Rhinosinusitis

Disclaimer

Contents

Rhinosinusitis

Sources

For patients

For health professionals

Background

About rhinosinusitis

Red flags

Assessment

Symptoms

Targeted examination

Red flags

Mid-segmental facial pain

Nasal foreign body

Management

Delayed prescribing

Viral ARS

• Nasal decongestant sprays

• Nasal saline irrigation

Topical nasal steroids

Acute bacterial rhinosinusitis

Antibiotics

Underlying causes

Chronic rhinosinusitis (CRS) education

Long course of antibiotics

Polyps

Endoscopic sinus surgery

Referral

Red flags

Information

For health professionals

For patients

Sources

Disclaimer
**Background**

**About rhinosinusitis**

- Rhinosinusitis has largely replaced the term ‘sinusitis’.
- Rhinosinusitis is inflammation of the paranasal sinuses and nasal cavity. Rhinitis and sinusitis usually co-exist.
- Acute and chronic rhinosinusitis are defined by the duration of symptoms: acute < 12 weeks or chronic ≥ 12 weeks.
- The aetiology and management of acute rhinosinusitis and chronic rhinosinusitis are quite different.

**Acute rhinosinusitis (ARS)**

- ARS is usually triggered by a viral upper respiratory tract infection, which resolves within 7 to 10 days.
- This can be classified as:
  - Acute viral rhinosinusitis (common cold)
  - Acute post-viral rhinosinusitis
  - Acute bacterial rhinosinusitis
- The most commonly implicated bacteria are streptococcus pneumonia, haemophilus influenzae, and moraxella catarrhalis.

**Chronic rhinosinusitis (CRS)**

- CRS is an inflammatory condition involving the paranasal sinuses and the linings of the nasal cavity that lasts for > 12 weeks:
  - It may follow an acute episode of rhinosinusitis.
  - There is an association with adult onset asthma.
  - CRS is further divided into those patients who have nasal polyps and those without polyps (more common). This is determined by endoscopic or CT examination, and the management is different.

**Red flags**

- Severe systemic symptoms or severe frontal headache
- Periorbital or facial cellulitis
- Diplopia, altered visual acuity, or reduce eye movements
- Immunocompromised patient and systemically unwell
- Sinonasal malignancy
Assessment

1. Assess symptoms to determine type of sinusitis.

Symptoms

Acute rhinosinusitis (ARS) (lasts for < 12 weeks) and can be divided into:

- Acute viral rhinosinusitis (lasts < 10 days) with nasal blockage or congestion or nasal discharge, plus one of:
  - Facial pressure or pain or headache
  - Reduced smell (adults)
  - Cough (children)
- Acute post-viral rhinosinusitis where symptoms follow acute viral rhinosinusitis and either increase after 5 days or persist for < 12 weeks.
- Acute bacterial rhinosinusitis with:
  - Purulent secretion in the nose
  - Fever > 38°C
  - Severe local pain (predominantly unilateral)
  - Deterioration after early improvement in initial milder illness.

Chronic rhinosinusitis (lasts for ≥ 12 weeks) with nasal blockage or congestion or nasal discharge, plus one of:

- Facial pain or pressure
- Reduction or loss of smell (adults)
- Cough (children)

2. Check for allergic symptoms (allergic rhinitis), e.g., sneezing, watery nasal discharge, nasal itching, itchy watery eyes.

3. Conduct a targeted examination to exclude:

Targeted examination

- Temperature
- Assessment of facial pain (on palpation and bending forwards)
- Nasal examination for discharge, polyposis, swelling, foreign body
- Assessment of eye pain, movements, and acuity if indicated
- Dental examination
- Palpation of temporomandibular joint (TMJ)

Red flags

- Severe systemic symptoms or severe frontal headache
- Periorbital or facial cellulitis
- Altered visual acuity or diplopia
- Reduced eye movements with or without reduced level of consciousness secondary to cavernous sinus thrombosis or orbital apex syndrome
- Immunocompromised patient and systemically unwell
- Sinonasal malignancy:
  - Unilateral nasal obstruction with haemoserous discharge
Recent onset of Horner’s syndrome
Paraesthesia in the skin of cheek, maxillary gingiva, or hard palate

**Mid-segmental facial pain**

*Mid-segmental facial pain*

This condition has different names, e.g. facial pain syndrome or idiopathic facial pain, but this is the internationally recognised term.

