Management of rhinosinusitis in adults in primary care

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Abstract

Rhinosinusitis is a common health problem encountered in primary care. It is due to mucosal inflammation of the nose and paranasal sinuses. Less than 2% of the cases are associated with bacterial infections. Diagnosis is based on clinical symptoms and supported by nasal endoscopy and imaging studies. Intranasal corticosteroids and normal saline irrigation are important treatments. Antibiotics are seldom indicated.

Introduction:

Sinusitis is a common health problem characterised by mucosal inflammation of the paranasal sinuses. However, it coexists with rhinitis in most patients. Hence, the current accepted terminology is rhinosinusitis (RS).

RS is divided into two subtypes: acute (ARS) and chronic (CRS), based on the duration of the symptoms. The prevalence rates of ARS and CRS range from 6% to 15% and 5% to 15%, respectively, in Western populations. Meanwhile, studies from several Asian countries show lower prevalence rates of CRS ranging between 2.7% and 8%.

RS poses a major health problem. The disease and its effect on quality of life, productivity and finances are substantial. As the majority of patients with RS present in a primary care setting, it is important for primary healthcare providers to be aware of the diagnosis and management of the disease.

Diagnosis

The diagnosis of RS is usually based on clinical symptoms supported by diagnostic imaging or nasal endoscopy as shown below.

- The clinical definition of RS in adults is:
  - Inflammation of the nose and paranasal sinuses characterised by two or more symptoms, one of which should be either nasal blockage/obstruction/congestion or nasal discharge (anterior/posterior nasal drip):
    - ± facial pain/pressure
    - ± reduction in or loss of smell

AND at least one of the following:

- Endoscopic signs of:
  - nasal polyps and/or
  - mucopurulent discharge, primarily from middle meatus and/or
  - oedema/mucosal obstruction, primarily in middle meatus
- CT changes:
  - mucosal changes within the ostiomeatal complex and/or sinuses
- Past medical history of CRS (medically diagnosed)

Classification

- Acute versus chronic
  ARS is defined as a worsening of symptoms after five days or symptoms persisting after 10 days, but less than 12 weeks. If the duration of symptoms is less than five days, the diagnosis is acute viral RS, commonly known as the common cold (refer to **Figure 1**).

CRS is defined as symptoms persisting for more than 12 weeks.

