Headmirror's ENT in a Nutshell
Nasal Obstruction
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Presentation (0:44)

- Symptoms
  - Differentiate: Congestion vs. obstruction
  - Timing, duration, severity, laterality
  - Associated symptoms: rhinorrhea, drainage, sleep difficulty
  - Differentiate from normal nasal cycle
    - Natural cycle of alternating turbinate engorgement every few hours
- History
  - Medical history:
    - Allergic rhinitis, chronic rhinosinusitis (with or without polyps), nasal trauma, prior nasal surgery
    - Systemic: Pregnancy (estrogen related vasodilation), GPA, sarcoidosis, EGPA, cystic fibrosis, AERD
  - Medications
    - Decongestant (Afrin, Sudafed), nasal steroid spray, OCP (estrogen), anti-depressant, anti-hypertensives, benzodiazepines
- *Pediatric Specific*
  - History:
    - Timing: present since birth or developed later
    - Associate feeding difficulties
    - Growth and development
  - Differential diagnosis
    - Choanal atresia: bilateral is acute problem, unilateral presents later with ongoing nasal drainage since birth
    - Foreign body: develops later, unilateral purulent drainage
- Physical Exam
  - Complete H&N Exam
  - External nasal exam
    - External nasal valve collapse, deviation of caudal septum
    - Nasal bone deviation or deformity
    - Cottle maneuver: pressure on the cheek laterally opens the nasal valve. Not specific.
    - Modified Cottle maneuver: ear curette place inside nasal opening pulling upper lateral cartilage laterally. Helps to localize obstruction to internal nasal valve
  - Endoscopic exam
    - Middle meatus
    - Sphenoethmoidal recess

Pathophysiology (9:48)

- Etiology:
  - Mucosal: edema of the nasal lining

        - Chronic rhinosinusitis with or without polyposis
        - Allergic rhinitis
        - Non-allergic rhinitis
        - Rhinitis medicamentosa: prolonged use of topical decongestant rebound congestion (>3-5 days)
        - Inferior turbinate engorgement: parasympathetic vasodilation of sinusoids within the turbinates
    - Structural
        - Anatomical:
            - Nasal septal deviation:
                - Anterior – quadrangular cartilage
                - Posterior – bony septum; vomer, perpendicular place of ethmoid
                - Septal spurs or deviation
                - Trauma history important
            - Internal nasal valve:
                - Medial – nasal septum
                - Laterally – pyriform aperture, head of inferior turbinate
                - Superior/Lateral – caudal upper later cartilage
                - Inferior – nasal floor
                - narrowest site of nasal cavity, >50% of resistance
            - External nasal valve:
                - Medial – Caudal septum
                - Laterally – Nasal Ala
            - Other:
                - Concha bullosa – aerated middle turbinate
                - Bulky bony inferior turbinate
                - Empty nose syndrome
                    - Structural and psychogenic component
                    - Prior partial or complete inferior turbinate resection
                    - Sensory component and airflow feedback disruption
                    - Significant room in the nasal cavity, but sensation of blockage/congestion, even suffocation/anxiety
                    - Chronic dryness and crusting
                    - Tx: restore tissue bulk with injection or implant
    - Differential Diagnosis
        - Congenital: choanal atresia, deviated septum, nasolacrimal duct cyst
        - Infection/inflammatory: allergic rhinitis, chronic rhinosinusitis, rheumatologic conditions, turbinate hypertrophy, foreign body
        - Medications/drugs: rhinitis medicamentosa, OCP, cocaine use
        - Iatrogenic: empty-nose syndrome
        - Neoplasm: benign/malignant tumors

Workup (18:46)

- <u>Imaging</u>

    - Not necessary for routine nasal obstruction associated with turbinate hypertrophy or septal deviation
    - Helpful for concerns of infection, neoplasm, pediatric stenosis/atresia
- Acoustic rhinometry & Rhinomanometry
    - Research testing, not routine clinical testing
    - Acoustic rhinometry: static technique that uses sound waves to measure cross sectional area of the nose and determine narrowest area
    - Rhinomanometry: dynamic technique measures respiratory airflow and resistance at the front and back of the nose to determine difference (ratio) and relative resistance pattern
- Allergy Testing
    - Seasonal component or allergy symptomatology
- Intervention Trial
    - 6-8 weeks of topical steroid: diagnostic and therapeutic
    - Trial of Breath Right strips to open the nasal valve
    - Afrin trial for 3 days to the inferior turbinate

Treatment (22:49)

- Medical
    - Topical steroid spray: Fluticasone, mometasone
        - 10-14 days of use for symptom relief
        - Technique: spray toward the Eustachian tube
    - Topical steroid rinse: budesonide, mometasone
        - Backbone of therapy
    - Antihistamine: Azelastine
        - Useful for allergic related symptoms
    - Other non-surgical options to stent open nasal valve
        - Breath-right strip, nasal cone

- Surgical
    - Septoplasty
        - Outpatient surgery performed endoscopically or using a nasal speculum
        - Mucosal lining raised in the avascular submucoperichondrial and submucoperiosteal plain on one side
        - Cartilage incision made
        - Contralateral mucosa raised
        - Deviated bony or cartilaginous septum removed
        - Dorsal and caudal strut left for nasal support (1.5 cm)
    - Inferior turbinate out-fracture or reduction
        - Fracture bony turbinate laterally
        - Submucosal reduction to remove internal sinusoids
            - Leaving mucosa intact is important for function
    - Concha bullosa resection
        - Lateral aspect removal to relieve obstruction of middle meatus
- Outcomes
    - Goal: reduction of symptoms

- Counsel: Natural nasal cycle will persist and patients may need long-term medical treatment
- Follow-up 6 months-1 year, then back to primary care