

## 5 YEAR OLD BOY WITH COUGH

### This case study aims to

- Help understand the clinical presentation of childhood bronchitis
- State the treatment of bronchitis
- Discuss the long term management of a child with bronchitis

### Case

*Deepak, 5 years of age, has been brought to his paediatrician by his mother for a dry hacking cough since the last 3-4 days. It all began with a cold, slight fever and sore throat 7-10 days back. This was followed by a watery nasal discharge which later became thicker and colored. On examination, the child was afebrile; pulse was 80/min, regular, General examination was normal, Examination of the chest showed scattered and bilateral rhonchi.*

### 1. Based on the history and examination the clinical diagnosis is

- a) Rhinitis
- b) Bronchitis**
- c) Pneumonia
- d) None of the above

Acute bronchitis is a clinical syndrome produced by inflammation of the trachea, bronchi, and bronchioles. In children, acute bronchitis usually occurs in association with viral respiratory tract infection. Acute bronchitis is rarely a primary bacterial infection in otherwise healthy children. Symptoms of acute bronchitis usually include cough that produces phlegm and may be associated with retrosternal pain during deep breathing or coughing. Generally, the clinical course of acute bronchitis is self-limited, with complete healing and full return to function typically seen within 10-14 days following symptom onset

### 2. The causes of bronchitis are

- a) Viral infections
- b) Secondary bacterial infection
- c) Allergies
- d) All of the above**

The viruses which cause acute bronchitis include Viral infection adenovirus, Influenza, parainfluenza, respiratory syncytial virus, rhinovirus, Coxsackievirus and herpes simplex virus. Secondary bacterial infection as part of an acute upper respiratory infection. The organisms include *S pneumoniae*, *M catarrhalis*, *H influenzae*, *Chlamydia pneumoniae* and *Mycoplasma* species. Air pollutants, such as occur with smoking and from second-hand smoke

Other causes of bronchitis include allergies, chronic aspiration or gastroesophageal reflux

### 3. How would you manage this child?

General measures include rest, use of antipyretics, adequate hydration, and avoidance of smoke. Proper care of the underlying disorder is of paramount importance. Consideration of asthma and adequate therapy are critical to an early response.

**Case Contd.**

*Deepak was given symptomatic treatment and was called for follow up after a week. 2 weeks later, child was brought with complaints of bouts of intense cough, nocturnal cough and post tussive vomiting. Clinical examination was non contributory.*

**4. How would you know manage this child?**

- a) Give a course of antibiotics
- b) Give  $\beta$  agonist such as salbutamol**
- c) Give steroids
- d) None of the above

Deepak's symptoms are suggestive of bronchoconstriction suggestive of a hyperreactive airway disease and the line of management is with bronchodilator therapy.

- Either a beta-adrenergic agonist, such as salbutamol or theophylline may be effective. Beta-adrenergic agents are less toxic, have a more rapid onset of action than theophylline, and do not require monitoring of levels. Inhaled corticosteroids may be effective.
- In the child who continues to cough despite a trial of bronchodilators and in whom the history and physical examination findings suggest a wheezy form of bronchitis, oral corticosteroids should be added.
- If the response is suboptimal or if fever persists, antibiotic therapy with an agent such as a macrolide or beta-lactamase-resistant antimicrobial may be considered.

**Case contd.**

*Deepak was treated with salbutamol MDI (one puff three times a day) through a spacer device. He responded well to treatment and was asymptomatic after 4 days of therapy.*

Resolution of symptoms, normal findings on physical examination, and normal pulmonary function findings indicate the end of acute treatment.

Patients in whom asthma is diagnosed may be candidates for "controller" therapy, which consists of daily inhaled corticosteroid therapy, antihistamines, or leukotriene inhibitors.

**5. Complications of bronchitis include**

- a) Bronchiectasis
- b) Bronchopneumonia
- c) Acute respiratory failure
- d) All of the above**

**References**

1. Hueston WJ, Mainous AG 3rd. Acute bronchitis. *Am Fam Physician*. Mar 15 1998; 57(6):1270-6, 1281-2.

2. Kimberly Danieli Watts Denise M. Goodman, Wheezing, Bronchiolitis, and Bronchitis Chapter 388 in Kliegman: Nelson Textbook of Pediatrics, 18th ed