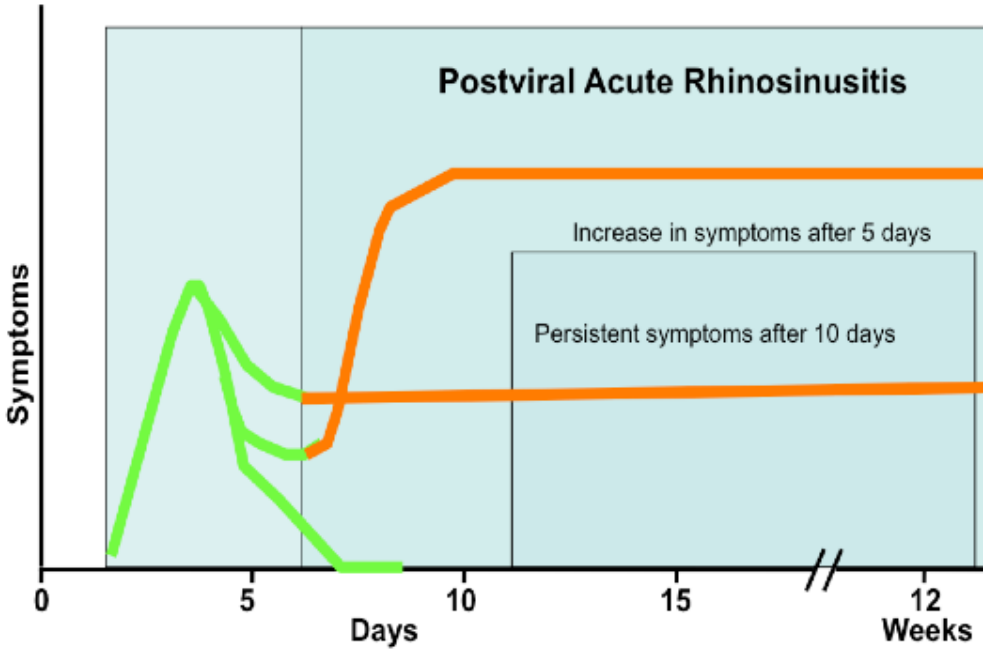


Figure 1. Definition of ARS

- Viral versus bacterial
  The majority of ARS cases are viral in origin, with only 0.5 - 2.0% complicated by bacterial infection. In clinical practice, it is difficult to differentiate between bacterial and viral RS. This may lead to unnecessary antibiotic use for patients and increase the incidence of antibiotic resistance. Symptoms such as fever, facial pain, purulent nasal discharge and duration of symptoms have been used to differentiate bacterial from viral RS, as shown below.

- Acute bacterial rhinosinusitis (ABRS) is suggested when there are at least three symptoms/signs of:
  - discoloured discharge (with unilateral predominance) and purulent secretion in the nasal cavity
  - severe local pain (with unilateral predominance)
  - fever (>38°C)
  - elevated erythrocyte sedimentation rate/C-reactive protein
  - deterioration of symptoms and signs

Risk factors

Risk factors for ARS are:
- active smoker
- allergic rhinitis (AR)

For CRS, the risk factors are:
- smoker (a second-hand smoker has a higher risk of CRS with current and past exposure)
- positive family history
- asthma, especially in the presence of CRS with nasal polyps (CRSwNP)
- allergies, chronic bronchitis and emphysema
- ARS
- chronic rhinitis
- gastroesophageal reflux disease
- sleep apnoea
- adenotonsillitis

There is no evidence for a causal correlation between sinonasal anatomical variations, in general, and the incidence of CRS.

Physical examination

- ARS
  An anterior rhinoscopy should be performed

as part of the clinical assessment of suspected ARS in a primary care setting. It may reveal findings such as mucosal oedema, nasal inflammation, purulent nasal discharge, polyps and/or anatomical abnormalities.

- CRS
  Anterior rhinoscopy has a limited value in diagnosing CRS. Diagnosis of CRS requires a nasal endoscopy by an otorhinolaryngology (ORL) surgeon, which provides better visualisation of nasal pathologies, including anatomical variations, mucosal inflammation, polyps and nasal discharge.

Investigations

- Laboratory
  A nasal swab should not be performed in the case of RS in the primary care setting due to its low predictive value in diagnosing ABRS and CRS.

  An endoscopically-directed middle meatal culture by otorhinolaryngologists can obtain a specimen for culture and susceptibility tests in unresolved ABRS (no response to antibiotics after 72 hours).

The organisms most commonly associated with ABRS are:
- *Streptococcus pneumoniae*
- *Haemophilus influenzae*
- *Moraxella catarrhalis* (more commonly in children)

Anaerobic organisms are predominant in ARS with dental origin.

In CRS, the most commonly involved organisms are:
- *Staphylococcus aureus*
- *Enterobacteriaceae spp*
- *Pseudomonas spp*

- Radiology
  Plain radiography is not recommended in the management of RS.

A computed tomography (CT) scan is the gold standard for radiographic evaluation of the paranasal sinuses. A CT scan of the paranasal sinuses should be considered in the ORL setting when:
- medical therapy fails
- surgery is planned
- complications are suspected

Treatment

- ARS

  - *Nasal irrigation*
    Nasal irrigation is recommended in ARS. Buffered or normal saline irrigation facilitates mechanical removal of mucus, infective agents and inflammatory mediators. It also decreases crusting in the nasal cavity and increases mucociliary clearance.

  - *Corticosteroids*
    Intranasal corticosteroids should be considered for 14 - 21 days in ARS. Oral corticosteroids **should not** be prescribed to treat ARS in the primary care setting.

  - *Oral antihistamine*
    An antihistamine may have a role in the treatment of ARS with underlying AR. Symptoms suggestive of the condition include sneezing, nasal itchiness, nasal obstruction and rhinorrhoea. Antihistamine controls sinusitis symptoms in AR. Evidence shows that there is improvement in sneezing after 14 days and nasal obstruction after 28 days of treatment.

  - *Antibiotics*
    Antibiotics may be prescribed for ABRS after weighing benefits against potential side effects. Gastrointestinal upsets are the most common side effects. Antibiotics overuse has resulted directly in an increased prevalence of antimicrobial resistance.

