

**Headmirror's ENT in a Nutshell**  
**Sinonasal Papilloma/Inverted Papilloma**  
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**Presentation (0:41)**

- Symptoms
  - Asymptomatic: incidentally discovered on a scan
  - Unilateral nasal obstruction: associated drainage, sinusitis, or pain
  - Other: epistaxis, epiphora if nasolacrimal duct involved
  
- Epidemiology
  - 4:1, Male:Female. Classically older, Caucasian
  - Incidence: 1-2 per 100,000
  - No known risk factors
  
- Physical Exam
  - General: generally, no external exam abnormalities
  - Rigid Endoscopy: unilateral nasal mass that appears papillomatous.
    - Smooth, bumpy appearance
    - Occasionally friable

**Pathophysiology (3:39)**

- Etiology
  - Unclear
    - Hypotheses include inflammatory or viral etiology
    - HPV involvement inconsistent
  
- Structurally
  - Unilateral lesions
    - 42% maxillary sinus
    - 20% ethmoid sinus
    - Less common: nasal cavity, middle or superior turbinate, frontal sinus
  - Osteitis
    - Focal area of attachment where lesion started
    - Bony erosion: locally destructive
  
- Pathology
  - 3 types of papilloma in the sinonasal cavity
    - Endophytic (60%): squamous epithelium inverts into the stroma
      - Inverted papilloma
      - 10% malignant potential (majority squamous cell carcinoma transformation)
    - Exophytic (30%): warty projections, anterior septum
      - More likely related to HPV
      - No malignant potential
    - Oncocytic: pathology with oncocytes

- 10% malignant potential

### Differential Diagnosis (9:20)

- Unilateral sinus opacification
  - Malignancy
  - Benign tumor
    - Polyps
    - Inverted papilloma
  - Odontogenic: infection, peri-apical cyst
  - Allergic fungal sinusitis
  - Fungal ball
  - CRS with nasal polyps

### Work Up (10:34)

- Biopsy
  - Not routinely biopsied in clinic, but can be done if easy location
  - Representative tissue may require OR trip
- Imaging
  - CT scan
    - CT scan can show attachment site
      - Area of hyperostosis
    - Indicates erosion of bone/extent
  - MRI scan
    - Not necessary, but can be helpful when suspicious for structural involvement
    - Contrast enhancing lesion (tumor) vs. fungal ball (non-enhancing)
    - Cerebriform pattern

### Treatment (15:10)

- Surgical:
  - Sinus surgery: surgical approach dependent on site
    - Maxillary site: medial maxillectomy for full exposure and on-going surveillance visualization
      - Depending on access requirements for resection: can be purely endoscopic, include Caldwell-Luc, Modified Denker's or trans-septal
      - Risk of bleeding, injury to the eye, lacrimal duct injury
    - Ethmoid/ Skull Base site
      - Risk of CSF leak, meningitis
    - Sphenoid site
      - Carotid artery, optic nerve injury
  - Complete resection including attachment site prevents recurrence
    - Drilling, cauterizing, or removing bone decreases recurrence rate
    - Recurrence: 10% recurrence rate regardless of open or endoscopic. Long-term follow up

- Follow up
  - Regular saline sinus rinses following surgical resection
  - 7-10 days after for debridement
  - Surveillance 3-4 months, then 6 months, then yearly with in-office endoscopy