



Reasons for Failure and Surgical Revisions

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- **DISCLAIMER**
- No medications available that have an FDA indication for CRS
- All medications and any medical management described in this lecture are **OFF LABEL**

- Why do primary sinus surgeries fail?

Patient characteristics (n=43)
King, et al - Laryngoscope 1994

Prior Surgery

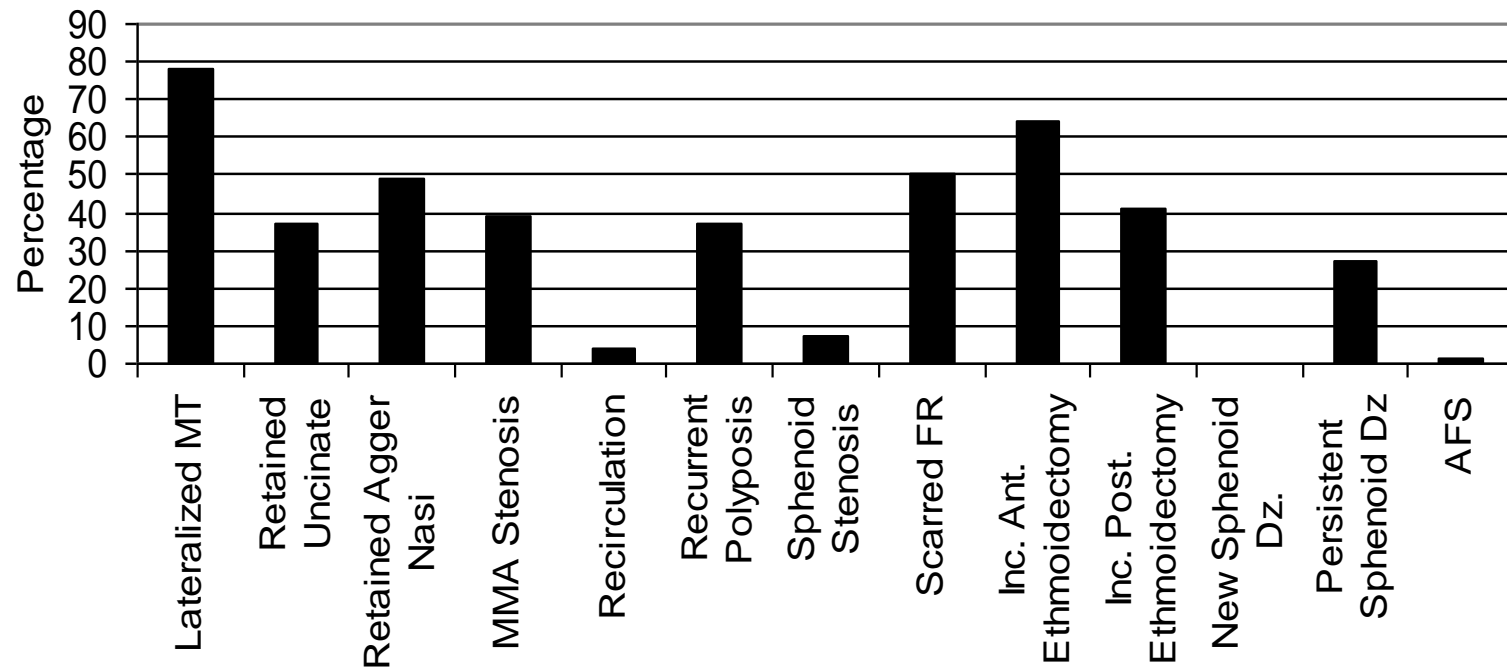
Non-FESS	33 (76.7%)
FESS	10 (23.3%)
Immune status	4 (9.3%)
Fungal sinusitis	4 (9.3%)
Asthma	14 (32.6%)
Oral steroid use	15 (34.9%)
Polyps	19 (44.2%)
Sphenoid sinus dz	22 (51.2%)

Causes of sinus surg failure

Vaughn, ARS COSM 2000

Remnant ethmoid cells	73.3%
Max mucous recirculation	41.7%
Lat middle turb	33.3%
Frontal sinusitis	23.3%
Undiagnosed fungal dz	23.3%
Sphenoid sinusitis	18.3%
Polyp recurrence	10%
Remnant Onodi cell	6.7%
Remnant Haller cell	1.7%

Findings in Revision FESS

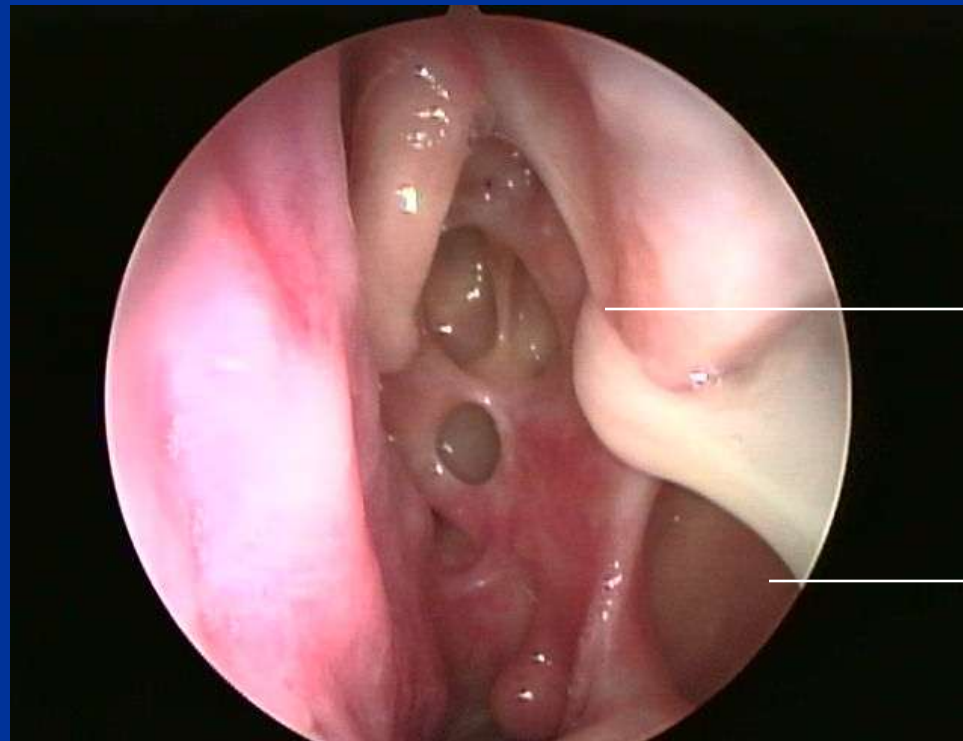


Musy PY, Kountakis SE. Anatomic findings in patients undergoing revision endoscopic sinus surgery. *Am J Otolaryngol* 2004;25(6):418-422