    In suspected ABRS, the preferred antibiotics are:
    - Amoxicillin 500 mg every 8 hours for 5 - 7 days OR
    - Amoxicillin/Clavulanate 625 mg every 8 hours for 5 - 7 days

  - *Other medications*
    - Analgesics: paracetamol or non-steroidal anti-inflammatory drugs may provide symptomatic relief in both viral and bacterial infections of the upper respiratory passages in RS.
    - Decongestants: Topical or systemic decongestants may offer additional symptomatic relief. Topical

decongestants **should not be** prescribed for more than two weeks due to the rebound phenomenon. Oral decongestants **should be** cautiously prescribed in those with medical conditions such as insomnia, glaucoma, benign prostate hyperplasia, diabetes mellitus and cardiovascular diseases.

- Mucolytics and antiviral agents: There is no evidence to support the use of these agents in RS.

- CRS

  - Intranasal corticosteroids should be given for 16 - 52 weeks in CRS. Short-term oral corticosteroids (25 mg/day for 2 weeks) **should only** be given in CRS at an ORL centre.
  - Nasal irrigation is also a useful adjunct medication in CRS.
  - Antihistamine: there is insufficient evidence to recommend its use for treatment of CRS in non-AR patients.
  - Antibiotics should not be used routinely in CRS.

- Surgery

  Surgery should be considered in ARS with orbital or intracranial complications. Functional endoscopic sinus surgery should be offered to patients with CRS who fail optimal medical treatment.

Referral

- ARS

  Early referral (within one week) criteria are:
  - persistent symptoms despite optimal therapy, in particular
  - immunocompromised patients such as those with uncontrolled diabetes, end-stage renal failure or a human immunodeficiency virus (HIV) infection
  - frequent recurrence (≥4 episodes per year)
  - anatomical defects causing obstruction
  - suspected malignancy

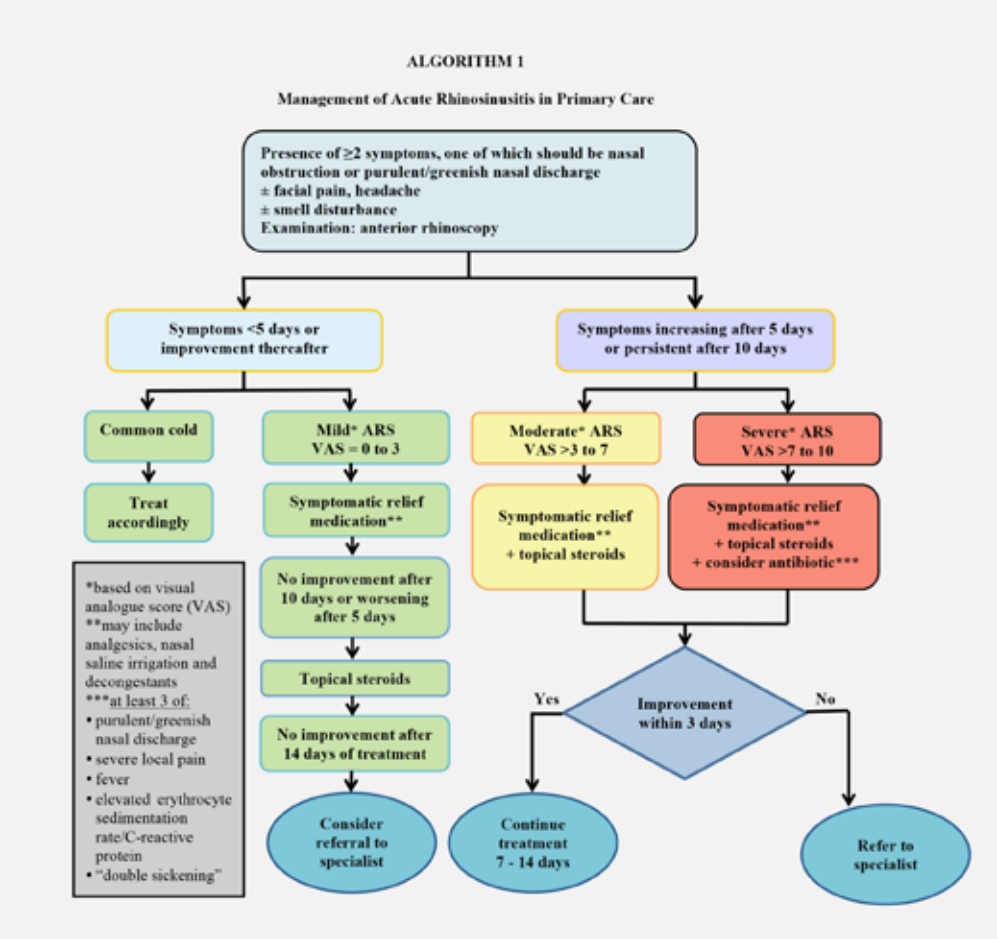
  Urgent referral (within 24 hours) criteria are:
  - orbital complications
    - periorbital oedema/erythema
    - displaced globe
    - double vision
    - ophtalmoplegia/restricted eye movement
    - reduced visual acuity
  - severe frontal/retro-orbital headache
  - forehead swelling (subperiosteal abscess)
  - neurological manifestations, such as meningitis, altered consciousness or seizure
  - septicaemia

