bony osteotomy justifies extra care during surgery. Deviated nasal septum in pediatric patients usually does not pose a major challenge in endonasal DCRs, and septoplasty is preferably avoided to prevent disturbances to growing zones. However, there are exceptional situations such as posttrauma or certain syndromic congenital nasolacrimal duct obstructions (CNLDOs), where a limited septoplasty may be needed, and this entails strict following of certain guidelines by the surgeons.<sup>[5,6]</sup> Achieving a good hemostasis in narrower nasal cavities has a bearing on intraoperative comfort and uneventful surgery; however, judicious use of decongestants in consultation with the anesthetist is needed. In addition, an option of a total intravenous anesthesia may be explored as used in adult DCRs and pediatric sinus surgeries.<sup>[7,8]</sup> The success rates of pediatric external DCR range from 89% to 97.5%, while that of pediatric endoscopic DCR ranges from 58% to 100%.<sup>[1-5]</sup>

Although pediatric DCRs for acquired nasolacrimal duct obstructions are reported to have similar outcomes as compared to patients with persistent CNLDO, this may not be entirely true for syndromic CNLDO.<sup>[4,5,9]</sup> Similarly, although some studies have reported no difference in the outcomes of external DCR between adults and pediatric ages this may not be entirely reflective of the pediatric populations as a whole.<sup>[3]</sup> However, different pediatric age groups do not appear to be a major prognostic factor for the outcomes as demonstrated in the current study as well as others.

The use of adjunctive measures such as mitomycin C (MMC) and intubation is controversial with strong arguments on both sides of the divide. However, recent meta-analysis and systematic reviews have shown beneficial effects of MMC on ostium patency and outcomes in both primary and revision DCRs, and there is no reason to believe why this cannot be extrapolated to pediatric populations.<sup>[10,11]</sup> The intubation dilemma is also unresolved, but recent meta-analysis did not demonstrate an additional advantage with silicone intubation.<sup>[12,13]</sup> However, if used, there is mounting evidence to suggest that the duration of 4 weeks should be adequate.<sup>[14,15]</sup> There are also no guidelines for an acceptable follow-up in DCR, but the overall literature seems to suggest it at 6 months following surgery.

The role of postoperative systemic antibiotics is also a matter of debate. The current study used it only in cases of acute dacryocystitis, and this may be justified in view of recent evidence from general surgery, intraoperative bacteremia during DCR, and global issue of antibiotic resistance.<sup>[16,17]</sup> However, this call should be best left to the surgeon's discretion.

Complications of endoscopic DCR have been reported in up to 8.6% of the patients and include hemorrhage, granulomas, emphysema, sinusitis, and rare complications such as orbital intracranial traumas.<sup>[1-5]</sup> Causes of failures are mostly related

to aggressive healing responses resulting in cicatricial closures of ostia and granuloma formation.<sup>[1-5]</sup> The measures to be taken to achieve successful outcomes in pediatric DCRs include adequately sized and positioned osteotomy, full-length sac marsupialization, and a 360° mucosa to mucosa approximation to facilitate healing by primary intention.<sup>[7]</sup> Primary intention healing would itself ensure minimal postoperative occurrences of ostial granulomas. Good postoperative endoscopy would help in identifying, classifying, and managing them according to published protocols.<sup>[18]</sup>

The author would advise the readers to embark on to pediatric DCR under expert guidance, once they have gained confidence and reasonable experience in adult surgeries. The outcomes of pediatric DCR by external or endoscopic approaches are excellent and that of nonendoscopic endonasal approach is encouraging. However, comparison of approaches in pediatric DCRs in light of the current literature would not be very fruitful in view of limited case series with low sample sizes and numerous confounding factors that may influence the outcomes.

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### Conflicts of interest

There are no conflicts of interest.

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