Uncinectomy - Necessary



Complete uncinectomy to avoid recirculation



Natural
ostium

Antrostomy



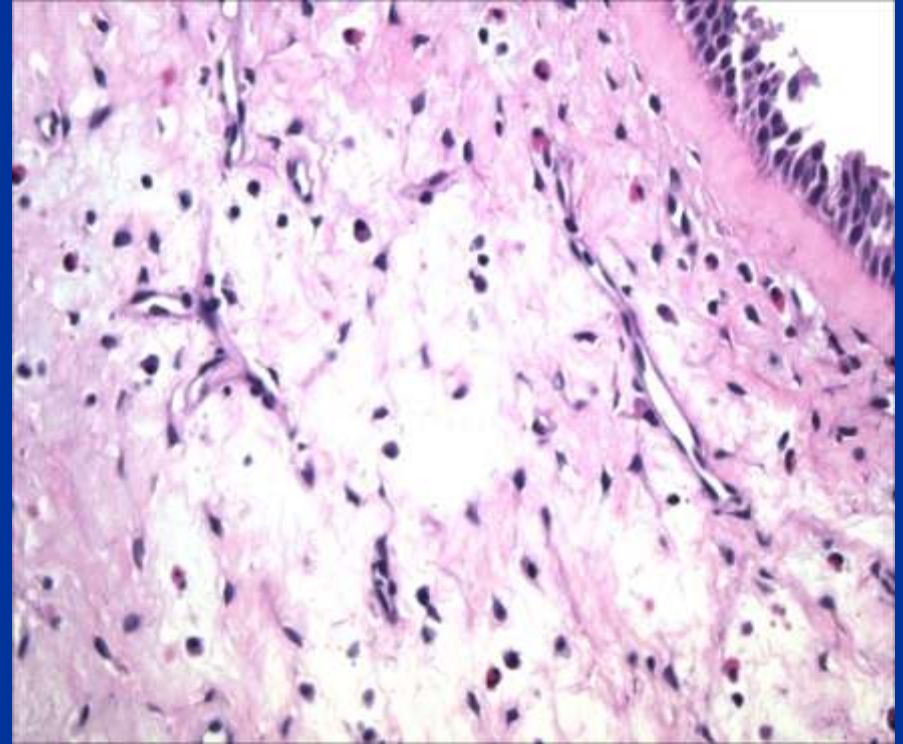
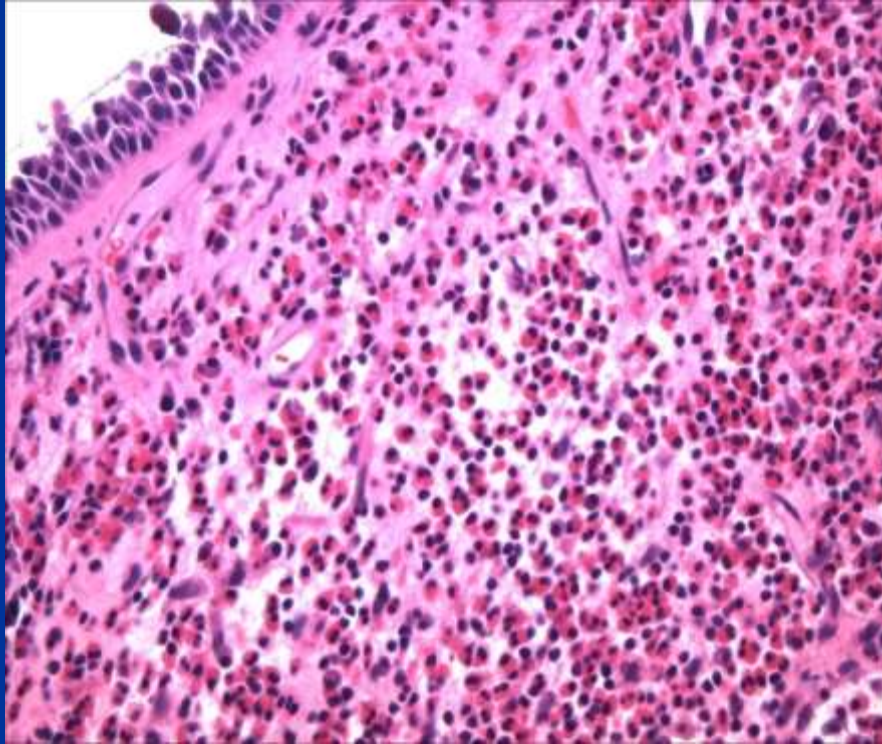
Polyps	No Polyps
Eosinophils	No Eosinophils

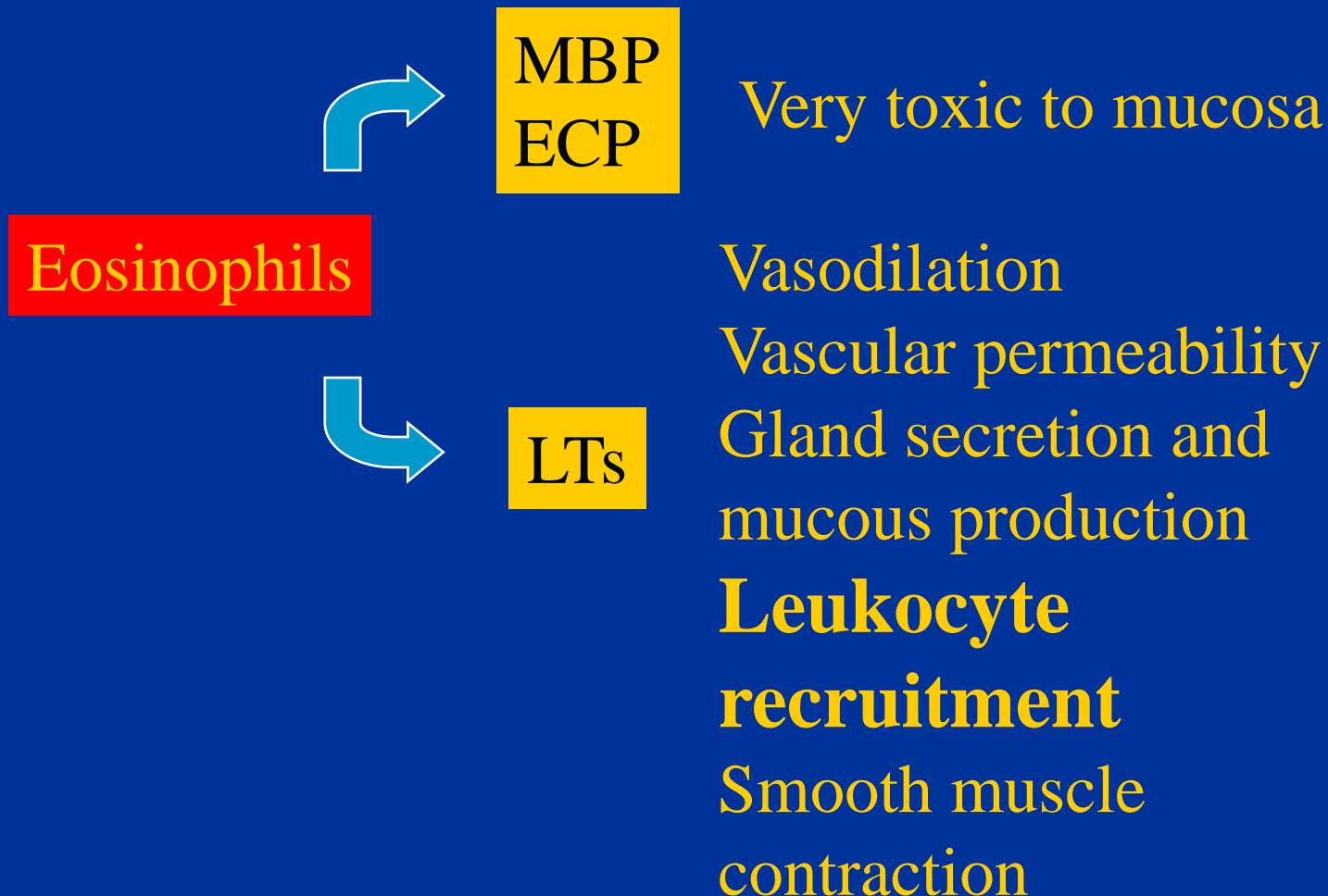
Kountakis et al. molecular and cellular staging for the severity of chronic rhinosinusitis *Laryngoscope*, **114:1895–1905, 2004**

