ABRS: Complaisantly Common

Rhinosinusitis is one of the most commonly encountered conditions by primary care physicians. It is also one of the least understood and can therefore be a diagnostic and therapeutic challenge. Acute bacterial rhinosinusitis (ABRS) affects approximately 15% of North Americans annually and is the fifth leading diagnosis for which antibiotics are prescribed. In the US, approximately 9% of all pediatric and 21% of all adult prescriptions are for the treatment of ABRS1. Furthermore, $3.5 billion is spent each year on the diagnosis and management of ABRS, and it is a leading cause of missed work days in North America.

What is Rhinosinusitis?

Rhinosinusitis is an inflammatory condition involving the mucous membranes of the nasal cavity and paranasal sinuses. Approximately 90% of cases are caused by a viral upper-respiratory tract infection (URTI) and only 0.5% of adult URTIs and 5% of pediatric URTIs are complicated by the development of ABRS.2 Other potential sources of sinonasal inflammation include:

• Allergies
• Asthma
• Environmental irritants such as cigarette smoke
• Dental infections of the maxillary teeth
• Trauma

Although rare, complications of ABRS can cause serious morbidity and can be potentially fatal. These complications include:

Periorbital edema
Orbital cellulitis
Meningitis
Brain abscess

Marianne’s Sinus Problem

• Marianne, 33, complains of a two week history of nasal congestion, right-sided facial and maxillary tooth pain and rhinorrhea.
• She says it started as a cold and just never got better.
• She has never had a similar episode.
• An examination reveals purulent nasal discharge and congested nasal mucosa.

How would you treat Marianne? Go to page 85 to find out.

Table 1

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Table 1

Symptoms of ABRS

Purulent nasal discharge
Nasal congestion
Facial pain/ pressure (especially unilateral)
Maxillary tooth pain
Postnasal drip
Anosmia/ hyposmia
Ear fullness/ pressure
Fever
Cough
Fatigue
These complications necessitate prompt recognition, investigation and management.

**How is ABRS Diagnosed?**

The diagnosis of ABRS can be difficult due to the wide range of non-specific signs and symptoms that characterize the infection. Furthermore, the sinuses are inaccessible, making physical examination limited and difficult. Diagnosis of ABRS relies heavily on history and clinical presentation. Physical examination, laboratory tests and radiologic investigations can be helpful when correlated with the clinical presentation.

Since most cases of ABRS begin with a viral URTI, which is expected to last seven to 10 days, the diagnosis is generally made only if symptoms persist longer than 10 days, or if symptoms worsen after initial improvement. If signs and symptoms persist after three months, a diagnosis of chronic rhinosinusitis may be made. Symptoms of ABRS are outlined in Table 1.

The best predictors of ABRS include:

- the presence of purulent secretions,
- maxillary tooth pain and
- poor response to decongestants.

Laboratory investigations are of limited use and usually not necessary. Plain sinus X-rays are only helpful if there is unilateral sinus opacification, or if air-fluid levels are present. Unfortunately, CT scans and MRIs are too sensitive to be of diagnostic value and their use is generally limited to cases of recurrent ABRS, complications of ABRS, chronic rhinosinusitis, or the investigation of suspected neoplasms.
How is ABRS treated?

The management of ABRS includes both medical and surgical treatments. Surgical intervention may be required in recurrent ABRS or in complications of ABRS. There is a wide variety of medical treatment available (Table 2). Recent guidelines have been published in Canada and in the US for the antimicrobial treatment of ABRS (Table 3). Since the predominant bacterium involved in ABRS are Streptococcus pneumoniae, Hemophilus influenzae, and Moraxella catarrhalis, the choice of antibiotic should cover all these organisms.

The duration of initial therapy should be 10 days. When the patient has received antibiotics in the past three months, has an allergy to b-lactam antibiotics, underlying chronic illness, or when symptoms have been present longer than four weeks, therapy should include a second-line antibiotic. Furthermore, it has been recommended that patients should be reassessed within 72 to 96 hours after initiation of antibiotic therapy. If there is no response, then the diagnosis should be reconsidered or the antibiotic changed.

There has been recent evidence to suggest that topical nasal steroids can help hasten the resolution of ABRS and prevent recurrent episodes of ABRS. Other medical preparations such as topical and systemic decongestants have not been shown to provide any statistic difference in shortening the duration of symptoms. However, they may provide limited symptomatic relief.

When there is a history of recurrent ABRS, complications of ABRS, when the diagnosis is uncertain or in cases of chronic sinusitis, a referral to an otolaryngologist should be considered.

Treating Marianne

- You start Marianne on amoxicillin and a topical nasal steroid for sinusitis.
- After three days of treatment but with no improvement, you switch her to clarithromycin.
- You see Marianne again after another three days and she feels as if she’s improving.
- Mary has complete resolution of her symptoms after finishing her 10 day course of clarithromycin.

Take-home message

- Diagnosis of acute bacterial rhinosinusitis (ABRS) can be difficult.
- Most cases are preceded by a viral upper-respiratory tract infection.
- Plain sinus X-rays are helpful if there is unilateral involvement or if air-fluid levels are present.
- Choose an appropriate antibiotic based on patient factors.
- Refer patient to an otolaryngologists when appropriate.

References