Orbital Complications in Endoscopic Sinus Surgery Using Powered Instrumentation

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Objective

- Powered dissection in FESS
- Special danger near the orbit
- Suggest technique to minimize the damage
- Retrospective, case series
- 3 p’ts medial rectus injuries
Case 1

- 72 y/o woman, revision, left-side frontal recess exploration and ethmoidectomies
- Diplopia, after awake
- Exotropia, decrease motility medially and laterally
- CT: bony defect at right lamina papyracea, and discontinuity of medial rectus muscle
Case 1

• Endoscopic, 1 wk later: lamina defect with orbital fat visible
• Orbital exploration: 2 bony frag in lamina defect
• The medial rectus was disinserted from the globe
• 1cm of the muscle is missing
• Medial rectus repaired
• Diplopia and eye mobility limitation persisted
Case 2

- 38 y/o man, nasal polypectomy
- Immediate diplopia after surgery and periorbital hemorrhage
- CT 10 dayse later: defect of right side Lamina papyracea and 7mm missing in medial rectus
- No clear hematoma
- 5 weeks later: diplopia, limited adduction of right eye
- 6 weeks later: spontaneous improvement
- Obtain single vision by turning his head left
Case 3

- 50 y/o man, septoplasty and polypectomy
- Brisk bleeding from left ethmoid and left globe became hard and bulging
- Retrobulbar hemorrhage
- Immediate: lateral canthotomy
- 15 min: inferior cantholysis
- In recovery room: no vision, and tense eye
  Tonometry 52 mmHg
- Inferior cantholysis extended and transorbital decompression
- Recovery room: no light perception, periorbital tissue are bruised and swollen, limited adduction of left eye
Case 3

- CT: left-side lamina injury and discontinuity of left-side medial rectus muscle. Optic nerve intact but swollen.
- Diagnosis of intraorbital edema and hemorrhage
- Tx: 250mg Solu-Medrol q6h for 3 days, Diamox eyedrops and mannitol IV
- 9th POP: no vision, limited adduction
Discussion

• FESS complication: 0.5% or less
• Discuss potential orbital injury pre op
• Power instrument: suction component may lead to major orbital injury
• Power instrument: increase the damage on orbital fat after removal of lamina
• No immediate stop
Discussion

- Case 1: small area in frontal recess and visual difficulty; bleeding and revision surgery may worsen.
- Case 2 and 3: polypectomy: hard to distinguish polypoid mucosa, periorbia, and orbital fat
- Medial rectus injury form powered dissection is seldom surgically repairable
- Case 3: compressive optic neuropathy due to hemorrhage
- Ant. Ethmoidal artery injury or venous ooze
Discussion

- Orbital hemorrhage: consult ophthalmologist for estimate the proptosis measure intraocular pressure (should be below 30mmHg) and funduscop
- Fundus exam: compress the eye, see the flash
- Pressure above the systolic pressure may cause no flashing
- Over hours: sherry red spot of macula or whitish edema
- Permanent damage in 90 min
Discussion

• If flashing can be produced, no treatment
• If > 40mmHg, canthotomy with upper and lower cantholysis, freeing the limbs of the lateral canthal tendon
• FESS surgeon need to know canthotomy
• Tx: steroid, topical Beta-blocker, mannitol (not much help)
• Near the lamina, place the opening 90 degree to the lamina papyracea and dissecting superiorly or inferiorly
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