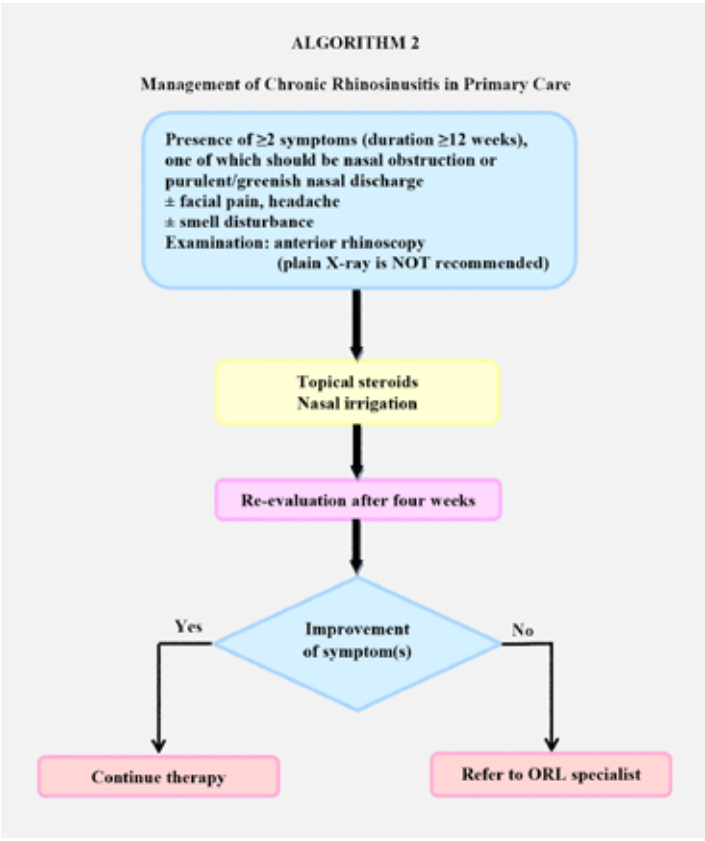
- CRS

  Early referral (within one week) criteria are:
  - failed course of optimal medical therapy
  - >3 sinus infections/year
  - suspected fungal infections, granulomatous disease or malignancy

  Urgent referral (within 24 hours) criteria are:
  - severe pain or swelling of the sinus areas, in particular in immunocompromised patients, such as those with uncontrolled diabetes, end-stage renal failure or an HIV infection

Summaries of the Management of ARS & CRS in Primary Care are shown in **Algorithms 1 and 2**.





Acknowledgement

Details of the evidence supporting the above statements can be found in Clinical Practice Guidelines on the Management of Rhinosinusitis in Adolescents & Adults 2016, available on the following websites: http://www.moh.gov.my (Ministry of Health Malaysia) and http://www.acadmed.org.my (Academy of Medicine). Corresponding organisation: CPG Secretariat, Health Technology Assessment Section, Medical Development Division, Ministry of Health Malaysia; contactable at htamalaysia@moh.gov.my.