Acute and Chronic Rhinosinusitis

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Acute & Chronic Rhinosinusitis Overview/Goals

- Review definitions / phenotypes of rhinosinusitis
- Describe the general workup and management of patients with:
  - acute rhinosinusitis (ARS)
  - chronic rhinosinusitis (CRS)
**Acute & Chronic Rhinosinusitis Overview/Goals**

Diagnosis Key to long term success and to potentially avoiding surgery

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**Rhinosinusitis** is characterized by symptomatic inflammation of the nasal cavity and paranasal sinuses

**Rhinosinusitis Symptomatic Criteria**

- Congestion
- Drainage
- Pain or pressure
- Loss of smell
Rhinosinusitis
Symptomatic Criteria

- Fever
- Foul taste or odor
- Fatigue
- Ear pressure / fullness
- Sleep disturbance

Rhinosinusitis is defined by symptomatic criteria confirmed by objective measures.

Rhinosinusitis
Objective Findings

- pus
- edema
- polyps
- mucosal changes

VIRAL URI | ABRS | SUBACUTE RHINOSINUSITIS | CRS
---|---|---|---
10 DAYS | 4 WEEKS | 12 WEEKS

POST VIRAL SINUSITIS
**ARS**

**Acute Rhinosinusitis**

- Viral URI by far the most common form
- Estimated ~95% cases of ARS
- In most cases diagnosis based on:
  - symptomatic criteria
  - relatively nonspecific / insensitive examination

**ARS**

**Acute Rhinosinusitis**

- Acute viral rhinosinusitis $<$ 10 days
- 10 days $<$ postviral rhinosinusitis $<$ 12 weeks
- Acute bacterial rhinosinusitis suggested by:
  - discolored discharge (esp. unilateral)
  - severe local pain
  - fever
  - symptom duration
**ABRS**

**Acute Bacterial Rhinosinusitis**

- Duration of symptoms is a commonly used determinant
  - increase in symptoms after 5 days
  - persistent symptoms after 10 days
- Double worsening
  - exacerbation following a phase of improvement

**ABRS**

**Acute Bacterial Rhinosinusitis**

- Sensitivity and specificity of symptoms and general exam findings variable
- We lack objective, easy-to-use, point-of-care tests
- Rhinology practice:

**ABRS**

**Acute Bacterial Rhinosinusitis**

- Endoscopy allows for:
  - identification of pus
  - culture acquisition

**ABRS**

**Acute Bacterial Rhinosinusitis**

- Endoscopic culture:
  - middle meatus culture generally accurate
  - *Streptococcus pneumoniae, Moraxella catarrhalis, Haemophilus influenzae*
  - *Staphylococcus aureus, Pseudomonas aeruginosa*
ABRS
CT Scans

- Limited value in uncomplicated acute infection
- Will be positive regardless of etiology
- Best done at baseline

ABRS Odontogenic Sinusitis

<table>
<thead>
<tr>
<th>SYMPTOMS</th>
<th>BASELINE CT</th>
<th>ENDO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recurrent ABRS</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>Viral URI</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
### ABRS
#### Acute Bacterial Rhinosinusitis
- In setting of ABRS:
  - friable
  - significant edema
  - bleeds easily
  - Avoid surgery if possible

### ABRS: Complications
- Meningitis
- Intracranial abscess
- Orbital extension
  - cellulitis
  - abscess
- Cavernous sinus thrombosis

### ABRS: Complications
- Prompt inpatient management
- ENT consultation
- Main indication for imaging in setting of ARS
**Diagnosis**

**Chronic Rhinosinusitis (CRS)***

- *x 12 weeks + or* 

**chronic rhinosinusitis is:**
1. symptomatic *inflammation* of the nasal cavity and paranasal sinuses lasting over 12 weeks
2. confirmed by objective measures
unclear etiology*
NOT NECESSARILY TRUE, ETIOLOGY OF CRS IS UNCLEAR.

