Management of Chronic Problems in Otolaryngology

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Disclosures
- Patent Pending 61/624, 105 - Sinus diagnostics and therapeutics
- Consultant, BioInspire Inc

Otolaryngology - Head and Neck Surgery
- Specialty formerly known as ENT
  - Early Nights and Tennis
  - Easy, Not Tough
- Case-based review of common and uncommon problems in our field

Ear
Hearing Loss
Case #1
- 72 y/o woman with hearing loss and tinnitus
- Otologic History
  - No vertigo, otalgia, or otorrhea
  - No history of prior surgery or frequent infections
  - + history of hearing loss in family (father and grandfather)
  - Went to “Rock concerts” in the sixties
- PMH: none
- Meds: none
- Exam
  - Vth and VIth nerves normal
  - Normal appearance of tympanic membrane
- Weber tests
  - Midline
- Rinne tests
  - Air conduction > Bone Conduction Bilaterally
Case #2

Hearing Loss

Diagnosis

- Presbycusis

Treatment

- Consideration of Hearing Aids
- Listening strategies and assistive devices
- Avoidance of noise exposure

New Frontiers?

- Implantable hearing aids
- Cochlear Implants “partial insertion”

Case #2

- 36 y/o woman with hearing loss and tinnitus
  - Symptoms worse on right side
- Otologic History
  - No vertigo, otalgia, or otorrhea
  - No prior ear surgery
  - No history of ear infections
  - + family history of hearing loss (mother in late 20’s)
  - No history of noise exposure
Case #2

- PMH: recently delivered first child
- Meds: none
- Exam
  - Vth and VIIth nerves normal
  - Normal appearance of tympanic membrane

Case #2

- Tuning fork tests (512 Hz)
  - Weber: To the Right
  - Rinne
    - Bone conduction > Air conduction bilaterally

Most Likely Diagnosis?

- Meniere's disease
- Otosclerosis
- Otitis Media with Effusion
- Cholesteatoma
- Acoustic Neuroma
Diagnosis

- Otosclerosis
  - Disease of abnormal bone remodeling within the middle/inner ear
  - Most patients present with unilateral conductive hearing loss and normal TM examination
    - More severe cases may be bilateral with associated sensorineural hearing loss
  - Conductive loss due to fixation of the Stapes footplate within the Oval Window

Otosclerosis

- Patients often have a family history of hearing loss
- In women, symptoms may worsen during pregnancy

Otosclerosis

- Treatment
  - Hearing Aid
  - Surgery (Stapedectomy/Stapedotomy)
Stapes Surgery

- Popularized by Dr. John Shea in the 1956
  - Revolutionized treatment of otosclerosis
  - Stapes bone partially removed
  - Prosthesis inserted and linked to incus

Results

- 90% with complete or near complete correction of conductive component of hearing loss
- 9% with no change in hearing
- 1% with complete sensorineural loss
Case #3

Hearing Loss
Case #3

- 60 y/o woman with right-sided hearing loss and vertigo
  - Balance symptoms worse with loud noises
- Otologic History
  - No tinnitus, otalgia, or otorrhea
  - No history of prior surgery or frequent infections
  - No history of hearing loss in family

PMH: none
Meds: none
Exam
- Vth and VIth nerves normal
- Normal appearance of tympanic membrane

Tuning fork tests (512 Hz)
- Weber Midline
- Rinne Air conduction > Bone Conduction Bilaterally

Audiogram
Next Step In Evaluation/Treatment?

