Dacryocystitis

Disclaimer

SEE ALSO: preseptal cellulitis; orbital cellulitis

DESCRIPTION – Dacryocystitis is inflammation of the lacrimal sac most commonly due to nasolacrimal duct (NLD) obstruction leading to stasis of tears and secondary infection.

BACKGROUND:

- Most frequently presents as an acquired condition in adulthood
- Congenital nasolacrimal duct obstruction is common in infants (up to 20% of infants at birth), but dacryocystitis is extremely rare in this group. Neonates with a “dacryocystocele” (a cystic expansion of the lacrimal sac) more often develop dacryocystitis, but the condition is very rare.
- Risk factors for acquired dacryocystitis include: increasing age, female gender, trauma, dacryolith, tumour, inflammation (e.g. granuloma)

HOW TO ASSESS:

Red Flags:

- Rule out preseptal, orbital and facial cellulitis as a complication of dacryocystitis or as a differential diagnosis (rarely, dacryocystitis may be complicated by orbital cellulitis)
- Dacryocystitis in infancy is a serious disease. If not treated promptly, can result in orbital cellulitis, brain abscess, meningitis, sepsis and death

On History:

- Acute dacryocystitis
  - Acute onset of pain, redness and swelling overlying the lacrimal sac
  - Rule out symptoms suggestive of more serious complications such as orbital cellulitis (orbital pain, diplopia, decreased vision)
- Chronic dacryocystitis
  - Characterised by recurring episodes of epiphora or mucopurulent discharge, often but not always associated with a non-tender mass in the medial lower eyelid
  - Acute dacryocystitis may be superimposed on chronic dacryocystitis
On Examination:

- Complete orbit and eye examination (both anterior and posterior)
  - Red, tender, tense mass below the medial canthal tendon.
  - Lacrimal sac abscess with fistula may be present.
  - Digital pressure over the lacrimal sac may express mucopurulent material from punctum.
  - Rule out orbital involvement: conjunctival swelling (chemosis), reduced visual acuity, relative afferent pupillary defect, pain on ocular movement, diplopia. Check for optic disc swelling on dilated exam.
  - NOTE: do not probe or irrigate lacrimal system during acute infection.
- Ophthalmic examination should be normal in uncomplicated dacryocystitis.

Differential diagnosis:

- Preseptal/orbital cellulitis
- Dacryocystocele
- Acute ethmoid sinusitis
- Infected sebaceous or epidermoid cysts
- Lacrimal sac tumour (swelling more often above medical canthal tendon), sinus or nasal cavity tumour

On Investigation:

- Diagnosis is clinical in most cases
- Swab punctal discharge and send for microscopy/culture/sensitivity
  - Clean area prior to expressing discharge from sac to obtain swab to avoid excess skin flora which is non-diagnostic
- Consider CT orbits and paranasal sinuses in atypical cases or if not responding to appropriate antibiotics

Management:

- Warm compresses, massage of lacrimal sac to encourage drainage of purulent material through puncta
- Chloramphenicol eye drops 4 times a day for 5 days if conjunctiva inflamed
- MILD: afebrile, systemically well
  - ANTIBIOTICS
    - Adults
      - Flucloxacillin 500-1000mg po (orally) 6 hourly for 5 days OR
      - Amoxicillin/Clavulanic acid-(875mg/125mg) (Augmentin Duo forte), 1 tablet 12 hourly for 5 days
    - Children
      - Flucloxacillin 12.5 mg/kg (max 500mg) po 6 hourly for 5 days OR
      - Amoxicillin/Clavulanic acid (400mg/57mg per 5mL), 22.5mg/kg of amoxicillin component (= 0.3mL/kg) 12 hourly for 5 days
  - FOLLOW UP: Acute ophthalmology clinic (AOS) 3-5 days
• MODERATE: Significant clinical signs, afebrile, systemically well)
  o Admit children
  o ANTIBIOTICS
    ▪ Adults
      • Ceftriaxone: consider single IV dose 1 gram, then oral antibiotics as above.
    ▪ Children
      • Flucloxacillin 50 mg/kg (max 2g) intravenously (IV) 6 hourly for 5 days
  o FOLLOW UP: Adult: AOS 24-48 hours