CRS Severity Staging

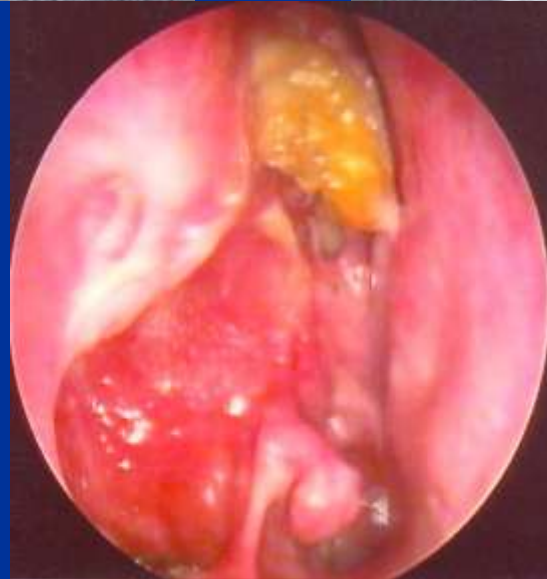
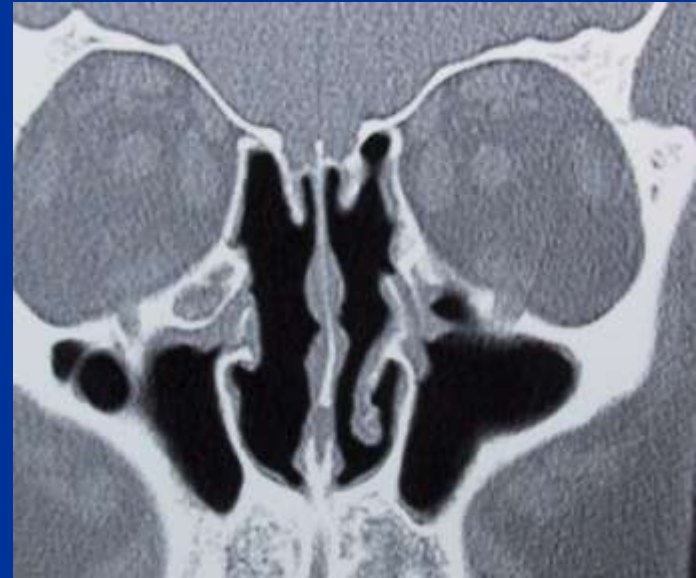
- E CRS w NP
- NE CRS w NP
- E CRS n NP
- NE CRS n NP

Kountakis SE, Arango P, Bradley DT, et al. Molecular and Cellular Staging for the Severity of Chronic Rhinosinusitis. *Laryngoscope* 2004 Nov;114(11):1895-1905.





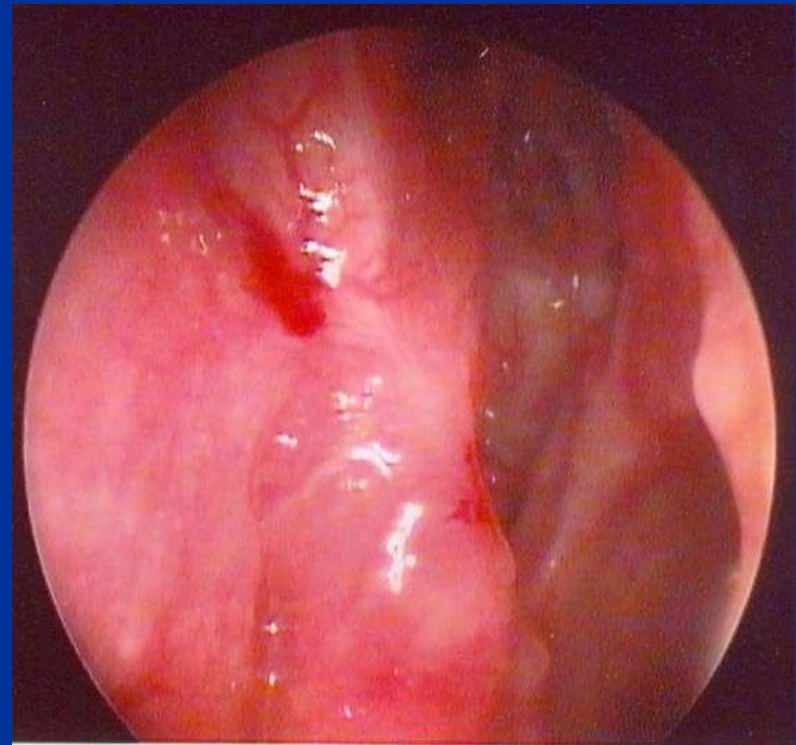
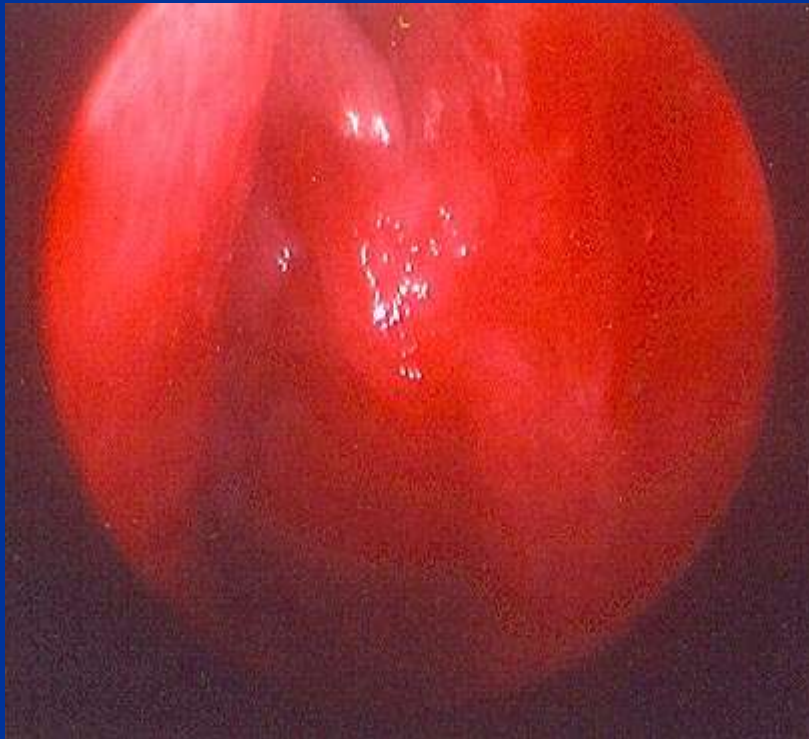
- If Eos <5/HPF: Usual post-op meds, Intranasal steroid spray, NS
- If Eos Midrange/HPF: ISS, NS, Short oral steroid taper, budesonide irrigations, LT receptor antagonists budesonide in 3 oz NS, 1.5 oz irrigation each nasal cavity bid
- If Eos >20/HPF, ISS, budesonide irrigations, month long oral steroid taper, LT receptor antagonists budesonide in 3 oz NS, 1.5 oz irrigation each nasal cavity bid - consider anti-Lipo-oxygenase medications if failure