- Hearing Aid evaluation/referral
- CT scan of the brain/temporal bone
- Stapedectomy
- Cochlear implantation
- MRI of the brain/temporal bone

Diagnosis

- Vertigo & conductive hearing loss
  - Concern for Superior Canal Dehiscence Syndrome
- Plan
  - CT Temporal Bone
  - Vestibular Evoked Myogenic Potential (VEMP) testing

CT

Superior Canal Dehiscence

- Syndrome described by Lloyd Minor in 1998
- Loss of bone over the superior vestibular canal
  - Creates a “3rd mobile window”
- Noise and pressure-induced vertigo and hearing loss
Superior Canal Dehiscence

- Differential Diagnosis
  - Otosclerosis
  - Meniere's disease
  - Vestibular Migraine
  - CT findings and VEMP testing critical in diagnosis

Superior Canal Dehiscence

- Treatment
  - Observation
  - Plugging or resurfacing of the superior semicircular canal

Hearing Loss

- Conductive
  - Cerumen Impaction
  - TM Perforation
  - Effusion/OM
  - Otosclerosis
  - Superior Canal Dehiscence

- Sensorineural
  - Presbycusis
  - Noise Induced
  - Congenital
  - Acoustic Neuroma

Nose

- Nasal Congestion and Drainage
Case #4
- 44y/o man with nasal congestion and clear nasal drainage
- HPI
  - Frequent sneezing
  - Headaches
  - Itchy eyes
- PMH: asthma
- Meds: sudafed
- Exam
  - Bilateral inferior turbinate enlargement
  - Clear nasal mucus

Next Step in Evaluation/Treatment
- Empiric trial of antihistamine/nasal steroid
- Allergy testing
- CT scan of the sinuses
- Antibiotic treatment
- Anti-leukotriene medication

Case #4
- Diagnosis
  - Allergic Rhinitis
- Treatment
  - Trial of antihistamine/nasal steroid spray
  - Allergy testing
  - Sinus CT scan if refractory symptoms
Allergic Rhinitis

- Affects 35-50 million Americans
- Often associated with other “atopic” symptoms

Treatment Options

- Steroid Nasal Sprays
- Antihistamines (oral, intranasal)
- Allergen Avoidance
- Cromolyn Nasal Spray
- Immunotherapy
- Anti-leukotriene agents
- Decongestants

Case #5

Nasal Congestion and Drainage

44y/o man with nasal congestion and clear nasal drainage for 6 months

HPI

- “I Always have a cold”
- Facial congestion/pressure
- Occasional exacerbations with green/yellow drainage
- Loss of smell
- Allergy testing negative
Case #5

- PMH: asthma
- Meds: has tried mometasone spray, loratadine, sudafed, and multiple antibiotics without improvement
- Exam
  - Bilateral inferior turbinate enlargement
  - Clear nasal mucus

Chronic Sinusitis

12 weeks of symptoms + Objective findings of sinus inflammation on CT or endoscopic exam

- Major Factors
  - Facial Pressure/Pain
  - Facial Congestion
  - Nasal Obstruction
  - Nasal Discharge
  - Hyposmia/Anosmia
  - Purulence on Exam
  - Fever (acute sinusitis)

- Minor Factors
  - Headache
  - Fever (chronic sinusitis)
  - Halitosis
  - Fatigue
  - Dental Pain
  - Cough
  - Ear pressure/fullness

Case #5

- Diagnosis
  - Possible Chronic Sinusitis
- Evaluation
  - Nasal Endoscopy
  - CT scan

Chronic Sinusitis

- CT Findings
Chronic Sinusitis

- Chronic inflammatory disease of the sinuses

What Causes Chronic Sinusitis?

- Bacterial Infection
- Biofilms
- Superantigens
- Fungal Infection
- Systemic Immune Dysfunction
- Impaired Mucociliary Clearance
- Altered Sinus Microbiome

Medical Treatment

- Corticosteroids
  - Topical
  - Systemic
- Antimicrobials
  - Antibiotics
    - Systemic
    - Topical
    - Macrolides
  - Antifungals
    - Topical
    - Systemic
- Other
  - ASA desensitization
  - Anti-luekotrienes
  - Anti IgE antibody (omalizumab)
  - Anti IL-5 antibody (mepulizamab)
  - Anti IL-4 (dupilumab)
Impact of Topical Nasal Steroid Therapy on Symptoms of Nasal Polyposis: A Meta-Analysis

Lukas Benezech, MD; Rodney J. Schlosser, MD; Timothy L. Smith, MD; MPH; Zachary M. Sider, MD; MS

- Structured literature review and meta-analysis
- Identified & analyzed 12 randomized, placebo-controlled trials
- Demonstrated statistically significant improvement in nasal symptoms
  - Extent of improvement not well-quantified
  - QOL impact unknown
- All steroid formulations demonstrated improvement

Laryngoscope 2012 Jul;122(7):1431-7

Flonase?