COMMON ASSUMPTION: MULTIPLE INFECTIONS PER YEAR = CRS

CRS

Recurrent ABRS

Recurrent infections may be an association to underlying CRS. Alternatively, patient may be experiencing recurrent acute bacterial sinusitis (RABS).

SYMPTOMS  BASELINE CT  ENDO

Recurrent ABRS

CRS

+  +/−
**CRS**

**Chronic Rhinosinusitis**

- Baseline chronic inflammatory state

- Th1 biased profile in **CRS withOUT nasal polyps**

- Th2 biased profile in **CRS with nasal polyps**

- Exacerbations may or may not be related to infection

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**Treatment:**

- “maximal medical therapy” (MMT)

- surgery

- Not well standardized

  - MMT and surgical indications vary

  - appropriate degree of surgery and skill set varies

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**CRS**

**Chronic Rhinosinusitis**

<table>
<thead>
<tr>
<th>Treatment Options</th>
<th>CRSwNP</th>
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<tbody>
<tr>
<td>Topical steroids</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Oral Steroids</td>
<td>Unclear</td>
<td>Yes*</td>
</tr>
<tr>
<td>Short term abx</td>
<td>For acute exacerbation</td>
<td>For acute exacerbation</td>
</tr>
<tr>
<td>Long term abx</td>
<td>Yes*</td>
<td>Yes*</td>
</tr>
<tr>
<td>Nasal irrigation</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>


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**Goal:** to serve as an adjunct to medical therapy to help decrease the severity of symptoms related to CRS

- may not necessarily cure the disease

- Surgery
CRS
Symptoms ≠ Diagnosis

- Sensitivity 89%
- Specificity 12%
- PPV 49%
- NPV 54%

CRS
Symptoms ≠ Diagnosis

- Headache
- LPR
- Rhinitis
- Trauma
- Nasopharyngeal sinus
- Nasal airway
- Tumor
- Nasopharyngitis
- Chronic rhinitis
- Dental disease

**headache**

“sinus”
migraine.
Headache is Often Mistaken for “Sinus Headache”

MIGRAINE

~50% of patients who meet criteria for migraine have nasal or ocular symptoms

**CRS**

Symptoms ≠ Diagnosis

**Allergic & Nonallergic Rhinitis**

Chronic Rhinitis (CRS)

- Association with CRS
  - present in 50-80% of patient with CRS
- No definitive cause-effect relationship has been established
- Overlapping symptom set and treatment paradigm
Allergic & Nonallergic Rhinitis
Chronic Rhinitis (CRS)

- Overlapping symptom set
- Patient satisfaction is a result of symptom improvement
- Managing the overlapping CR symptoms is critical for some patients

Chronic Rhinitis & CRS
Similar Symptoms / Treatment

- Topical steroids
- Oral steroids
- Antibiotics
- Saline
- Turbinate reduction
- Septoplasty
- Immunotherapy
- Antihistamines
- Sinus surgery

Allergic & Nonallergic Rhinitis
Chronic Rhinitis

CRS
Symptoms ≠ Diagnosis

- Reflux
- Tumor
- CRS
CRS
Symptoms ≠ Diagnosis

Benign & Malignant Tumors
Sinonasal Tumors

- Commonly mistaken for sinusitis
- Especially during early phase
- Malignant tumors tend to be advanced at time of diagnosis
- Small tumors in paranasal sinuses have paucity of symptoms
### Benign & Malignant Tumors

**Suggestive Symptoms**

- Unilateral
- Nasal obstruction
- Epistaxis
- Progressive

### Benign & Malignant Tumors

**Suggestive Symptoms**

- New and different
- Unresponsive
- Pain, numbness
- Visual changes
- Loose teeth

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[Images of medical scans related to tumors]
### Acute and Chronic Rhinosinusitis

**Summary**

- Acute rhinosinusitis
  - viral > Bacterial
  - recurrent acute bacterial rhinosinusitis
    - surgery may be indicated with 4 episodes / yr
    - endoscopy may help identify candidates

- Chronic rhinosinusitis
  - unclear etiology in many cases
  - medical therapy +/- surgery aimed at symptom resolution
  - symptoms overlap with other disorders