- This is a common condition, which is often confused with rhinosinusitis by both doctors and patients. It is associated with:
  - soft tissue tenderness and pain
  - minimal nasal symptoms (an important symptom to help distinguish from rhinosinusitis).
- Education plays a key role in management.
- Chronic rhinosinusitis or other conditions may need to be excluded to make this diagnosis.
- Consider a 3 to 6 months trial of low-dose tricyclic antidepressants.

- temporomandibular disorder (TMD) or dental pain
- **nasal foreign body**

*Nasal foreign body*

Suspect a nasal foreign body in children with a new onset unilateral nasal discharge.

- migraine or headache.

4. Investigations are not usually required:
  - Plain X-rays of sinuses are not used.
  - CT sinus scans are indicated only if patients are symptomatic despite 3 months of medical management.
  - If suppurative complications are suspected, CT scans are done by the assessing emergency department.
  - There is no role for bacterial swabs.

**Management**

**Delayed prescribing**

*If acute respiratory tract infections, give a script to be filled if symptoms deteriorate coupled with information on symptomatic treatment and clear instructions on when it is appropriate to start the antibiotics.*

1. If *red flags (see above)*, arrange immediate ENT referral or admission.
2. Provide education about the condition, expected duration of symptoms, and management options.
3. Advise smoking cessation.
4. If allergic symptoms, use short-term antihistamines or long-term topical nasal steroids, or both if severe.
5. If mid-segmental facial pain is diagnosed, consider low-dose tricyclic antidepressant.
6. Manage further according to nature:

**Acute rhinosinusitis (ARS)**

1) If **viral ARS** lasting < 10 days:

**Viral ARS**

*Lasts < 10 days, with nasal blockage or congestion or nasal discharge, plus one of:*

- facial pressure or pain or headache
- reduced sense of smell in adults
- cough in children.

- provide symptomatic relief e.g., analgesics, **nasal saline irrigation, nasal decongestant sprays.**

**Nasal decongestant sprays**

- **Readily available over the counter** e.g., Oxymetazoline, Xylometazoline.
- **Cause vasoconstriction and hence decongestion of the nasal mucosa. Will temporarily improve nasal airflow. This will improve symptoms and aid in penetrance of nasal steroid sprays and irrigation.**
- **If used regularly for more than 4 to 5 days, the nose will become dependant on theses sprays. This worsens symptoms and causes ongoing obstruction (a common condition – named rhinitis medicamentosa).**
- **Ensure you counsel your patients to only use these preparations sparingly.**

**Nasal saline irrigation**

Use to reduce post-nasal drainage, remove secretions, and rinse away allergens and irritants.

Use before intranasal topical steroids.

Preparations:

- If adult, use commercial saline rinse preparations
- If child, use nasal drops or spray.
- If using a home-made saline solution, dissolve 1/2 teaspoon salt and 1/4 teaspoon baking soda in 250 mL of warm water and pour into a commercially purchased sinus rinse bottle or pot. Provide [patient information](#).

- advise there is no evidence of benefit from oral decongestants, antihistamines, or steam inhalation.
2) If post-viral ARS, where the symptoms increase > 5 days after an episode of acute viral rhinosinusitis:

- provide symptomatic relief e.g., analgesics, **nasal saline irrigation (see above), nasal decongestant sprays (see above)**.
- advise there is no evidence of benefit from oral decongestants, antihistamines, or steam inhalation.
- start **topical nasal steroids** and use until the symptoms resolve.

**Topical nasal steroids**

- Beneficial in both ARS (viral and bacterial) and chronic rhinosinusitis (CRS) to relieve symptoms.
  - Full response may take 2 to 3 weeks. Explain this to patient, otherwise compliance will be poor.
  - It is important to use long term if CRS and after sinus surgery.
  - Review patient’s technique for using intranasal steroid spray.

- Mometasone furoate (Nasonex) – 2 sprays in each nostril daily.
- Ciclesonide (Omnaris) – 2 sprays in each nostril daily.
- Budesonide (Rhinocort) 2 sprays in each nostril twice daily.
- Fluticasone propionate (Flixonase) – 2 sprays in each nostril daily.
- Beclomethasone (Beconase) 50 microgram – 2 sprays in each nostril twice daily.
- Azelastine plus fluticasone propionate (Dymista) – 1 spray into each nostril, twice daily.

- ensure topical nasal decongestant use is discontinued in ARS.
- consider whether there may be a bacterial cause.

3). If **acute bacterial rhinosinusitis**:

**Acute bacterial rhinosinusitis**

**Symptoms include:**

- purulent secretion in the nose.
- fever > 38°C.
- severe local pain (predominantly unilateral).
- deterioration after early improvement in initial milder illness.

