Otorhinolaryngology – Head and Neck Surgery

- Formerly known as ENT
- Early Nights and Tennis
- Easy, Not Tough
- Ear, Nose, and Throat

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
Case #1

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

Case #1

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

Weber & Rinne Tests
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

Hearing Loss

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

**Stapes Surgery**

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

**Otosclerosis**

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

- 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

- 60 y/o woman with right-sided hearing loss and tinnitus
- Otologic History
  - No vertigo, otalgia, or otorrhea
  - No history of prior surgery or frequent infections
  - No history of hearing loss in family
  - Went to “Rock concerts” in the sixties
- PMH: none
- Meds: none
- Exam
  - Vth and VIIth nerves normal
  - Normal appearance of tympanic membrane
Case #3

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

Next Step In Evaluation/Treatment?

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

Diagnosis

- Assymetric Sensorineural Hearing Loss
- Plan: MRI
Acoustic Neuroma

- Vestibular Schwannoma
  - Benign nerve sheath tumor from the vestibular component of the VIIIth nerve
  - Most commonly presents as asymmetric sensorineural hearing loss
  - May have associated imbalance and Vth nerve palsy

Differential Diagnosis
- Meningioma
- Epidermoid tumor
- Metastasis
- Bilateral acoustic neuromas are diagnostic of neurofibromatosis type 2

Treatment
- Observation
  - Old patient, small tumor
- Radiosurgery (Gamma Knife)
  - Pretty old patient, pretty small tumor
- Microsurgery
  - Young patient or large tumor
  - Neurotologist and Neurosurgeon
Hearing Loss

Conductive
- Cerumen Impaction
- TM Perforation
- Effusion/OM
- Otosclerosis

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

Case #4
- 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

Allergic Rhinitis

- Treatment Options
  - Antihistamines (oral, intranasal)
  - Steroid Nasal Sprays
  - Allergen Avoidance
  - Cromolyn Nasal Spray
  - Immunotherapy
  - Anti-leukotriene agents
  - Decongestants
Case #5
Nasal Congestion and Drainage

Case #5
44y/o man with nasal congestion and clear nasal drainage for 6 months

HPI
- "I Always have a cold"
- Facial congestion/pressure
- Intermittent Headache
- Occasional exacerbations with green/yellow drainage
- Loss of smell

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

Sinusitis

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 Sinusitis
- Evaluation
  - Nasal Endoscopy
  - CT scan

Chronic Sinusitis

- CT Findings

Chronic Inflammatory Disease of the Sinuses
What Causes Chronic Sinusitis?

- Bacterial Infection
- Fungal Infection
- Systemic Immune Dysfunction
- Impaired Mucociliary Clearance

Chronic Sinusitis

Treatment

- Antibiotics & Steroids (Oral vs. Topical)
- Surgery for patients refractory to medical management

Case #6

Nasal Drainage
Case #6

- 44y/o woman with clear nasal drainage for 6 months
- HPI
  - Always right-sided
  - “Gush of water” when I get up in the morning
  - Professional “9-ball” player, drips on pool table when she leans over to shoot
  - No nasal congestion or facial pain/pressure
  - Rare headache

Case #6

- PMH: Obesity
- Meds: has tried nasonex, claritin, sudafed, and multiple antibiotics without improvement
- Exam
  - Normal nasal exam
  - Patient leans over ...

Case #6

- Diagnosis
  - Rhinorrhea ... ? etiology
- Evaluation
  - Nasal Endoscopy
  - Collect fluid for Beta-2 Transferrin evaluation
  - CT scan
**CSF Leak**

- Post-surgical
  - Endoscopic Sinus Surgery
  - Neurosurgery (Pituitary and other skull base tumors)
- Post-traumatic
- Spontaneous

**CSF Leak**

- Spontaneous
  - Commonly in obese, middle aged women
  - Often delay in diagnosis
  - Risk of meningitis approximately 5%/year
    - May present with meningitis

**Spontaneous CSF Leak**

- Endoscopic Repair
  - Intrathecal flourescein
  - Skull base defect identified and cleaned
  - Two-layer repair
Two Layer Repair

- Intracranial Cavity
- Nasal Cavity
- Cartilage Underlay Graft
- Skull Base
- Mucosal Overlay Graft
Case #7

