



## Headmirror's ENT in a Nutshell

### Aspirin-exacerbated respiratory disease (AERD)

Expert: Garret Choby, M.D.

#### Presentation (0:37)

- Present later in life (3<sup>rd</sup> – 4<sup>th</sup> decade of life)
  - o Nasal symptoms → asthma → reaction to aspirin or NSAID products
- Female: Male 2:1
- Some association with obesity and smoking
- Symptoms
  - o Nasal polyposis
  - o Asthma
    - Untreated -> severe asthma exacerbations
  - o Reactivity to aspirin or NSAID products (not allergy)
- Differential diagnosis
  - o CRSwNP (without asthma or aspirin sensitivity)
  - o Eosinophilic Granulomatosis with Polyangiitis (EGPA) or Churg-Strauss Syndrome
  - o Allergic fungal sinusitis

#### Pathophysiology (2:50)

- Possible epigenetic phenomenon (association w/ obesity/smoking)
- Arachidonic acid can go down two pathways
  - o 1). Prostaglandin pathway activated by cyclooxygenase (COX-1 / COX-2)
    - Anti-inflammatory mediators
  - o 2). Leukotriene pathway active by 5-lipoxygenase (5-LOX)
    - Pro-inflammatory mediators
- In AERD there is a shift in the arachidonic acid pathway towards leukotriene production

#### Workup (6:00)

- Imaging
  - o Sinus CT scan
    - Pansinusitis and polyposis
- Laboratory Evaluation
  - o CBC with differential → eosinophilia
    - Patients on currently on steroids will have lower levels of eosinophils
  - o IgE
  - o Urine leukotriene E4 level
    - >166 is definitive cut off point for AERD patients
    - Patients on Zileuton will have lower levels
- Diagnosis
  - o No formal diagnostic criteria
  - o Nasal polyposis, asthma, and **either** aspirin sensitivity Hx or elevated urine leukotriene E4 level

- Aspirin challenge (less frequent) unless undergoing postoperative aspirin desensitization

### **Treatment (8:15)**

- Initial Medical Management
  - Avoidance of aspirin or NSAIDs (COX-1 inhibitors)
  - Topical steroid
    - Budesonide or mometasone rinses
  - Oral steroids (short term symptom control)
  - Inhaled corticosteroids (asthma)
- Surgical Management
  - Vast majority undergo endoscopic sinus surgery
    - Goal of complete polypectomy and complete opening of all sinuses
    - Allows for more effective delivery of topical therapy
  - Surgery is not curative, will need long term medical management
- Long Term Medical Management
  - Aspirin desensitization
    - 2-3 weeks following surgery
    - Most consider long term aspirin use (gastritis, future surgery)
  - Biologic therapies
    - Zileuton
      - 5-lipoxygenase inhibitor
    - Dupilumab
      - IL-4 inhibitor
      - Approved for nasal polyposis
    - Mepolizumab
      - IL-5 inhibitor
    - For all these agents, cost and insurance coverage are significant challenges