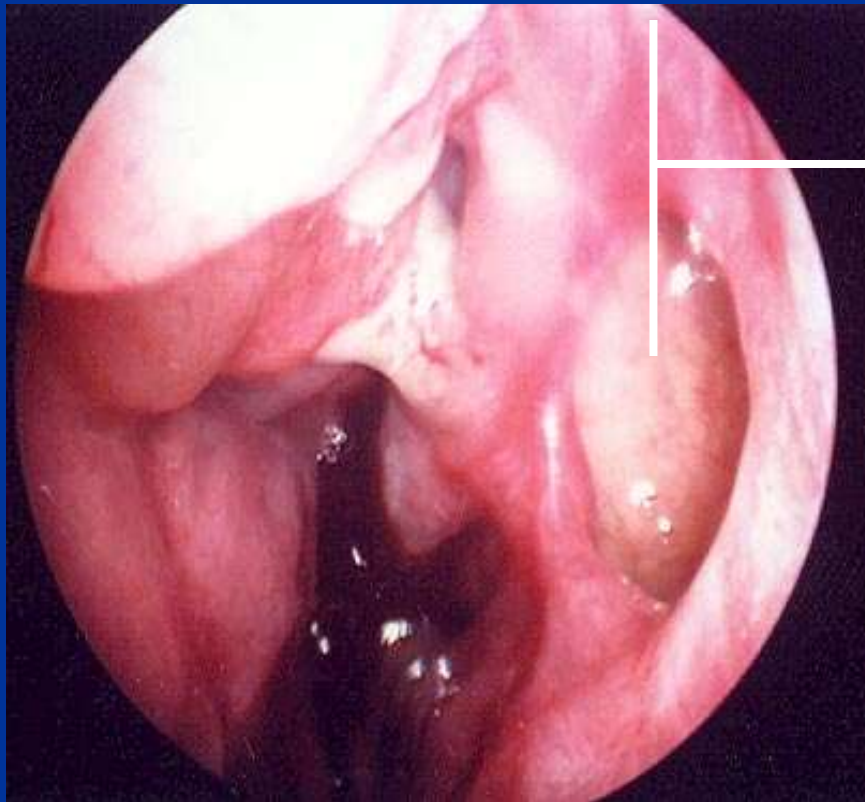
- Pre-op assessment
 - History
 - Endoscopy
 - Maximize medical therapy
 - CT evaluation
 - Game plan
 - Image guidance

- **Surgical techniques**
 - Uncinectomy
 - Incorporate natural max ostium into antrostomy
 - Enter bulla inferiorly and medially
 - Do not work in a hole
 - Identify Lamina
 - Respect the vertical plane of the MT
 - Preserve horizontal basal lamella
 - Do not open MMA flash to the posterior maxillary sinus wall

- Lateralized middle turbinate



Lamina papyracea

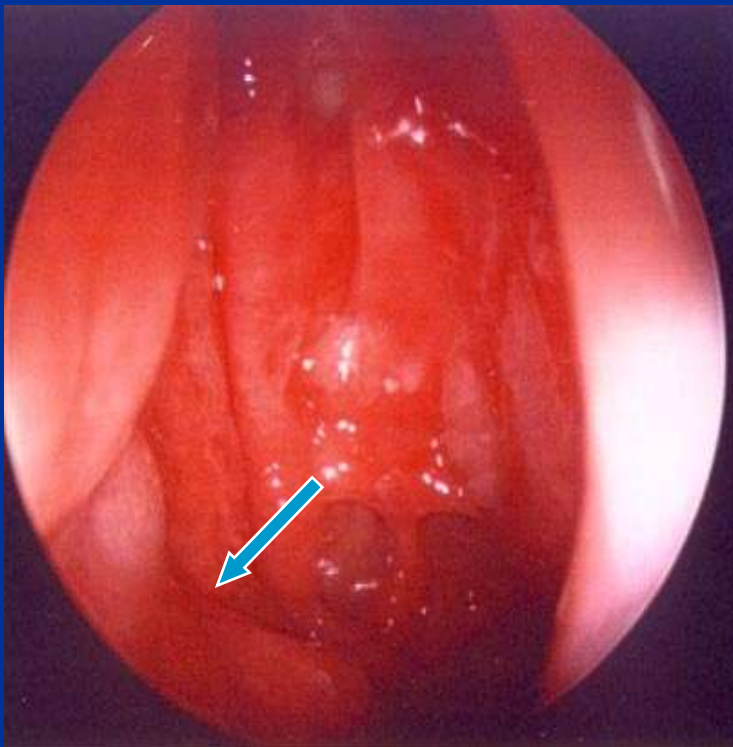


- ◆ Middle meatal antrostomy and ridge at the junction of the lamina papyracea

- Surgical techniques

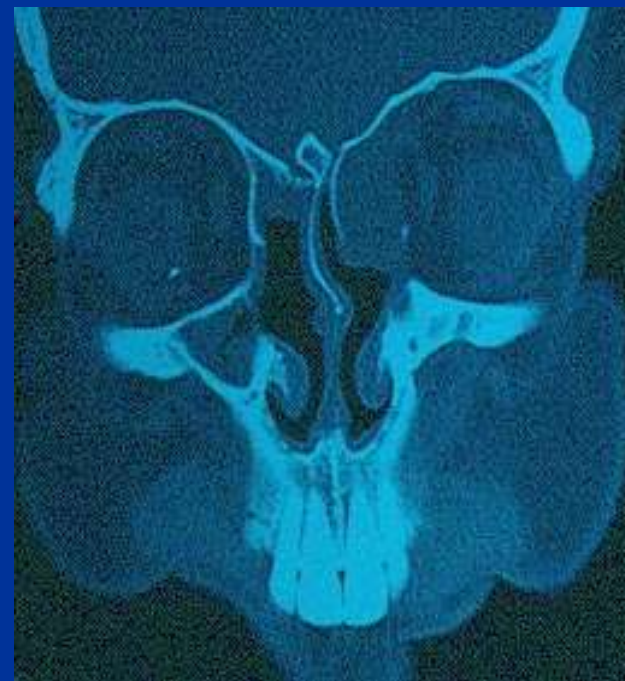
- Inferior turbinate - most constant and reliable landmark for MMA

- Superior entrance can injure the Lamina
- Anterior - Nasolacrimal duct
- Posterior - sphenopalatine
- Inferior - SAFER





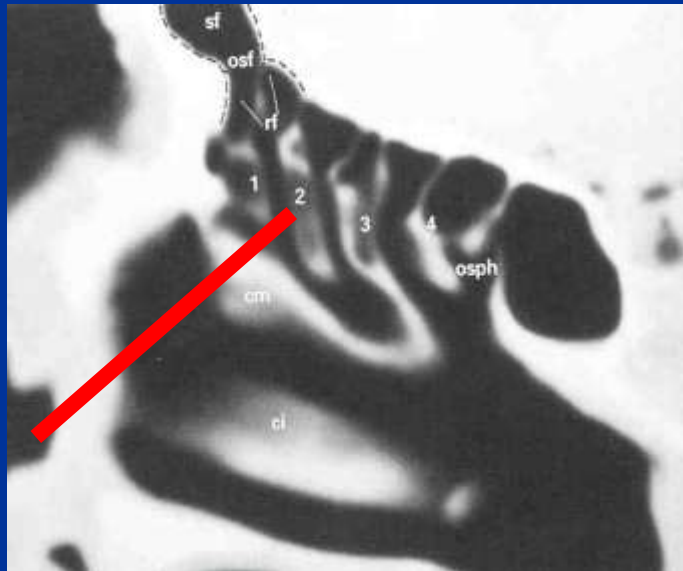
- Surgical techniques
 - Eye ball palpation - monitor lamina



