



Skull Base Injury



Skull Base Injury

➤ Incidence

- ✓ Should be <1% risk of CSF leak for ESS

➤ Treatment

- ✓ If during surgery, immediate repair with mucosal graft with/without bone graft



Skull Base Injury

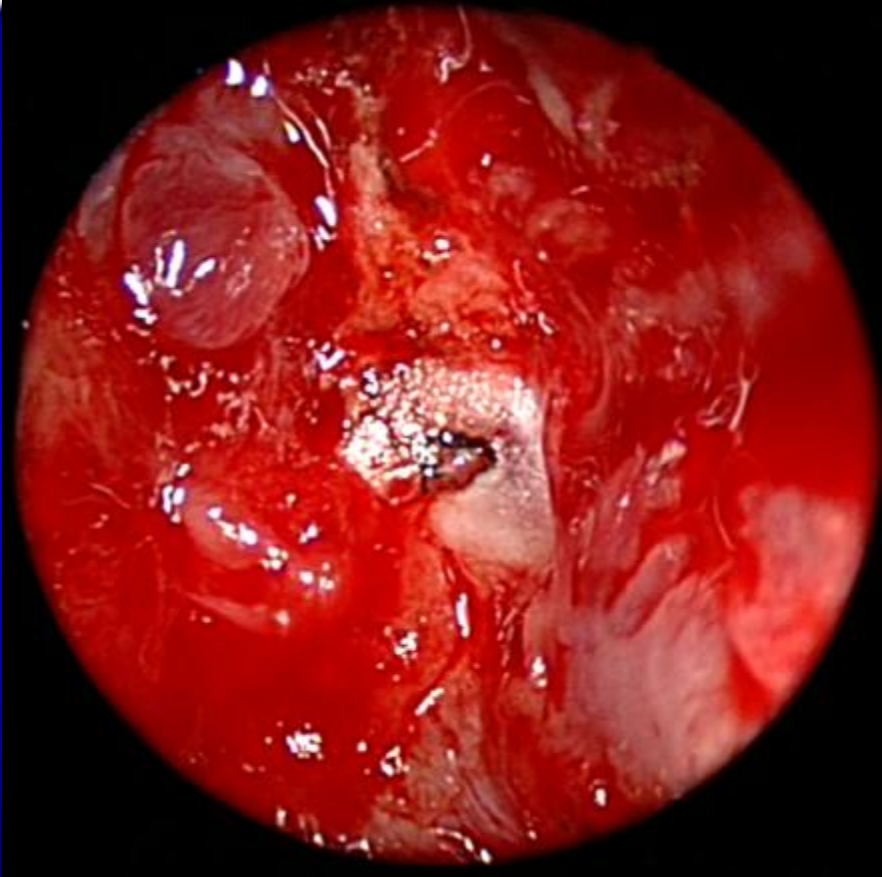
- **Danger Areas**
 - ✓ Lateral lamella of the cribriform plate
 - ❖ Middle turbinate attachment
 - ✓ Posterior ethmoid roof
 - ❖ Entering sphenoid too high
 - ✓ Frontal recess
 - ❖ Too posterior when entering frontal sinus







Recognition of Skull Base Injury

- Washout sign (clean area in a blood-stained field)
- Bone violation
- Excessive bleeding at skull base





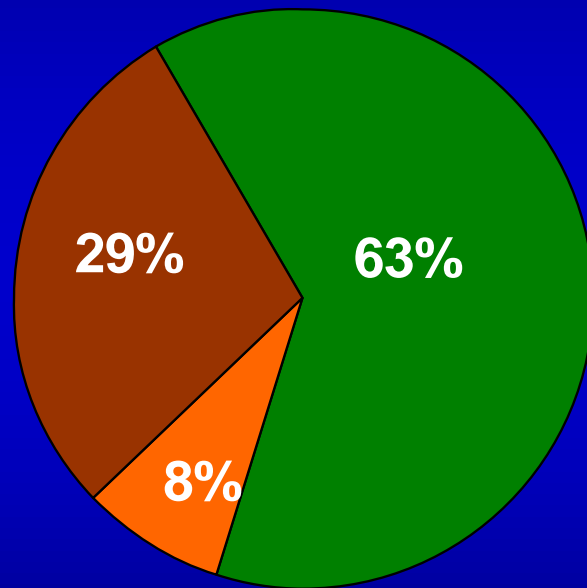
Preoperative disease severity at sites of
subsequent skull base defects after
endoscopic sinus surgery.
Amer J Rhinol 2008;22:321-24.