• MODERATE-SEVERE: febrile, acutely ill
  o Admit and discuss with Infectious Disease team from St Vincent’s Hospital
  o ANTIBIOTICS
    ▪ Adult
      • Ceftriaxone 1-2 gram IV daily or in equally divided doses 12 hourly AND
      • Flucloxacillin 2 gram IV, 6 hourly
    ▪ Children
      • Ceftriaxone 50 mg/kg/dose (max 2g) IV 12 hourly AND
      • Flucloxacillin 50 mg/kg (max 2g) IV 6 hourly

• NOTE
  o Antibiotic selection must be modified based on results of culture and sensitivity
  o For patients hypersensitive to penicillins consider infectious disease input - in particular for moderate to severe disease
  o For patients hypersensitive to penicillins (excluding immediate hypersensitivity) use:
    • Adults: Cephalexin 500-1000 mg po 6 hourly, paediatric dose: 12.5 mg/kg (max 500 mg) 6 hourly for 5 days. If severe, ceftriaxone 1-2 gram IV daily or in equally divided doses 12 hourly for 5 days.
  o For patients with immediate hypersensitive to penicillins use:
    • Adults: Clindamycin: 450 mg po 8 hourly for 5 days. Paediatric dose: 10 mg/kg (max 450 mg) po 8 hourly (equal bioavailability IV or oral) for 5 days.
    • If severe disease, Clindamycin 600mg IV 8 hourly for 5 days.
  o Continue IV antibiotics for 3 days before changing to oral if improving.

• IF NOT IMPROVING
  o Discuss with St Vincent’s Hospital Infectious Disease team
  o CT scan to evaluate for orbital cellulitis
  o Infectious disease consult: consider adding metronidazole to cover anaerobic infection, in particular if over 9 years of age.
    ▪ Adult: Metronidazole 400 mg po 8 hourly for 5 days (if severe 500mg IV 8 hourly)
    ▪ Children (>1 month old): 7.5 mg/kg po 8 hourly for 5 days (if severe IV)
Surgical Management

- Incision and drainage of abscess if pointing, or patient in severe pain, with oculoplastic clinic (OPAL) input
- Drainage of abscess can be performed under local or general anaesthesia (with OPAL input)
- OPAL referral for:
  - Dacrocystorhinostomy (DCR) after acute episode resolves, in particular with chronic dacrocystitis
    - CHILDREN:
      - If child less than 2 years old, nasolacrimal duct (NLD) probe within 1 week of resolution of acute dacrocystitis to minimise/prevent recurrence
      - If child over 2 years old, macrodacryocystogram, and possible NLD probing with stent/ balloon dilatation/dacrocystorhinostomy (DCR). Simple probe in this group has a high failure rate.

Authors:
Chinh Nguyen, Kristen Wells, Shivanand Sheth and CPG Working Party

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The Hierarchy of Evidence

The Hierarchy of evidence is based on summaries from the National Health and Medical Research Council (2009), the Oxford Centre for Evidence-based Medicine Levels of Evidence (2011) and Melynk and Fineout-Overholt (2011).

I  Evidence obtained from a systematic review of all relevant randomised control trials.

II Evidence obtained from at least one well designed randomised control trial.

III Evidence obtained from well-designed controlled trials without randomisation.

IV Evidence obtained from well designed cohort studies, case control studies, interrupted time series with a control group, historically controlled studies, interrupted time series without a control group or with case series.

V Evidence obtained from systematic reviews of descriptive and qualitative studies.

VI Evidence obtained from single descriptive and qualitative studies.

VII Expert opinion from clinician, authorities and/or reports of expert committees or based on physiology.
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