- Surgical techniques
 - Eye ball palpation - monitor lamina



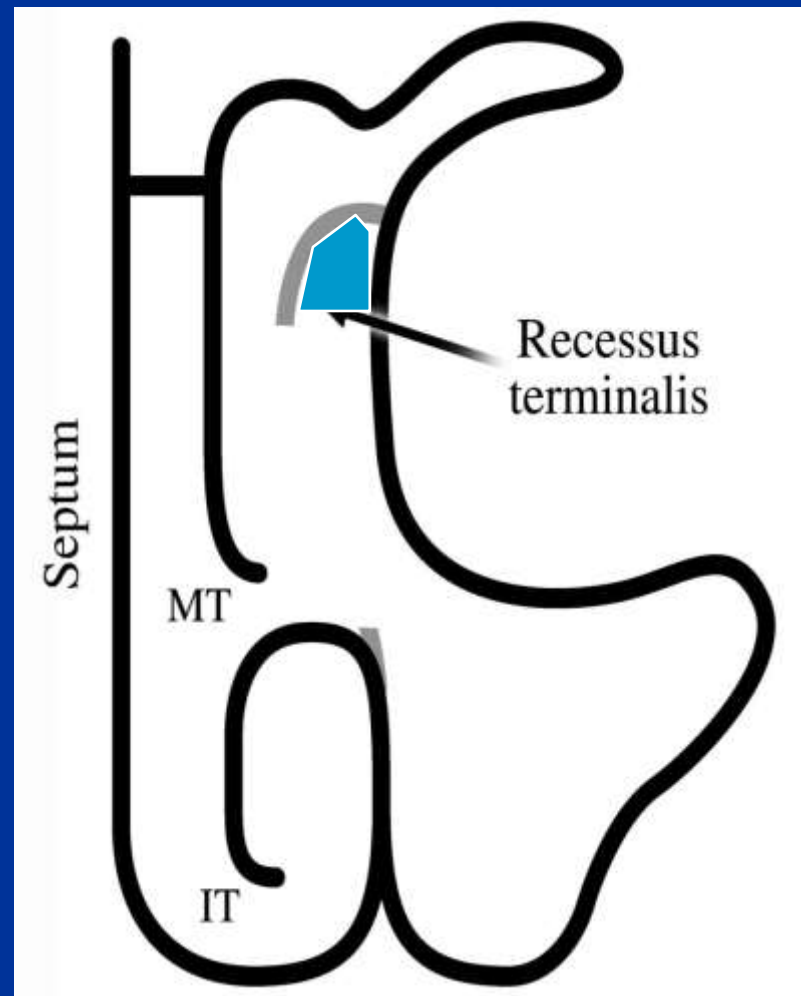
Inclined plane of Skullbase



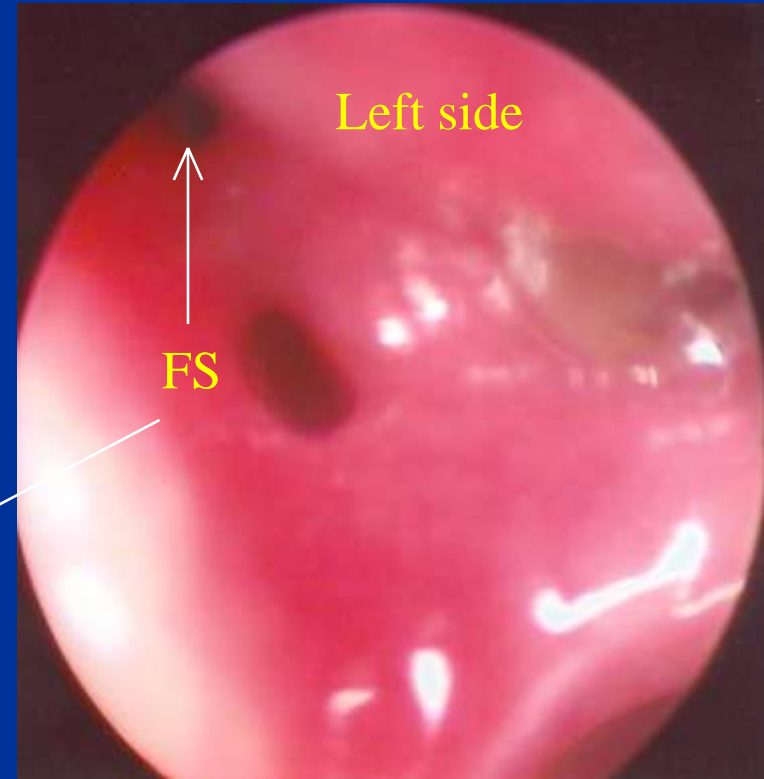
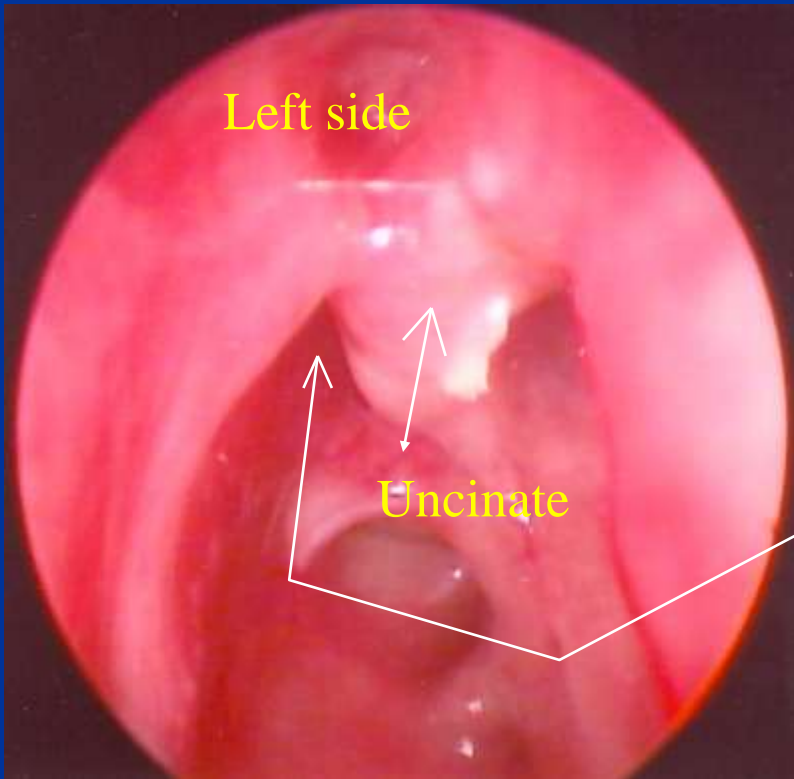
Sphenoid
Roof =
Level of
Skullbase

