Avoiding Complications During Endoscopic Sinus Surgery

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Outline

- Case-based approach
  - Learn more from 1 complication than from 100 uncomplicated cases
  - Identify practices and techniques to minimize the risks of endoscopic sinus surgery

Complications of Endoscopic Sinus Surgery

- Minor
  - Bleeding, infection, fat exposure/periorbital emphysema, synechiae

- Intermediate
  - Bleeding, epiphora, mucocele, post-obstructive sinusitis

- Major
  - Bleeding, CSF leak, intracranial injury, injury of the orbital contents

Case #1
Case #1

- 34 y/o woman with right-sided nasal congestion and drainage
- Temporary improvement with antibiotics

Operative Report

- Unilateral maxillary antrostomy and anterior ethmoidectomy
- Microdebrider used for uncinctomy
- Unusual finding of “fat” in the maxillary sinus
Case Analysis

- Selection of instruments
- Failure to recognize fat as orbital contents
- Preoperative assessment of risk

Orbital Injuries

- Study preoperative imaging
- Perform “mental surgery” on the CT scan
Avoiding Orbital Injuries

Orbital Injuries
- Identify medial orbital wall during surgery
  - Maxillary antrostomy
  - Intraoperative palpation of the orbit
  - Caution with the microdebrider

Case #2
Case #2

- 46 y/o woman with a right ethmoid mass
Case#2

Carotid Aneurysm

- Review of preoperative imaging
  - Emphasis on diagnosis which would change your management
  - Follow the course of surrounding critical structures
  - Beware of carotid dehiscence

Carotid Aneurysm
Case #3

- 49 y/o woman with recurrent sinonasal polyposis

- Revision surgery
- Large septal perforation
- Polyps emanating from middle turbinate remnants bilaterally
Intraoperative CSF Leak

- Most common serious complication of sinus surgery
- Prevention
  - Preop CT Analysis
  - Control of Intraoperative Bleeding

Risk Factors
- Middle Turbinate Resection
- Position of Skull Base (Keros Classification)
- Mis-identification of the Sphenoid
- Sclerotic Bone Near Skull Base (Revision Surgery)
- Excessive Intraoperative Bleeding

Case #4
- Defect repaired with mucosal overlay graft
- 48 hour hospital stay no recurrence of leak at 1 year
Intraoperative CSF Leak

- Early Recognition
- Consider Intracranial Injury
- Consider Neurosurgical Consult
- Multilayer repair vs. overlay graft alone
  - Size of defect
  - Condition of surrounding tissue

Case #4

Skull Base Injury
Case #4

- Bilateral Endoscopic sinus surgery
- Intaoperatively polyps, bloody field
- Sphenoid sinus opened widely
  - Particularly bloody with abnormal tissue
- Completion of case ethmoid roof dehiscence/CSF leak noted

CT Scan

CT Scan
ER

- Neurosurgery Consult
- Angiography
  - A2 pseudoaneurysm, unable to treat via endovascular approach
- Neuro ICU
- Craniotomy with pseudoaneurysm repair

Lessons

- Be conservative in a bloody field ... especially with debrider!
- Identify and enlarge the natural ostium of the sphenoid
- Angle counts when approaching the sphenoid

THE END