



## Editorial

# Very early endoscopic DCR in acute suppurative dacryocystitis perspective

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### ARTICLE INFO

#### Article history:

Received 26-08-2022

Accepted 06-09-2022

Available online 06-10-2022

### ABSTRACT

Acute dacryocystitis is not uncommon in oculo-facial and general ophthalmology clinics admissions. It happens with sudden inflammation of lacrimal sac that frequently occurs in the setting of pre-existing nasolacrimal duct obstruction. Long standing tear flow stasis results in change of bacterial flora and bacterial over-growth in the lacrimal sac as a reservoir of stagnant tear.<sup>1,2</sup> However, acute dacryocystitis can be associated with dacryoliths or indefinite pre-existing anatomic nasolacrimal duct obstruction.

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## 1. Introduction

Typically acute dacryocystitis is associated with pain, tenderness, erythema, bulging in medial canthal area. Most patients have pre-existing epiphora.<sup>3,4</sup>

Traditionally, acute dacryocystitis is managed by systemic antibiotics, trans-cutaneous drainage of abscess, if exists, and late dacryocystorhinostomy (DCR). Recent studies showed an increased success and safety of endoscopic DCR in the acute inflammatory stage.<sup>3,5–8</sup> However, nomenclature, exact time frame and optimal surgical technique are still elusive in early endoscopic DCR. In this article, we will provide a comprehensive perspective and try to answer the challenges.

## 2. Why Shifting to Early Lacrimal Drainage Surgery?

Acute dacryocystitis with extension to peri-orbital and orbital region carries the risk of crucial complications including orbital cellulitis, orbital abscess, central retinal artery occlusion, blindness, extra-ocular dysmotility, superior ophthalmic vein thrombosis and intracranial extension of the infectious process.<sup>4,9–13</sup>

Earlier resolution of infection in medial canthal and orbital region, may decrease the probability of major infection-related complications.<sup>3,4,14</sup>

Lacrimal drainage obstruction can be bypassed through nasal cavity without passing through inflamed and congested tissue of the medial canthal complex, thus potentially decreasing bleeding, fistula and scar formation.<sup>4,14–16</sup>

Finally, earlier resolution of infection and restoration of lacrimal drainage in an earlier stage may accelerate resolution of inflammation,<sup>3,4,14</sup> reducing the probability and duration of hospital admission, duration of antibiotic therapy and consequently adverse drug related events.<sup>17</sup>

## 3. Evidence Supporting the Shift to Early Endo-Nasal Endoscopic DCR

### 3.1. Surgical success

Endonasal endoscopic surgery was popularized in late 90s and early 2010<sup>th</sup> using laser assisted surgery resulted in success rate of 67%-83%.<sup>11–14</sup> Success rate after refining of the endonasal endoscopic systems, techniques using cold steel instruments instead of laser, was 82%-94%.<sup>3,4,7,15</sup>

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Pakdel et al. reported similar success rate for very early endoscopic DCR compared to late external DCR.<sup>4</sup> Yu and colleagues, in a randomized clinical trial on patients with acute dacryocystitis that underwent endoscopic DCR, found a higher anatomical success rate in patients operated within 2 days compared to those that operated within 3-5 days with earlier resolution of infection and no added complication.<sup>18</sup>

#### 4. Time Frame for Early Endoscopic Surgery

There is a wide time-lapse in studies on early endoscopic DCR in patients with acute dacryocystitis, from 2 to 21 days. It sounds rational that an earlier surgical intervention as soon as patients status and operation facilities allow, could result in faster recovery. Wu et al., Li et al., Naik et al. studied endoscopic DCR patients with acute dacryocystitis with a wide time frame of 5 to 21 days and named it as early intervention.<sup>3,16,19–21</sup> Pakdel et al. showed significant reduction in inflammation in patients when operated within three days. Thus, named this treatment approach as very early endoscopic DCR (VE-EnDCR).<sup>4</sup> Yu et al. in a randomized clinical trial compared urgent (operated within 2 days) to early (operated 3-5 days) endoscopic DCR in patients with acute dacryocystitis.<sup>18</sup>

#### 5. Safety

Increased intra-operative bleeding has been argued as a complication of endoscopic DCR on inflamed lacrimal sac. Bleeding has not been regarded as an obstacle for successful endoscopic surgery in acute dacryocystitis. In my experience, I have noticed trivial difference in bleeding in the acutely inflamed compared to non-inflamed conditions, although this was not remarkable or necessitating unusual techniques. Pakdel and associates in a case control study, found that the average duration of inflammatory signs in patients that underwent very early endoscopic DCR (VE-EDCR) and those that underwent late external DCR (L-ExDCR) were 8.00 (SD = 4.63) and 16.11 (SD = 11.58) days, respectively ( $p = 0.027$ ).<sup>4</sup> This was in concert with results of other studies.<sup>3,18</sup> One study on patients with acute dacryocystitis and abscess, showed lower pain and faster resolution of pain in those that underwent early endoscopic DCR compared to those that underwent percutaneous abscess drainage.<sup>20</sup>

#### 6. Patient Selection

Based on the current evidence, I may recommend very early endonasal endoscopic DCR to all patients with acute dacryocystitis and primary nasolacrimal duct obstruction (PANDO).

However evidence is scant on early endoscopic DCR in patients with acute suppurative dacryocystitis with secondary nasolacrimal duct obstruction such as traumatic, granulomatous, previously failed DCR, those with

complicated infection including orbital cellulitis, orbital abscess and also those patient with immunodeficiency status.

Deductively, very early DCR is advantageous in patients with immunocompromised state such as those with diabetes mellitus, cancers or on treatment with immunosuppressive agents. It is plausible to consider very early endoscopic DCR in those patients with extended or complicated cellulitis including: facial cellulitis, orbital cellulitis, orbital abscess, superior ophthalmic vein thrombosis, cavernous sinus thrombosis and intracranial extension of infection. We found that patients with past complex naso-orbital fractures may have higher failure rate than those with PANDO.<sup>4</sup>

#### 7. Conclusion

In conclusion, very early endoscopic DCR can be considered for patients with acute suppurative dacryocystitis secondary to primary nasolacrimal duct obstruction.

#### 8. Conflict of Interest

None.

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**Cite this article:** Pakdel F. Very early endoscopic DCR in acute suppurative dacryocystitis perspective. *Indian J Clin Exp Ophthalmol* 2022;8(3):317-319.