Uncinate to Lamina

Recessus Terminalis
or
Pseudo-Frontal Recess



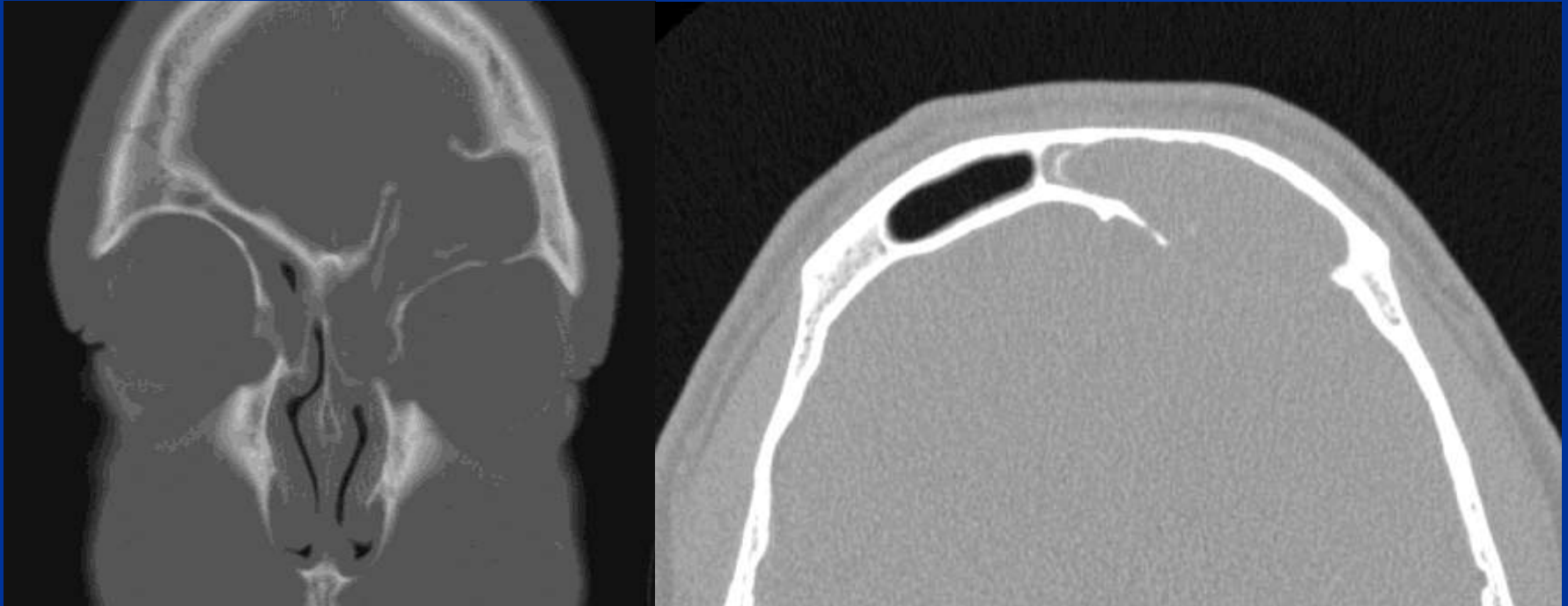
Uncinate to Lamina



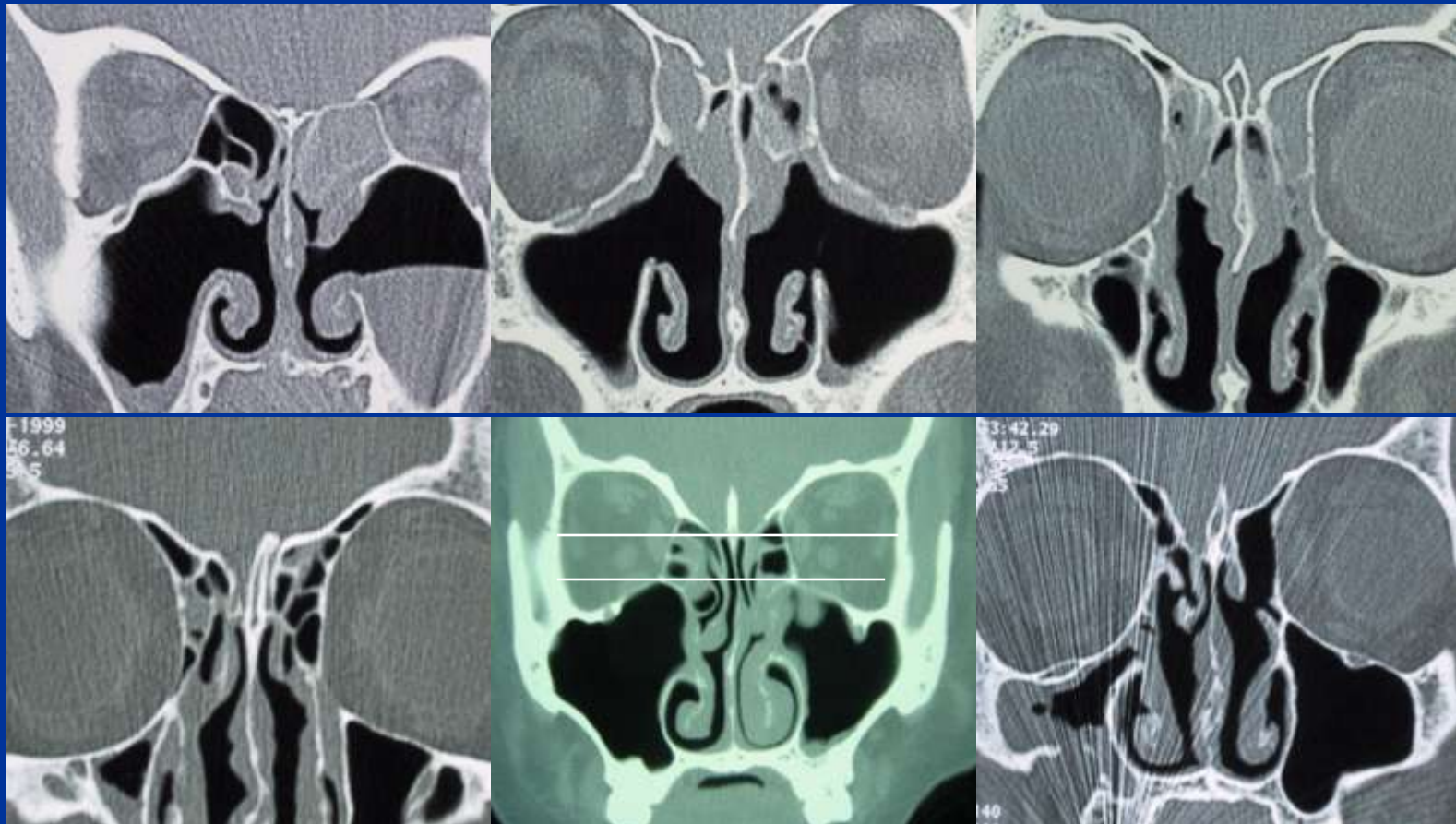
Supraorbital ethmoid cell as a landmark for the anterior ethmoidal artery