John M. DelGaudio, MD
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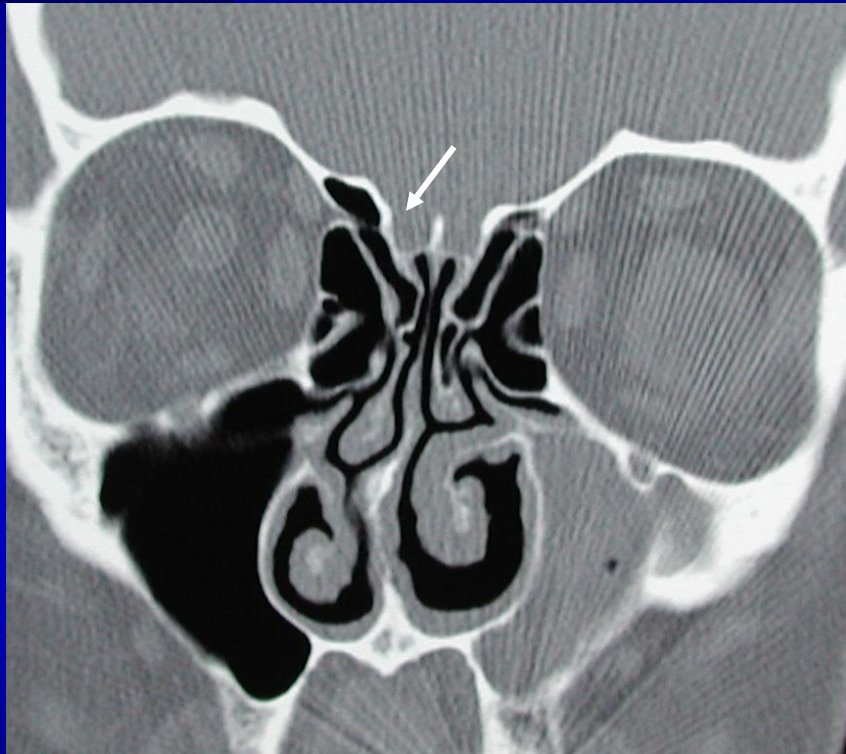
Amount of Disease at Subsequent Skull Base Defect Site



