

Orbital Decompression by Emergency Canthotomy and Cantholysis

Know clinical features on History and Exam

History:

- *Symptoms* — pain, decreased vision, inability to open the eyelids due to severe swelling.
- *Cause* — history of trauma or surgery to the eye or orbit, or retrobulbar injection.
- *Risk factors* for spontaneous hemorrhage — bleeding disorder, anticoagulants and anti-platelet drugs, pregnancy.

Examination:

- *Visual acuity and visual fields* — decreased with dyschromatopsia (signs of [optic neuropathy](#))
- *External exam* — Proptosis with resistance to retropulsion, diffuse subconjunctival hemorrhage, tight eyelids (rock hard) with echymosis and chemosis.
- *Extraocular eye movements* — limited extraocular motility
- *Pupils* — RAPD.
- *Tonometry* — increased intraocular pressure (IOP)
- *Funduscopy* — [papilloedema](#) from compressive optic neuropathy may be present, retinal artery or vein occlusion.

What Investigations are required?

Retrobulbar haemorrhage with acute orbital compartment syndrome is primarily a **clinical diagnosis**.

CT orbit (axial and coronal views) can confirm the diagnosis — but if vision is threatened treat first!
Usual findings on CT:

- diffuse, increased reticular pattern of the intraconal orbital fat rather than a discrete hematoma.
- **teardrop or tenting sign** is ominous — it occurs when the optic nerve is at maximum stretch and distorts the back of the globe into a teardrop shape.

Indications and contraindications of lateral canthotomy

McInnes and Howes suggest the **DIP-A CONE-G** mnemonic for remembering the indications and contra-indications for this procedure:

- *Primary indications:*
 - Decreased visual acuity
 - Intraocular pressure > 40 mm Hg
 - Proptosis
- *Secondary indications:*
 - Afferent pupillary defect
 - Cherry red macula
 - Ophthalmoplegia
 - Nerve head pallor
 - Eye pain

- *Contraindications:*
 - Globe rupture

How to perform the procedure

The main steps in emergency canthotomy/ cantholysis are:

- use local anesthetic but warn the patient that they may feel pain
- Perform the **canthotomy**:
 - place the scissors across the lateral canthus and incise the canthus full thickness
- Perform **cantholysis**:
 - Grasp the lateral lower eyelid with toothed forceps
 - Pull the lower eyelid anteriorly
 - Point the scissors toward the patient's nose, place the blades either side of the lateral canthal tendon, and cut.

Cantholysis is done more by feel than by visual identification of landmarks — the lower eyelid will come completely away from the globe once the tendon has been completely severed.