Headmirror's ENT in a Nutshell
Benign Sinonasal Lesions
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Presentation (0:42)

- Symptoms
    - Unilateral nasal obstruction (75% patients)
        - Most common presenting symptom
        - Slow growing lesions but may present acutely if obstruction worsened by illness
    - Epistaxis (20% patients)
        - More common in malignancy, but can be benign
    - Face pressure
        - Pain is rare, but pressure from obstruction often seen
    - Acute or chronic sinusitis
        - Secondary to obstructive lesion

- History
    - Length of time
        - Often long-term, but can be more acute secondary to obstruction
    - Symptomatology
        - Directed at determining benign vs. malignant lesion
        - Ocular symptoms, epistaxis, facial numbness more common malignant
            - Diplopia from orbital compression can be seen in benign lesions

- Physical Exam
    - Complete H&N exam, cranial nerve exam
        - Typically unrevealing in benign lesions
    - Nasal Endoscopy
        - Sinuses
            - Bony lesions: osteoma
        - Nasal cavity
            - Epithelial lesions
            - Vascular lesions

Pathophysiology (4:29)

- Consider types of tissue present in sinonasal region:
    - *Squamous epithelium:* Inverting papilloma, dermoid, adenoma
    - *Respiratory epithelium* (ciliated pseudostratified columnar epithelium)
    - *Neural structures* (central and peripheral): Meningioma, neurofibroma, ectopic pituitary tissue, schwannoma, encephalocele, chordoma
    - *Odontogenic* (maxillary sinus): Amelioblastoma, odontogenic keratocyst
    - *Cartilage* (septum or petroclival junction): Chondroma, chondroblastoma
    - *Bone*: Osteoma, osteoblastoma
    - *Muscular*: Leiomyoma, rhabdomyoma

- *Vascular*: Hemangioma, angiofibroma (juvenile nasopharyngeal angiofibroma), paraganglioma
- *Soft tissue*: fibroma, lipoma, myxoma
- *Other:* Plasmocytoma

- <u>Differential diagnosis (common short list):</u>
  - Fibro-osseous lesion
    - *Osteoma*
      - Most common benign lesion of the nasal cavity.
      - 1-3% of patients on CT scan, majority asymptomatic and slow growing. Can generally be followed if asymptomatic
      - Middle age, M>F
      - Ethmoid and frontal outflow tract – most symptomatic sites
      - Generally within the sinus, not seen on endoscopy
      - Types: Ivory (dense bone, extensive drilling) or Mature (cancellous bone and softer bone)
      - Gardner's Syndrome: colorectal polyps, skeletal abnormalities, supernumerary teeth. Autosomal dominant.
    - *Fibrous dysplasia*
      - Bony lesion with ground glass appearance on radiography
      - Histology: normal bone with fibrous and connective tissue, irregular shaped trabeculae
      - Increased growth during puberty, potentially hormonal component
      - Management: observation
      - Surgical intervention if cosmetic deformity or neural compression. Often lesion difficult to resect and area will re-fill with bony tissue
      - McCune-Albright syndrome: multiple areas of fibrous dysplasia, café au lait spots, endocrine abnormalities (precocious puberty, thyroid disease)
  - Vascular lesion
    - *Pyogenic granuloma* (capillary hemangioma)
      - Estrogen component, growth during pregnancy
      - Red/purple smooth mass arising on the nasal septum or inferior turbinate
      - Histology: Lobules of capillaries in a submucosal space
    - *Cavernous hemangioma*
      - Arises from larger blood vessels on the middle turbinate
  - Papillomas
    - *Inverting papilloma*
      - Locally aggressive benign lesion with potential to transform to malignancy (SCC)
  - Odontogenic
    - *Dentigerous cyst*
    - *Odontogentic keratocyst*
      - Benign but aggressive tumors. More common in the mandible but can occur in the maxilla and affect the sinuses. M>F.

            - Associated with Gorlin syndrome: basal cell carcinoma, skeletal abnormalities, cranial calcifications, OKC. Autosomal dominant
    - Other:
        - *Juvenile Nasopharyngeal Angiofibroma*
            - Adolescent male with persistent nose bleeds
            - Do not biopsy in clinic
        - *Sphenoid masses*:
            - Consider surrounding anatomy. MRI to assess for intracranial extension
            - Pituitary gland tumors
            - Clivus: chordoma, chondrosarcoma
            - Internal carotid: dehiscent aneurysm

Workup (16:35)

- Imaging
    - CT scan: differentiate benign or malignant
        - Non aggressive, but may cause bone expansion or pressure remodeling
        - IP: look for hyperostotic bone for attachment site and address surgically
    - MRI
        - Assess for skull base erosion or entrance into intracranial space/orbit
        - MRI may delineate extent of tumor soft tissue
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- Laboratory Work-up
    - Rarely necessary

Treatment (18:45)

- Benign
    - If imaging or exam is concerning for malignancy
        - Biopsy or tissue diagnosis
    - Treatment for many benign lesion (osteoma) only necessary when symptomatic
        - Obstruction causing acute or chronic sinusitis
- Surgical
    - Benign tumor, but *inverted papillomas* require aggressive removal to facilitate complete resection and decrease chance of recurrence, *osteoma* can be extensive lesions that cause destruction of surrounding tissue
        - Resection and negative margins balanced with morbidity of procedure, *i.e. removal of dural involvement or periorbita may be unnecessary*
        - Must consider the extent of the lesion, patient's symptom burden, involvement of surrounding structures, age of the patient, likelihood for recurrence, morbidity of the procedure, need for ongoing surveillance
- Outcomes
    - Goal: complete resection vs. morbidity of procedure
    - Counsel: Risk of recurrence (inverted papilloma can be up to 30%, osteoma continues to grow slowly) and need for surveillance or future surgeries.
        - Often helpful for patients to see their images