Int Forum Allergy Rhinol. 2013 Feb;3(2):104-20

Oral corticosteroids in the management of adult chronic rhinosinusitis with and without nasal polyps: an evidence-based review with recommendations

TABLE 1. Summary of recommendations for the use of steroids in CRS

<table>
<thead>
<tr>
<th>Ultrasound</th>
<th>Grade of Evidence</th>
<th>Degree of Benefit</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSSP</td>
<td>A</td>
<td>Strong/moderate</td>
<td>Avoidance and prophylaxis for asymptomatic DSSP patients.</td>
</tr>
<tr>
<td>NIH</td>
<td>B</td>
<td>Moderate/minimal</td>
<td>Consider prophylaxis for moderate DSSP.</td>
</tr>
<tr>
<td>Nonsurgical</td>
<td>A</td>
<td>Strong/moderate</td>
<td>Consider corticosteroids for chronic or recurrent DSSP.</td>
</tr>
<tr>
<td>Nonsurgical</td>
<td>B</td>
<td>Moderate/minimal</td>
<td>Consider prophylaxis for moderate DSSP.</td>
</tr>
<tr>
<td>Nonsurgical</td>
<td>C</td>
<td>Minimal/none</td>
<td>Consider prophylaxis for severe DSSP.</td>
</tr>
</tbody>
</table>


Oral Corticosteroids
Oral Corticosteroids

Chronic Sinusitis

Management Algorithm


Antimicrobials and chronic rhinosinusitis with or without polyposis in adults: an evidenced-based review with recommendations

Table 9: Summary of evidence for antibiotic utilization in CRS

<table>
<thead>
<tr>
<th>Antibiotic strategy</th>
<th>Grade of evidence</th>
<th>Balance of benefits vs harms</th>
<th>Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral corticosteroids</td>
<td>C</td>
<td></td>
<td>Recommended</td>
</tr>
<tr>
<td>Oral antibiotics (≤ 2 weeks)</td>
<td>D</td>
<td></td>
<td>Recommended</td>
</tr>
<tr>
<td>Oral antibiotics (&gt; 2 weeks)</td>
<td>C</td>
<td></td>
<td>Recommended</td>
</tr>
<tr>
<td>Topical antibiotics (oral route)</td>
<td>D</td>
<td></td>
<td>Recommended</td>
</tr>
<tr>
<td>Topical antibiotics (nasal route)</td>
<td>A</td>
<td></td>
<td>Recommended</td>
</tr>
<tr>
<td>Alternative route</td>
<td>D</td>
<td></td>
<td>Recommended</td>
</tr>
</tbody>
</table>

*Includes non-steroidal oral and topical antibiotics.
CRS = chronic rhinosinusitis; A = antibiotic; NA = not available.
Case #7
- 54y/o man with left-sided throat pain for 3 months
- HPI
  - No preceding URI
  - Pain gradually increasing over past 3 months and radiating to left ear
  - No bleeding or dysphagia
  - Non smoker/drinker
- PMH: HTN
- Meds: atenolol, ASA, occasional pepcid
- Exam
  - Oral cavity WNL
  - Oropharynx: prominent, firm left tonsil
  - No cervical adenopathy
Oropharyngeal SCC

- Which of the following is the most relevant risk factor for developing oropharyngeal SCC?
  - Smoking history
  - EtOH abuse
  - Smokeless tobacco use
  - Number of sexual partners
  - History of prior radiation

HPV Associated SCC of the Oropharynx

- Epidemiology
- Vaccines
- Vaccine recommendations
- Pap smear of the tonsils?
- Treatment De-escalation