

ID/CC	A 10-year-old girl is brought into the ER in acute respiratory distress.
HPI	The patient is known to be allergic to cats and pollen; her mother states that she had a recent URI. She also complains of a history of moderate intermittent dyspnea that is exacerbated by exercise.
PE	VS: no fever; tachypnea (RR 32); BP: normal. PE: inspiratory and expiratory wheezes (due to bronchoconstriction, small airway inflammation); boggy and pale nasal mucosa; accessory muscle use during breathing; enlarged chest AP diameter; hyperresonant to percussion.
Labs	ABGs: primary respiratory alkalosis (hyperventilation). CBC: eosinophilia (13%). PFTs: low FEV ₁ /FVC.
Imaging	CXR: hyperinflation with flattened diaphragms (increased residual volume due to air trapping); peribronchial cuffing.
Gross Pathology	Hyperinflation with air trapping in alveoli; plugs of inspissated mucus; edema of mucosal lining.
Micro Pathology	Inflammatory infiltrate of bronchial epithelium, mainly eosinophilic; plugging of airways with thickened mucus (CURSCHMANN'S SPIRALS); hypertrophy of mucous glands; elongated rhomboid crystals derived from eosinophil cytoplasm (CHARCOT-LEYDEN CRYSTALS); hyperplasia of smooth muscle of bronchi.
Treatment	Nebulized bronchodilators, parenteral steroids, and ventilatory support for acute exacerbations; inhaled bronchodilators and steroids for chronic, persistent symptoms; mast cell stabilizers such as cromolyn and leukotriene inhibitors such as zafirlukast for prophylaxis.
Discussion	Bronchial asthma is characterized by hyperreactivity of the airways and obstruction due to bronchospasm, edema, and mucus. It is also known as reactive airway disease.