- No Disease
- Minimal Disease
- Complete Opacification



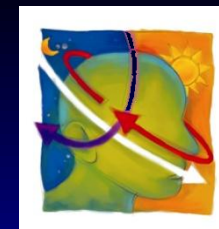
Case 1



Baseline



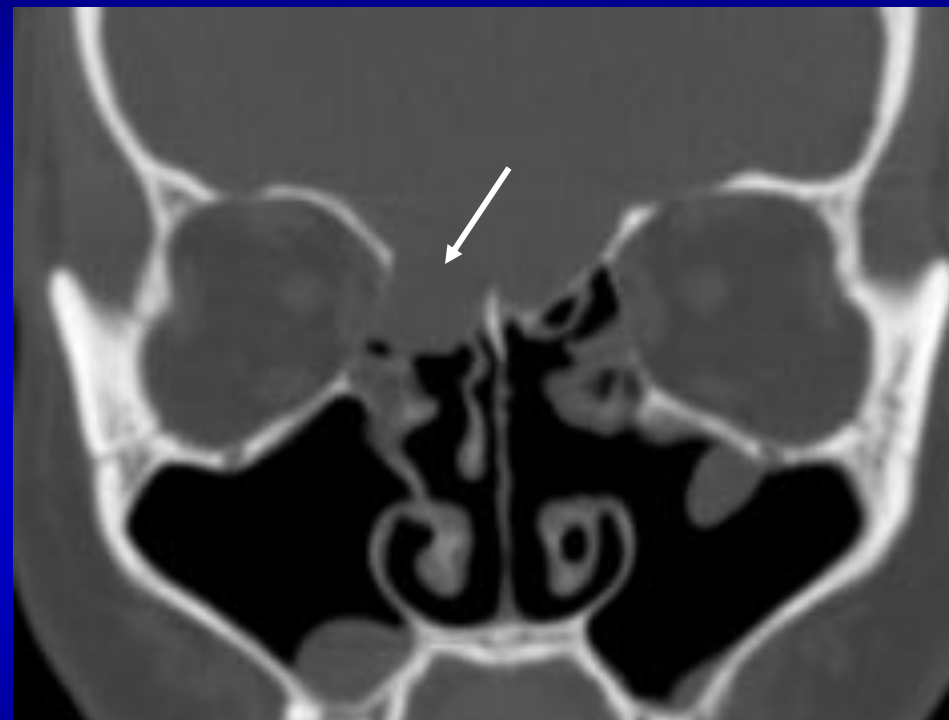
Pre-repair



Case 2



Baseline



Pre-repair



Risk of SB Injury

Thickness of non-diseased tissue

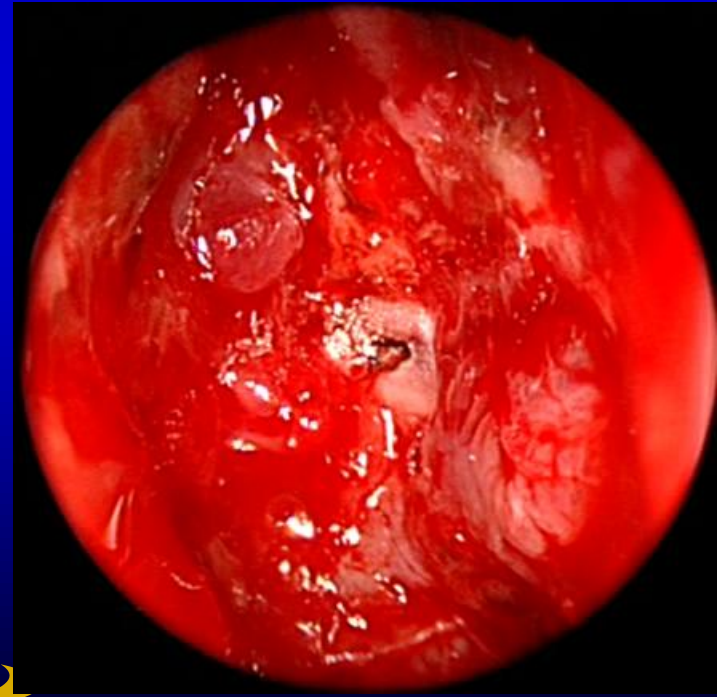
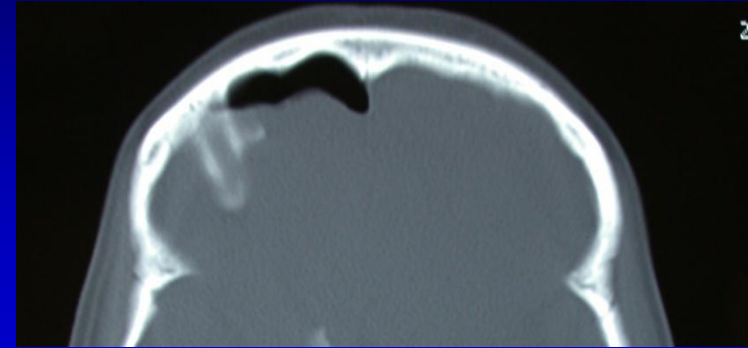
- Minimal mucosal disease
 - ✓ Thin mucosa
 - ✓ Strips more easily
 - ❖ Possibly exposing skull base

- Thin, non-osteitic bone
 - ✓ More easily damaged
 - ✓ Provides less resistance to manipulation
 - ✓ More transparent
 - ❖ Mistaken for another ethmoid cell



Pneumocephalus

- Presents postoperatively after a forceful activity
 - ✓ Sneeze, cough, strain, vomit
- Headache
- Mental status change