- 44y/o man with worsening hoarseness over the past 6 months
- HPI
  - Mild intermittent throat pain
  - Describes voice as “gravely”
  - Symptoms worse in morning and evening
  - Globus sensation when swallowing, but no dysphagia
  - Non-smoker, drinks 2-3 glasses of wine/night
- PMH: HTN
- Meds: atenolol, ASA, occasional pepcid
- Exam
  - Oral cavity WNL
  - No nasal abnormalities
  - No cervical adenopathy
Case #7

Laryngoscopy

Laryngopharyngeal Reflux

- Laryngeal manifestations of GERD
- May occur without symptoms of heartburn
- Typical presentations include hoarseness, globus sensation, chronic sore throat
- Variable findings on laryngoscopy
Laryngopharyngeal Reflux
- Gold-standard for diagnosis is 24 hour double pH probe
- Often treated empirically with PPI
- Area of controversy

Case #8
Hoarseness

Case #8
67y/o man with hoarseness for the past month
HPI
- No pain
- Increased effort of speaking
- “Breathy” voice
- Voice worsens throughout day
- Occasional coughing with thin liquids
- Non-smoker, drinks 2-3 glasses of wine/week

Case #8
PMH: HTN
Meds: atenolol
Exam
- Oral cavity WNL
- No nasal abnormalities
- No cervical adenopathy
Case #8

Laryngoscopy

Unilateral Vocal Fold Paralysis

- Compromise of the vagus or recurrent laryngeal nerve
- Vagal injuries with associated sensory deficit and increased incidence of aspiration

Unilateral Vocal Fold Paralysis

- Presentation
  - Hoarseness “Breathy voice”
  - Vocal Fatigue
  - ? Aspiration
  - Symptoms worse with acute onset of injury
  - NOT associated with stridor/airway compromise
Unilateral Vocal Fold Paralysis

- Iatrogenic
- Neoplastic
- Idiopathic

Unilateral Vocal Fold Paralysis

- Iatrogenic
  - s/p thyroidectomy
  - Anterior approach C-spine surgery
  - Cardiac Surgery
  - Posterior Fossa Neurosurgery
  - May be “stretch injury” with return of function up to 6 months following surgery

Unilateral Vocal Fold Paralysis

- Neoplastic
  - Laryngeal cancer
  - Thyroid malignancies
  - Pulmonary malignancies
  - Mediastinal metastasis or primary tumors
  - Skull base neoplasms

Unilateral Vocal Fold Paralysis

- Idiopathic
  - ? Viral
  - May recover function 6-12 months following initial insult
Unilateral Vocal Fold Paralysis

- Work-up
  - Image the course of the recurrent laryngeal nerve
  - Laryngeal EMG?

Unilateral Vocal Fold Paralysis

- Treatment
  - Temporary
    - Vocal cord injection/medialization
    - Various materials, most last approx 4 months
  - Permanent
    - Laryngeal framework surgery (Thyroplasty)
    - Arytenoid adduction
    - Reinnervation surgery
    - Teflon (Hydroxyapatite) injection

Case #9

Hoarseness
### Case #9

- 54y/o man with worsening hoarseness over the past 6 months
- HPI
  - Mild intermittent throat pain
  - Globus sensation when swallowing, but no dysphagia
  - 25 pack/year smoking history, drinks 6-pack of beer/night

### Case #9

- PMH: HTN
- Meds: atenolol, ASA, occasional pepcid
- Exam
  - Oral cavity WNL
  - No nasal abnormalities
  - No cervical adenopathy
  - Halitosis

### Case #9

Laryngoscopy
Case #9

- Laryngeal Mass, R/O Cancer
- Direct Laryngoscopy, Biopsy
  - Path -> Squamous Cell Carcinoma

Laryngeal Cancer

- Tobacco and EtOH are primary risk factors
- 4:1 male to female ratio
- Clinical Presentation often depends on site of origin

Anatomy Slide

Laryngeal Cancer

- Glottis
  - Earlier presentation (voice change)
  - Decreased risk of cervical metastasis
- Supraglottis
  - Later presentation
  - Increased risk of cervical metastasis
Laryngeal Cancer

- Treatment
  - Surgery, Radiation, and Chemotherapy are three treatment modalities
  - Stage of cancer and local expertise determines treatment approach
  - Overall trend towards increased use of radiation/chemotherapy and “laryngeal conservation” surgery

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