- Revision FESS - frontal
 - Simplify a possibly complex case-Above and Below

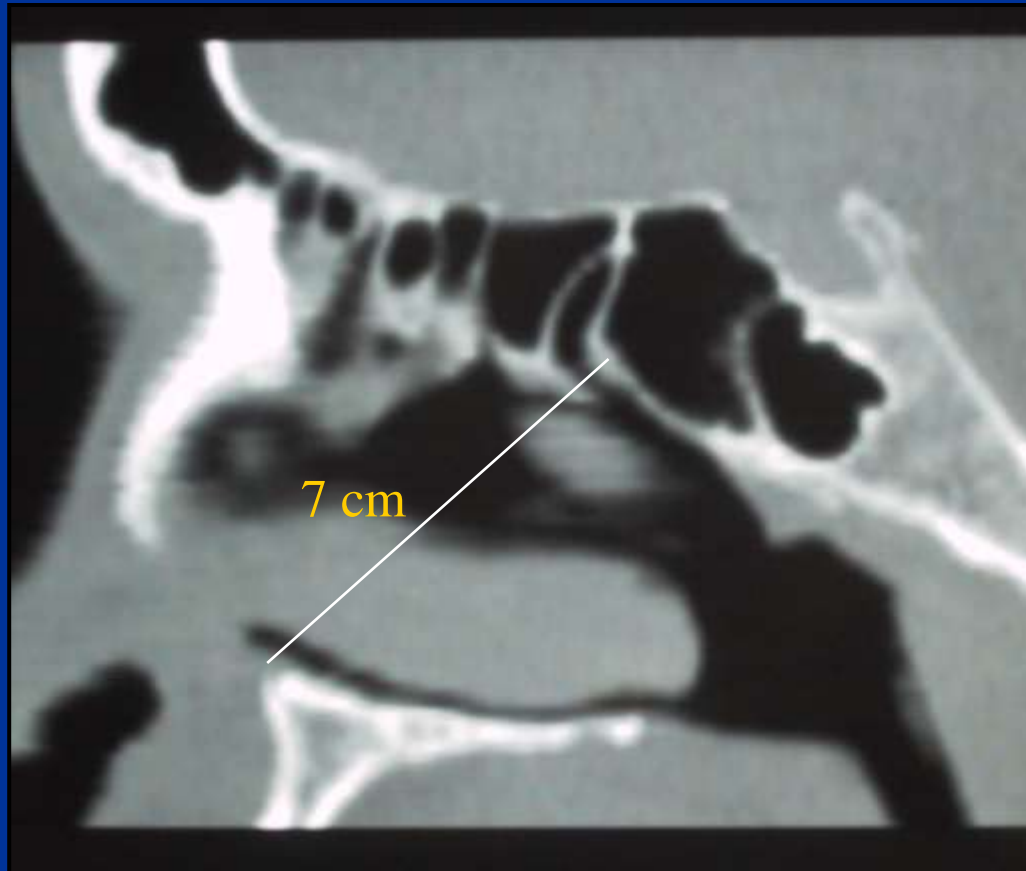


- Critical / Vulnerable sites / Thin bone

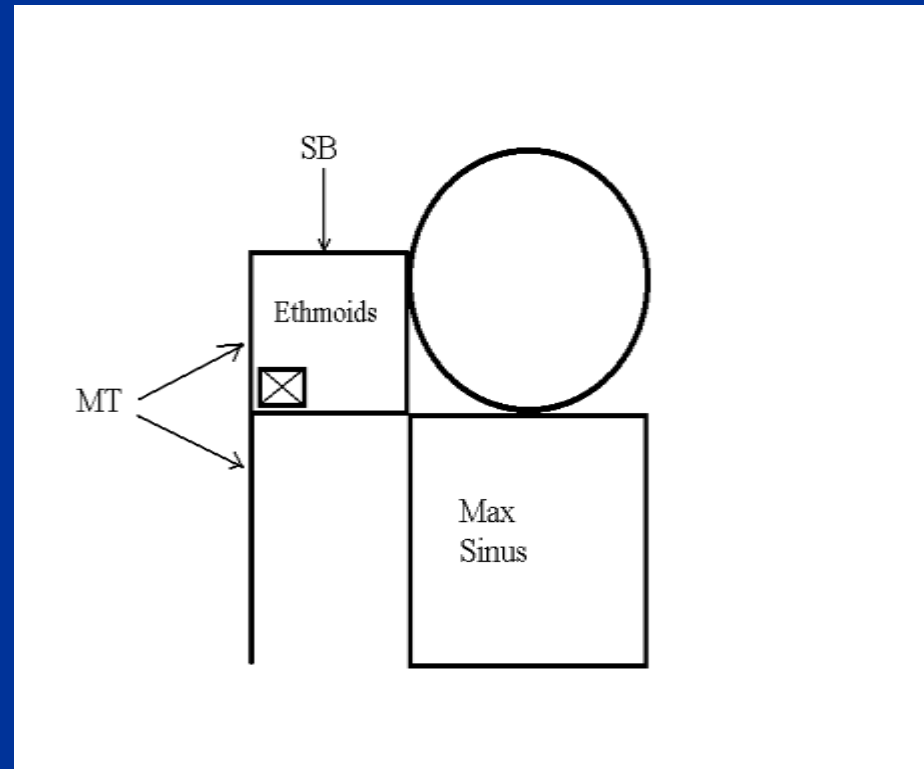


◆ cribriform/skull base abnormalities

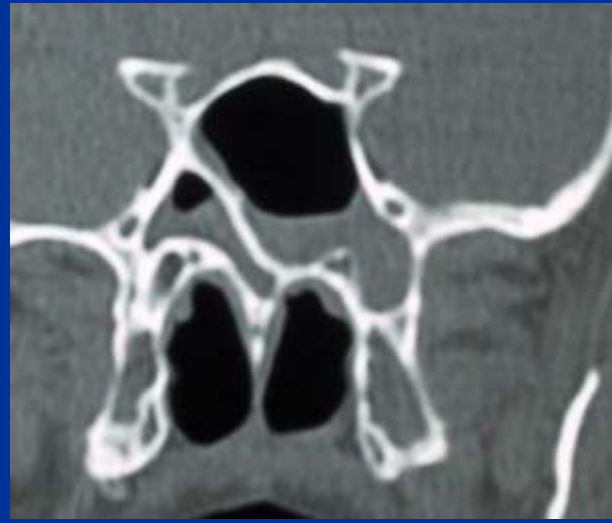
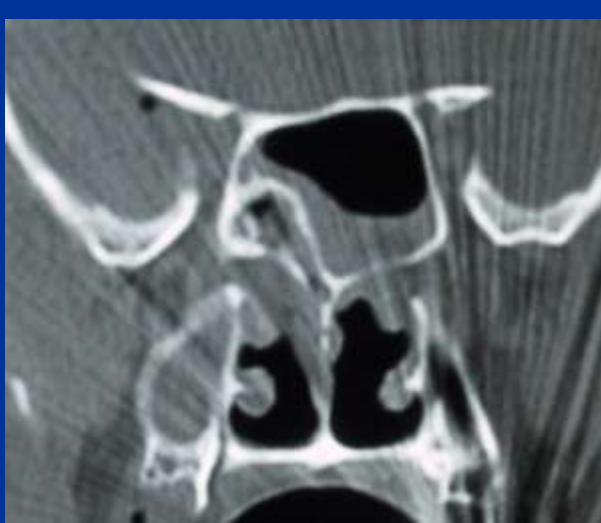




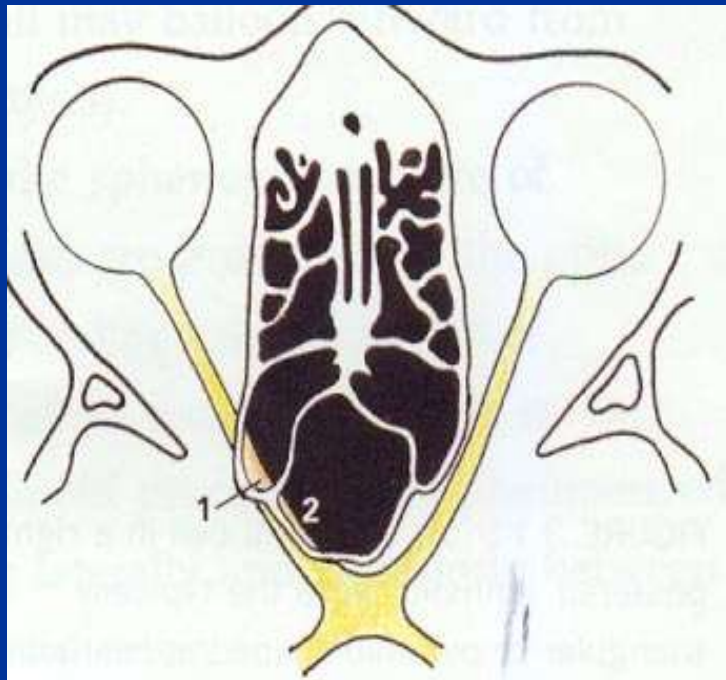
- Landmarks for sphenoid sinus
 - Septum, Maxillary, Ethmoid cavities, choana



