Overview

- Patient selection
- Indications for revision and extended approach
- Causes and solutions
- Techniques
- Conclusion

Patient Selection for Primary/Revision Surgery

- Typically, frontal sinus inflammation not approached at primary surgery if ethmoid disease is predominant
- Fully exhaust medical treatment
  - Antibiotics/oral steroids – culture directed antibiotics
  - Topical steroid spray
  - Topical drops – Pred Forte 1% - 4 gtts BID in Moffit position
  - Time!


Indications for Revision Surgery or Extended Approach

- Persistent obstruction/stenosis of the frontal recess
- Mucocele in the frontal sinus
- Failed frontal osteoplastic flap
- Approaches to sinus for IP, CSF leak, encephalocele
Indications for Revision Surgery or Extended Approach

- Persistent obstruction/stenosis of the frontal recess
  - Narrowing of the frontal recess by bony septation
  - Scar formation / MT lateralization

- Narrowing of the frontal recess by bony septation
Indications for Revision Surgery or Extended Approach

- Scar formation in the frontal recess / MT lateralization
**What do you do to prevent MT lateralization?**

**Medialization with Suture / Scar**

4-0 vicryl on a P-13 – straighten out needle

**Indications for Revision Surgery or Extended Approach**

- Mucocele in the frontal sinus
  - Depending on the location, either Draf IIb/III is best or extended approach
  - Handle mucosal edges carefully
  - Sharp dissection – do not strip or tear mucosa
  - If mucosa traumatized, consider more extended approach

**Indications for Revision Surgery or Extended Approach**

- CT scan or endoscopic imaging to visualize the area
Indications for Revision Surgery or Extended Approach

• Mucocele

Failed Frontal Osteoplastic Flap

• Patients who fail frontal sinus obliteration may benefit from Draf III revision
• Clinical improvement in 90%, 5/10 required revision
• Inferior and inferior/lateral disease best candidates
• Some may require re-obliteration

Extended Frontal Approach for CSF leak, Encephalocele, Inverted Papilloma

• Improved visualization versus open approach

Draf III Candidates

• Typically wide exposure is needed
  – Wide A-P distance between anterior and posterior tables
  – Ample room between frontal rostrum and skull base
Draf III Candidates

• Poor candidates have restricted space / osteoneogenesis
  – A-P distance is poor with new bone growth
  – Superior – inferior distance is short

Draf III Clinical Case – right orbital abscess

Draf III Clinical Case – after acute treatment

Draf III Technique
Identify anatomy and means for orientation
Draf III Technique
Begin dissection for identification of frontal recess

Draf III Technique
Raise septal flap at posterior wall of frontal sinus

Draf III Technique
Elevate mucosa on both sides of bone and resect both

Draf III Technique
Use Kerrisons and ronjours (as much as possible)
Draf III Technique
Absorbable sheet and triamcinolone -20mg/ml

Draf Classification Type III vs. Open procedures
– advantages and disadvantages

• Advantages
  – Decreased morbidity/pain
  – Shorter hospitalization (? lower cost)
  – Improved cosmesis
  – Preservation of frontal sinus for future examination

• Disadvantages
  – No long term studies to support durability
  – Possible increased risk of CSF leak (w/ history of trauma)
  – New skill set and equipment needed

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Conclusions

• Frontal sinus surgery should be undertaken only after other options have been exhausted
• Gentle handling of mucosa and through cutting instruments can assist in prevention of scarring and stenosis
• Visualization via endoscopes is superior to open techniques for most indications employing a less traumatic, lower morbidity approach to frontal sinus surgery
• Basic and extended approaches to the frontal sinus can be applied to infection, stenosis, tumor, and other access needs in the frontal sinus