- provide symptomatic relief e.g., analgesics, **nasal saline irrigation (see above), nasal decongestant sprays (see above)**.
- start **topical nasal steroids (see above)** and use until the symptoms resolve.
- start **antibiotics**.

**Antibiotics**

- Consider one of the following:
  - amoxicillin:
    - Adults – 500 mg three times a day for 7 days
• Children – 50 to 80 mg/kg/day divided into 3 doses
  o doxycycline: Aged > 12 years only – 100 mg twice a day for 7 days
  o erythromycin: Adults – 400 mg three times a day for 7 days

• advise oral steroids are not indicated unless known pre-existing chronic rhinosinusitis with polyps.

4) If recurrent acute bacterial rhinosinusitis e.g., ≥ 4 episodes per year:
   • manage as chronic rhinosinusitis.
   • arrange urgent or routine ENT referral if unresponsive to medical treatment.

**Chronic rhinosinusitis (CRS)**

1). Modify and treat any underlying causes.

### Underlying causes

- Allergic rhinitis
- Rhinitis medicamentosa – prolonged use of nasal decongestion sprays
- Adult onset asthma
- Smoking
- Irritants and pollutants
- Immunodeficiency
- Defects in mucociliary clearance
- Viral infections
- Systemic diseases
- Dental infections

2). **Educate** about CRS, which is important for compliance.

### Chronic rhinosinusitis (CRS) education

**CRS** is a complex inflammatory disorder with mucosal inflammation rather than a simple infectious process or anatomic problem.

- Recovery of normal mucociliary function (and, subsequently, resolution of the blockage sensation and postnasal drip sensation) may take months.
- Management aims at reducing symptoms and improving quality of life.

3) Initiate long-term use of nasal saline irrigation (see above) and topical nasal steroids (see above) and re-evaluate after 4 weeks:

  - If improvement, continue with treatment.
  - If no improvement, start long course of antibiotics.

### Long course of antibiotics

- Use either of:
  - doxycycline 100 mg daily for 4 to 6 weeks
  - roxithromycin 150 mg daily for 4 to 6 weeks.
- These are used for both antibacterial and anti-inflammatory properties.
• Consider a short course of oral steroids. There is only evidence of benefit in patients with polyps.

**Polyps**

- **Polyps may form in the nasal cavity or paranasal sinuses.**
- **Unless large, nasal polyps may be difficult to detect in primary care and are diagnosed endoscopically or on CT.**
- **Swollen nasal turbinates (pink in colour, similar to the rest of the nasal mucosa, and sensitive to touch) can be mistaken for nasal polyps (usually a grey or white colour).**

4). If 3 months of medical management has been trialed and failed, consider arranging urgent or routine ENT referral for further investigations and consideration for **endoscopic sinus surgery.**

**Endoscopic sinus surgery**

- **Surgery attempts to restore sinus ventilation and drainage, which can help resolve mucosal disease.**
- **Surgery must be followed by medical management to control the inflammatory process, otherwise the symptoms will return.**

5). Continue long-term nasal saline irrigation and topical nasal steroids. This is particularly important after surgery, otherwise the symptoms will return.

6). For acute exacerbations, use a 10 to 14 day course of antibiotics.

**Referral**

- If **red flags**, arrange immediate ENT referral or admission.

**Red flags**

- Severe systemic symptoms or severe frontal headache
- Periorbital or facial cellulitis
- Altered visual acuity or diplopia
- Reduced eye movements with or without reduced level of consciousness secondary to cavernous sinus thrombosis or orbital apex syndrome
- Immunocompromised patient and systemically unwell
- Sinonasal malignancy:
  - Unilateral nasal obstruction with haemoserous discharge
  - Recent onset of Horner’s syndrome
  - Paraesthesia in the skin of cheek, maxillary gingiva, or hard palate
• Consider arranging urgent or routine ENT referral if symptoms have a major impact on quality of life and:
  o recurrent acute rhinosinusitis unresponsive to medical treatment and either of:
    ▪ > 4 episodes in 1 year
    ▪ 2 to 3 episodes per year over 3 years.
  o chronic rhinosinusitis where 3 months of medical management has been trialled and failed.
  o difficulty making a diagnosis when a patient has chronic nasal, sinus, or forehead symptoms.

Information

For health professionals

Further information

For patients

➢ HealthInfo – Nasal Saline Rinse
➢ Patient:
  o Acute Sinusitis
  o Chronic Sinusitis

Sources

References
Last Reviewed: July 2019

Disclaimer