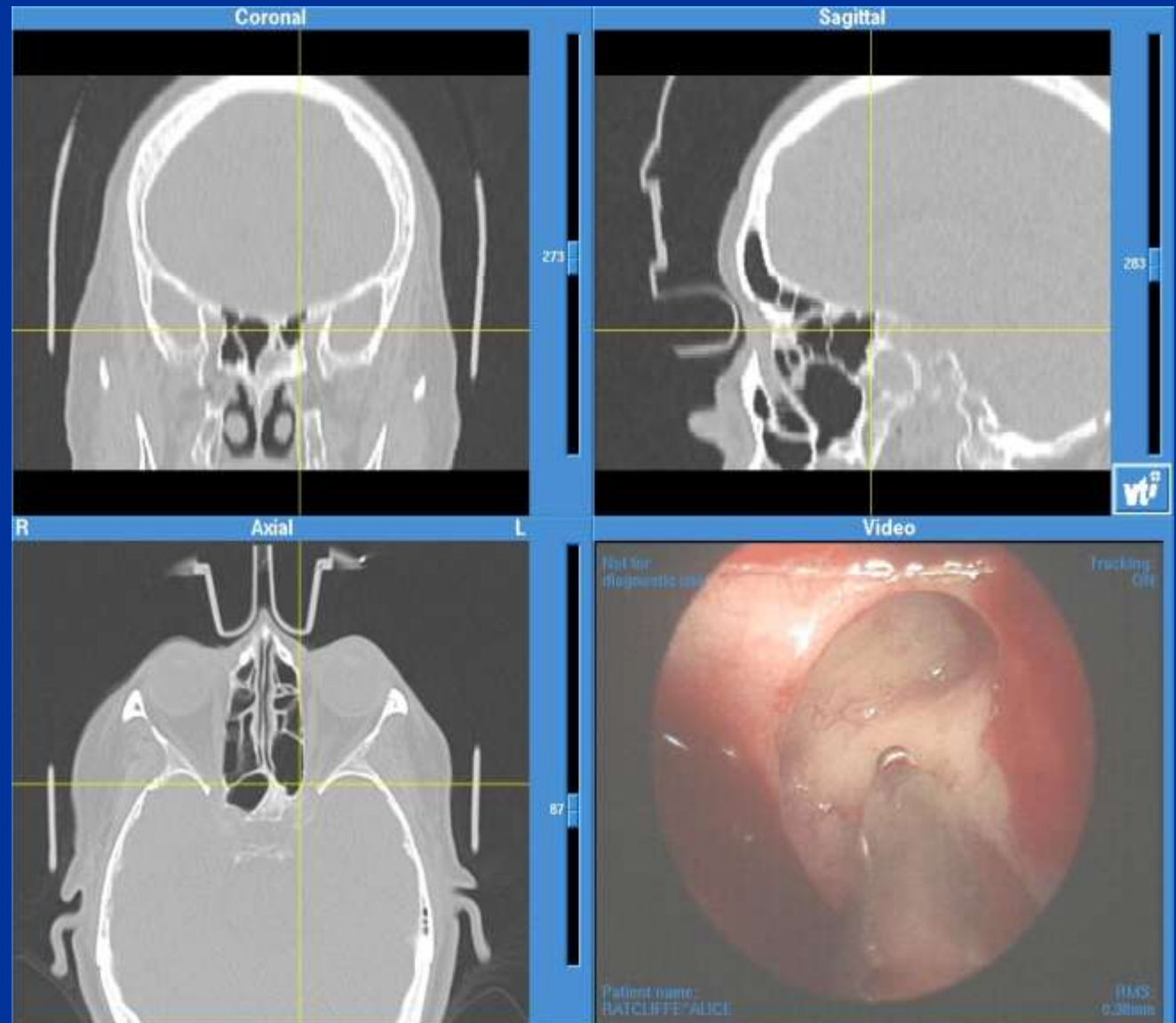
- In anatomic sphenoid variants identify the natural sphenoid ostium

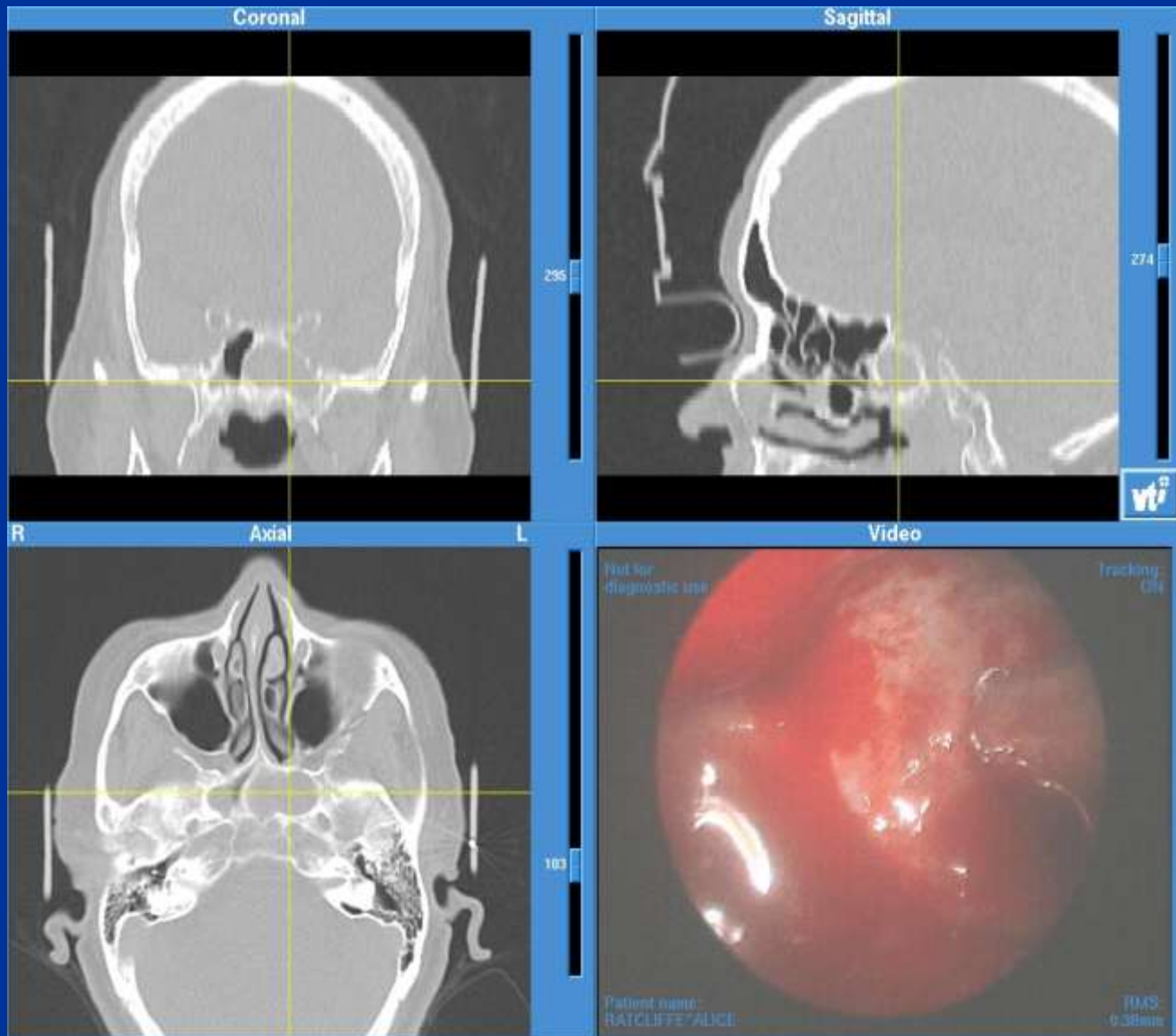


Onodi or Sphenoethmoid air cell

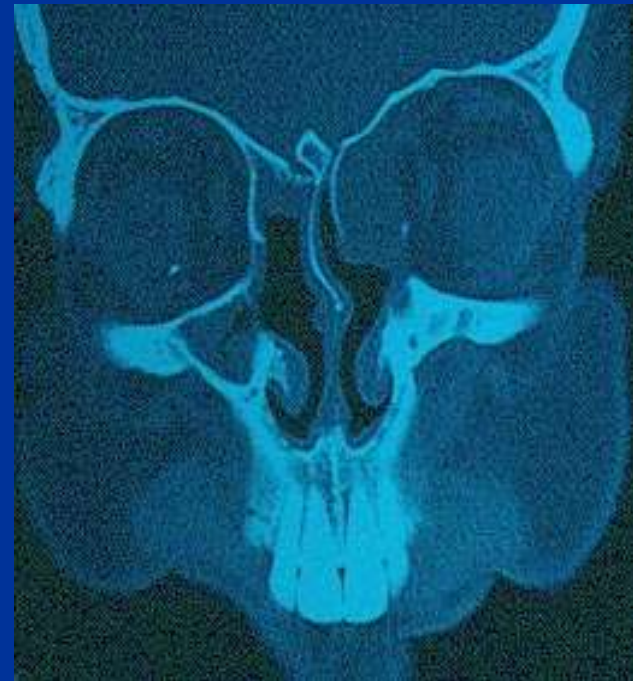


Onodi or
Sphenoethmoid
air cell





Is image guidance helpful in this case?





Thank you!