

## Case Discussion on Patients with Bronchial Asthma

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### Abstract

Bronchial asthma is a disease characterized by an increased responsiveness of airways to various stimuli. It manifests by widespread narrowing of airways causing paroxysmal dyspnea, wheezing or cough. For this comparative study 3 patients were randomly selected from paediatric wards of AIIMS, Patna who were diagnosed with Bronchial asthma. Proper history collection was done among samples about etiology, diagnostic measures, clinical features and regarding management. Adequate medical and nursing care provided to patient helped in improvement in disease condition

**Keywords:** Bronchial Asthma; Etiology.

### Introduction

Bronchial asthma is a disease characterized by an increased responsiveness of airways to various stimuli .it manifests by widespread narrowing of airways causing paroxysmal dyspnea, wheezing or cough. The diffuse obstruction to airflow is reversible

in a large majority of cases, either spontaneously or in response to treatment. Bronchial reactivity is necessary component of asthma.

For this comparative study 3 patients were randomly selected from paediatric wards of AIIMS Patna who were diagnosed with Bronchial asthma

The details of patient are as follows;

Demographic data	Patient XX	Patient XY	Patient XZ
Age	7 years	6 years	4 years
Sex	Male	Female	Female
Evolko id	1434188	1392260	134578
Date of admission	10/07/2017	05/07/2017	31/06/2017

### Definition

Bronchial asthma is a disease characterized by an increased responsiveness of the airways to various stimuli. It manifests by widespread narrowing of airways causing paroxysmal dyspnea, wheezing or cough.

The diffuse obstruction to airflow is reversible in a large majority of cases, either spontaneously or in

response to treatment. Bronchial reactivity is necessary component of asthma.

### Incidence

It is most common chronic lung disease in childhood, affects 8-10% of children in urban area and 5-8% in rural area. It affects boys before puberty and in girls after puberty.

## Etiology

Book picture	Patient XX	Patient XY	Patient XZ
The most common cause of asthma results from allergic hyperresponsiveness of trachea and bronchi to irritants. The precipitating factors include viral infections, air pollution, animal dander, dust, pollen, certain physiological and psychological stress. A familial tendency is also noticed in aetiology.	Inhalation of dust Upper respiratory tract infections	History of maternal and paternal grandmother	Allergy Familial history of asthma

## Pathophysiology

Airway obstruction is caused by

- Oedema and inflammation of mucous membrane lining airways
- Excessive secretion of mucous inflammatory cells and cellular debris
- Spasm of smooth muscle of bronchi

Obstruction is diffuse but not uniform

Asthma has been classified as atopic, nonatopic, mixed, exercise induced or aspirin induced. Inhalation of allergen leads to a biphasic response with early and late reactions ultimately causing bronchoconstriction.

*Early reaction* starts within 10 min of exposure to

allergen. It is characterized by release of histamine, leukotrienes, prostaglandins, platelet activating factor and bradykinin from the mast cell following interaction of allergen with specific mast cell bound Ig E. All these substances cause bronchoconstriction, mucosal oedema and mucous secretion which manifests as airway obstruction. The phase is inhibited by B<sub>2</sub> agonist drugs.

*Late phase* occurs in about two-thirds of patients. It develops 3-4 hr later and peaks at 8-12 hr. The release of mast cell mediators is not prevented by premedication with beta 2 agonist. However, it is inhibited by premedication with steroids suggesting airway narrowing is mainly due to an inflammatory reaction and mucosal oedema. This phase presents as clinical asthma.

## Clinical Features

Book Picture	Patient XX	Patient XY	Patient XZ
The clinical features include; <ul style="list-style-type: none"> <li>• Dyspnoea</li> <li>• Air Hunger</li> <li>• Anxiety</li> <li>• Cough</li> <li>• Wheeze (expiratory in nature)</li> <li>• Tachypnoea</li> <li>• Complaints of chest tightness</li> <li>• Costal retractions</li> <li>• Diaphoresis</li> <li>• Severe case cyanosis</li> </ul>	<ul style="list-style-type: none"> <li>• Breathlessness</li> <li>• Low grade fever with chills and rigor</li> <li>• Productive cough</li> </ul>	<ul style="list-style-type: none"> <li>• Tachypnoea</li> <li>• Breathing difficulties</li> <li>• Chest tightness</li> </ul>	<ul style="list-style-type: none"> <li>• Dyspnoea</li> <li>• Productive cough</li> <li>• Wheezing</li> <li>• Chest retractions</li> <li>• Mild cyanosis</li> </ul>

### Diagnosis

Book Picture	Patient XX	Patient XY	Patient XZ
The diagnosis of Bronchial asthma include; <ul style="list-style-type: none"> <li>• History collection</li> <li>• Physical examination</li> <li>• Laboratory investigations</li> <li>• Chest radiography</li> <li>• Pulmonary function test</li> <li>• Skin prick testing and serological testing to identify environment allergens</li> <li>• Frontal and lateral radiographs shows infiltration and hyper expansion of airways</li> </ul>	<ul style="list-style-type: none"> <li>• History collection</li> <li>• Physical examination</li> <li>• Lab investigations- Na-132 k-3.9 hb-11.2 platelets-17900 WBC-12000 Neutrophil-84</li> </ul>	<ul style="list-style-type: none"> <li>• History collection</li> <li>• Physical examination</li> <li>• Chest Xray (PA view)</li> <li>• Lab investigations- ESR-45mm/hr Hb-12.40 WBC-14000</li> <li>• Blood culture and sensitivity</li> </ul>	<ul style="list-style-type: none"> <li>• History collection</li> <li>• Physical examination</li> <li>• Lab investigations- Hb-11.20 Haematocrit-36 RBC-4.47 Platelet count-179 Neutrophil-84 Lymphocyte-12 Eosinophil-2 ESR-26</li> </ul>

### Management

Book picture	Patient XX	Patient XY	Patient XZ
The management include <ul style="list-style-type: none"> <li>• Bronchodilators</li> <li>• Expectorant therapy</li> <li>• Corticosteroids and antibiotics</li> <li>• Respiratory therapy</li> <li>• Occupational therapy</li> </ul>	<ul style="list-style-type: none"> <li>• Nebulization 5mg over 20 min</li> <li>• Oxygen inhalation by nasal prong</li> <li>• Hydrocortisone 100 mg IV stat</li> <li>• Maintain fluid intake</li> </ul>	<ul style="list-style-type: none"> <li>• Oxygen inhalation through nasal prongs</li> <li>• High fowlers position</li> <li>• Chest physiotherapy</li> <li>• Antibiotics- ceftriaxone</li> </ul>	<ul style="list-style-type: none"> <li>• High fowlers position</li> <li>• Antibiotics- azithromycin</li> <li>• Ipratropium nebulization</li> <li>• Oxygen inhalation by nasal prongs</li> </ul>

### Discussion

Bronchial is a common childhood disease prevailing in children. There are various precipitating factors which are called as triggers in asthma.

All precipitating factors pertaining to patient were identified adequate care was provided and there was improvement in condition of patient after medical and nursing care .

### References

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