Pathophysiology of Bronchial Asthma: Bronchial asthma is a chronic inflammatory disease of the airways characterized by hyperresponsiveness, airflow obstruction, and recurrent episodes of wheezing, breathlessness, chest tightness, and coughing.Airway Remodeling: o Chronic inflammation leads to structural changes in the airway over time: o Smooth muscle hypertrophy and hyperplasia o Subepithelial fibrosis (due to deposition of collagen and extracellular matrix) o Goblet cell hyperplasia and increased mucus production o Thickening of the basement membrane o These changes contribute to irreversible airflow limitation in severe or poorly controlled asthma.Airflow Obstruction: o Obstruction is caused by a combination of: o Bronchial smooth muscle contraction o Airway edema o Mucus plugging o This results in reduced airflow, especially during expiration, causing air trapping and increased work of breathing.Summary: Asthma is driven by chronic inflammation and immune dysregulation, leading to airway hyperresponsiveness, reversible obstruction, and structural remodeling over time.Airway Inflammation: o Chronic inflammation is the hallmark of asthma and is triggered by exposure to allergens, irritants, or infections.o Inflammatory mediators (e.g., histamine, leukotrienes, prostaglandins) cause bronchoconstriction, vascular leakage, and mucus hypersecretion.o Chest tightness: Caused by :.airway narrowing and hyperinflation.2.3.4.5.6.7

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