General Introduction

- Overview of material
  - Anatomy and Clinical Features
  - Medical Therapy
  - Surgical Therapy
Objectives

1. Develop understanding of nasal obstructive conditions that may be amenable to surgical therapy
2. Understand nature of surgical therapy for those conditions
3. Appreciate opportunities for referral to HNS for consideration of surgical treatment

Some Context...

- 25% population has some form of nasal obstruction
- 50% of population has some form of NSD/Turbinate hypertrophy
  - Only 25% of these report symptoms
- Poiseuille’s Law
Anatomy

- Turbinates
- Septum
- Adenoids
- Polyps

Turbinate Anatomy
Turbinate Anatomy

Conchal Bone
Mucosa

Turbinate Function

- Laminar Flow
- Detection of Air flow
- Humidification

- Warmth
- Filtration
- Moisturization
Turbinate – Clinical Appearance

Turbinate – Clinical Appearance
Turbinate – Radiographic Appearance

Septal Anatomy
Septal Anatomy

[Image of nasal anatomy with labels: Mucosa, Cartilage/Bone, Mucosa]

Septal Function

- Divides nose into 2 sides
- Laminar flow
- Increased surface area
- Structural support (minor)
Deviated Septum – Clinical Appearance

Deviated Septum – Radiographic Appearance
Nasal Polyps – Clinical Appearance

Nasal Polyposis – Clinical Appearance
Nasal Polyps – Clinical Appearance

Nasal Polyps – Radiographic Appearance
Adenoid Anatomy

Adenoid Function

- Part of Waldeyer’s Ring – lymphoid tissue
- Hypertrophy can be caused by:
  - Chronic infection (polymicrobial)
  - Chronic inflammation including allergy
  - Poor mucociliary clearance
- When enlarged,
  - Affect nasal function
  - Can lead to poor middle ear clearance and COME
  - Can contribute to chronic rhinosinusitis in pediatric
  - Can lead to sleep apnea, facial dysmorphism
Adenoid – Clinical Appearance

Clinical Features of BITH

- Bilateral Nasal Obstruction
- May cycle
- May worsen with exposure to environmental stimulants
- May improve with medical therapy
- Often worsens when recumbent or supine
Clinical Features of Deviated Nasal Septum

- Typically unilateral obstruction
  - May be bilateral
    - Serpentine deviation
    - Compensatory contralateral ITH
  - Does not cycle
- Poor response to medical therapy
- Present in allergic and non-allergic
- Past history of trauma... or not
- Clinical evidence on examination

Clinical Features of Nasal Polyposis

- Obstructive symptoms typically late
- Usually bilateral
  - Unilateral $\Rightarrow$ IP
- Not to be confused with IT
- Medical therapy of limited benefit
  - Corticosteroids may offer transient relief
Clinical Features of Adenoid Hypertrophy

- Nasal obstruction
  - Mouth breathing
  - Heroic snoring
  - Rhinorrhea
  - Nasal congestion
- Sinusitis, COME
- Adenoid facies, craniofacial growth changes

Brief Overview of Medical Therapy

- Turbinate hypertrophy
  - Saline irrigation
  - Topical steroids
  - Antihistamines
  - Systemic, topical decongestants
  - Avoidance of allergic/non-allergic stimulants
- Deviated nasal septum
  - ? Above
- Polyps
  - Above
  - Luekotriene inhibitors
  - Oral steroids
- Adenoid hypertrophy
  - Above +
  - Topical steroids
Surgical Therapy – videos

- Turbinate Hypertrophy
- Deviated Septum
- Nasal Polyposis
- Adenoid hypertrophy

Turbinate Hypertrophy – Too Much of A Good Thing
Surgical Remediation of Turbinate Hypertrophy (Inferior Turbinate Reduction)

- Radiofrequency Ablation
- Powered/microdebrider
- Surgical Resection (Partial)
- Submucosal Resection
- Radiofrequency Ablation
- Diathermal Cautery
- Cryotherapy
- Etc...

Inferior Turbinate Reduction

- Can be done in office or OR
- Well tolerated
- Minimal risk
- 6-12 week healing time
Radiofrequency Ablation

BITR Case 1 – Radiofrequency Ablation
BITR Case 1 - Postop

BITR Case 2 – Radiofrequency Ablation
BITR Case 2 – Post Op

BITR Case 3
Inf Turbinate Reduction – Powered Debrider

Surgical Correction of Deviated Septum
Septoplasty

• Usually outpatient with GA
• Short duration, low risk
• Often combined with BITR
• Postoperative
  ▪ No splint – minimal discomfort, activity restriction
  ▪ Splint – mild discomfort, splints removed POD# 4-7
• Healing over 4-6 weeks

Septoplasty – Preoperative View
Septoplasty – After Correction + Sinusotomies

Endoscopic Polypectomy

• Usually done in OR under GA
  ▪ Goal is eradication of polyps and ensure functional sinuses
  ▪ Typically combined with FESS
  ▪ Navigation
Endoscopic Polypectomy

- Some risk
- Obstructive symptoms usually easy to remediate
- Healing will take 12-24 weeks
- High risk of recidivism
  - Samter’s Triad

FESS with Polypectomy
Adenoid Surgery

- Can be done alone
- Usually combined with:
  - Turbinate Reduction
  - FESS
  - Tonsillectomy
  - PETs
- Outpatient procedure under GA
- Minimal to no pain from adenoidectomy
- Low Risk
  - VPI
Adenoid Reduction/Extirpation

Adenoid Reduction
Conclusion

• Nasal Congestion – Surgical Opportunities
  ▪ Reduce Inferior Turbinates
    o Coblation, SMR, Powered, +
  ▪ Correct Deviated Septum
  ▪ Polypectomy +/- Navigation, with FESS
  ▪ Adenoidectomy
    o Cold steel, Coblation, Powered, Fulguration

Conclusion

• HNS Referral:
  ▪ Above conditions known or suspected
  ▪ Medical therapy + Allergy mitigation (if applicable) inadequate to control symptoms
  ▪ Polyposis requires CT, others can be clinically based