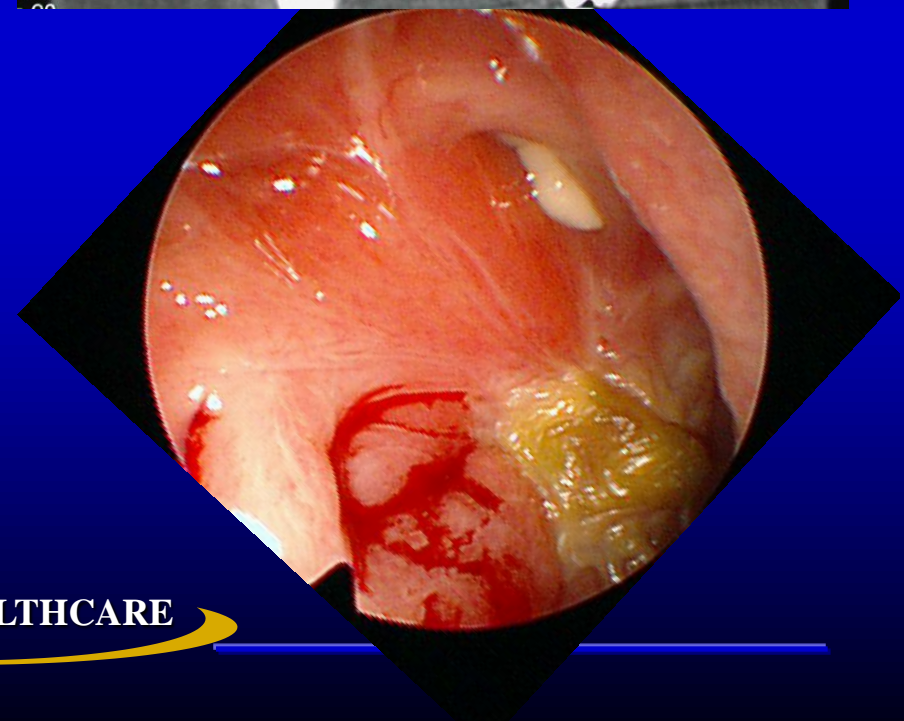
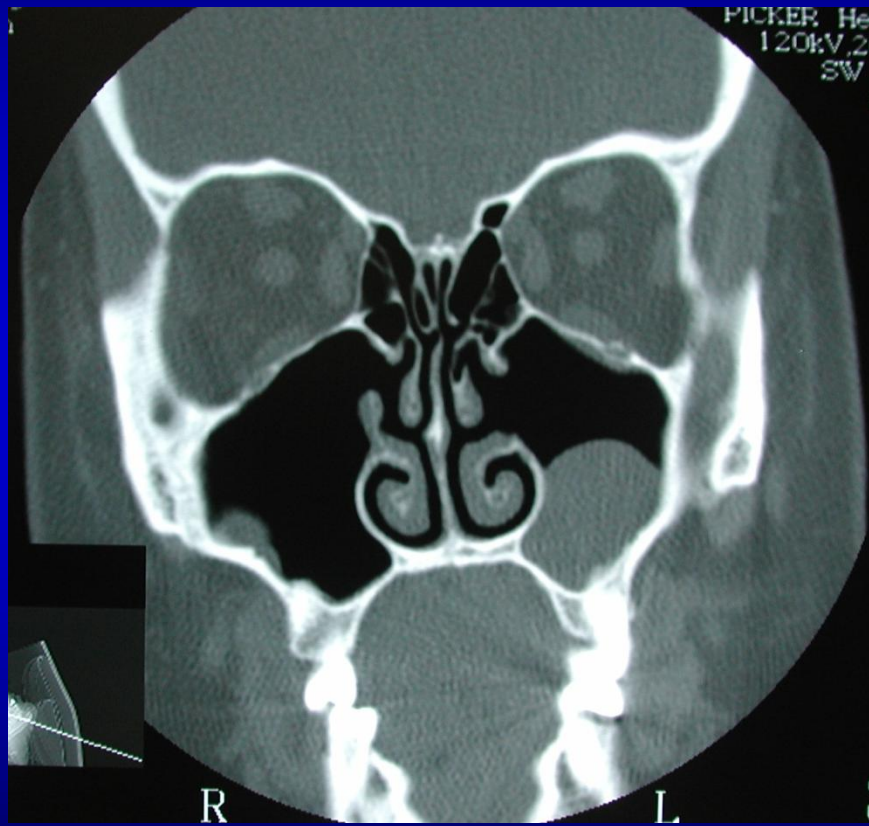


