Endoscopic Surgery of the Frontal Sinus

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Endoscopic Frontal Sinus Surgery

• Surgical anatomy
• Techniques & approaches
• Patient selection
• Outcomes
• Adjunctive strategies

Frontal Sinus Surgery

• The key to safe and effective surgery of the frontal recess is a clear understanding of the surgical anatomy
• Uncertainty during frontal recess dissection may lead to incomplete surgery and possible complications

Historical Trends in Frontal Sinus Surgery

“The literature concerning surgical treatment of chronic frontal sinusitis is voluminous, controversial, and confusing. The pendulum swings back and forth between various concepts of external and intranasal surgery, and after a century of experimentation a definitive technique has still not been attained.”

Joseph Jacobs, MD, Laryngoscope 1997

Surgical Management of Frontal Sinus Disease

• Important concepts
  • Follow a graduated / staged approach
  • Analyze reasons for disease
    • Soft tissue vs. bone
    • Ethmoid vs. frontal recess vs. frontal os
  • Patient selection and education
  • Atraumatic technique is critical
  • Must have proper instrumentation
  • Careful post-op care

A Tiered Approach to the Frontal Sinus

Endoscopic Frontal Sinusotomy (Draf 2a/b) +/ - Balloon
Revision Endoscopic Frontal Sinusotomy
Modified Lothrop (Draf 3)
Trephination
Osteoplastic Flap with/without Obliteration
Endoscopic Revision of Obliteration
Revision Obliteration
Riedel/Cranialization
Endoscopic Frontal Sinus Surgery

Instrumentation

- Angled endoscopes
  - 45 & 70 degree
- Angled instrumentation
- Mucosal sparring
- Powered instrumentation
  - Angled cutting blades
  - Angled burrs
- Computer-assisted navigation

Endoscopic Surgery for Frontal Sinusitis

- Standard Endoscopic Frontal (2a)
- Draf 2b/Draf 3
- Open Surgery
- Balloon Dilatation
- Nothing

Endoscopic Frontal Sinusotomy

Draf 2a

- Indications
  - Frontal recess disease
  - Obstructive cells extending into ostium or sinus
  - Wide outflow tract
- Technical aspects
  - “Uncapping the egg”
  - Removal of all accessory cells leading to widening of the natural outflow tract
Endoscopic Surgery for Frontal Sinusitis

- TISSUE REMOVED

Endoscopic Frontal Sinus Surgery

- Indications
  - Narrow outflow tract
  - Severe scarring
  - Neo-osteogenesis
  - Gain extended access to frontal cells
- Technical aspects
  - Unilateral removal of sinus floor between lamina papryacea and septum
  - Powered-instrumentation

Draf 2b: “Uncapping the Egg”

Draf 2b: “Unilateral drillout”

Previous endo frontal sinusotomy
Left frontal headache despite patent sinus
Endoscopic Frontal Sinus Surgery
Draft 3 / Modified Lothrop Procedure

- Advantages
  - Endonasal approach
  - Ability to work bilaterally
  - Post-op surveillance

- Disadvantages
  - Destructive
  - Possible stenosis
  - Mucociliary dysfunction
  - Technically demanding
  - Prolonged post-op care

Extended Endoscopic Frontal Approaches: Modified Lothrop (Draft 3)

- For surgical failures
- Alternative to obliteration
- Computer navigation helpful
- Technically difficult

Draf 3 (Modified Lothrop)

Draf 3
Endoscopic Frontal Sinus Surgery

• It all starts with the anatomy
• Focus on the most common anatomic variations that impact the frontal recess
• Technique & experience matters
• Think & dissect systematically