Preventable Complications
Poor Judgement or Technique



Complications

Poor patient and procedure choice

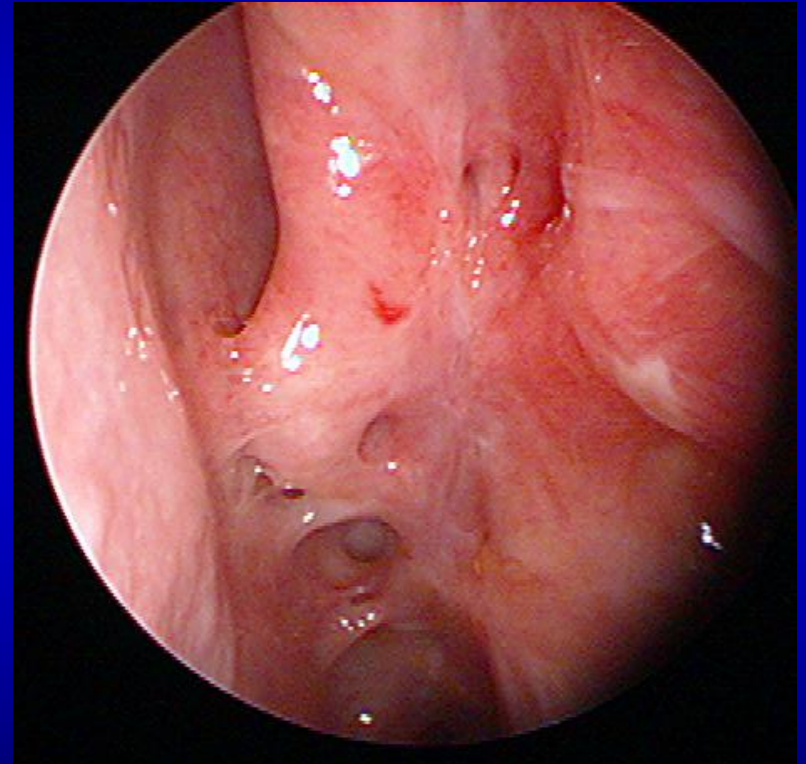




Complications

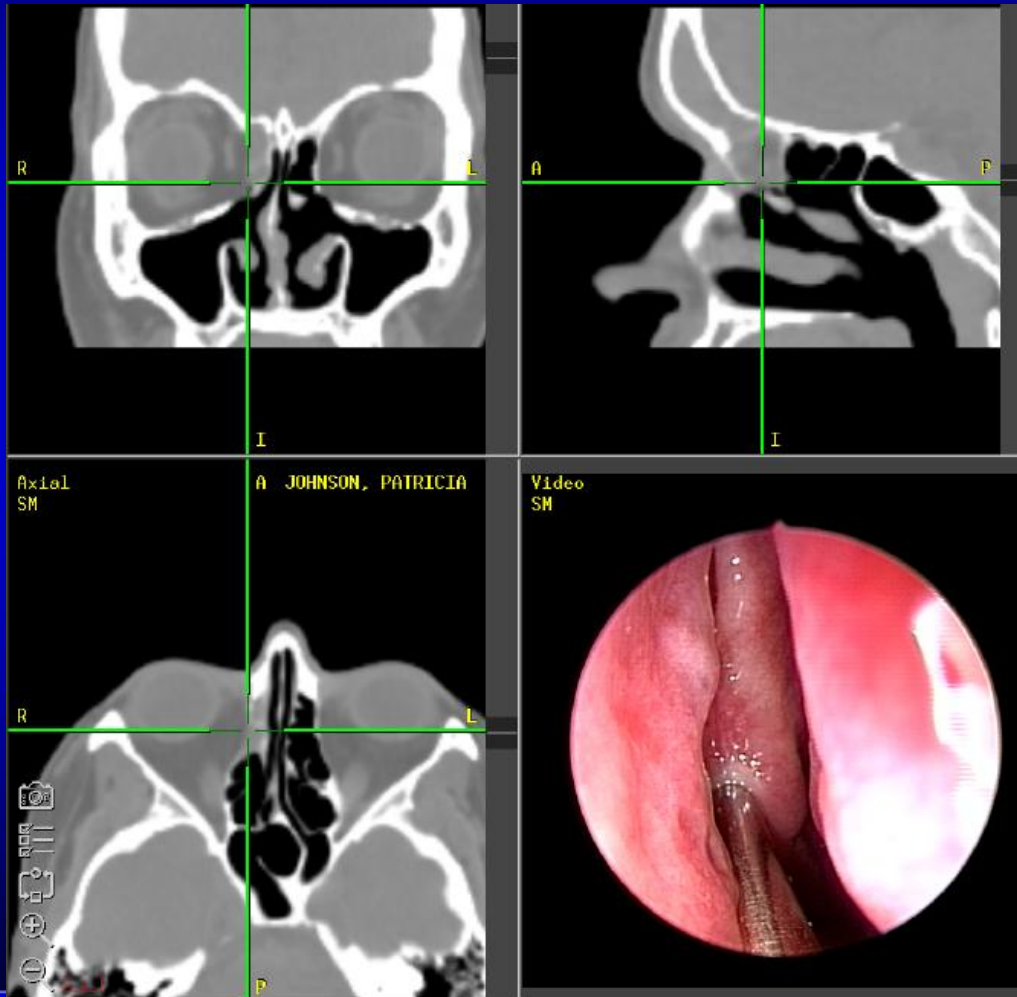
Synechia

- Result of:
 - ✓ Mucosal trauma
 - ✓ Middle turbinate destabilization
 - ✓ Inadequate access
- Solution:
 - ✓ Atraumatic technique
 - ✓ Mucosal preservation
 - ✓ Middle turbinate medialization





Frontal Mucocele from Middle Turbinate Lateralization





Conclusions

- Complications happen
- Surgeon needs to be able to:
 - ✓ Avoid
 - ✓ Recognize
 - ✓ Treat to resolve or minimize morbidity



THANK YOU

EMORY HEALTHCARE