Acute Bronchitis: Causes, Symptoms and Treatment

Acute bronchitis is a self-limiting inflammation of the **bronchial mucosa**, usually following an **upper respiratory tract infection (URI)**. It is most commonly caused by **viral pathogens** and typically lasts **less than three weeks**.

Etiology (Causes)

Most cases are **viral** in origin:

Common Viral Causes:

- **Rhinovirus**
- **Parainfluenza virus**
- **Influenza A and B**
- **Respiratory Syncytial Virus (RSV)**
- **Coronavirus**
- **Human Metapneumovirus**

Less Common (Atypical or Bacterial) Causes:

- *Mycoplasma pneumoniae*
- *Bordetella pertussis*
- *Chlamydia pneumoniae*

Note: A specific pathogen is rarely isolated, and antibiotic therapy is usually not required in otherwise healthy individuals.

Risk Factors

- **Smoking**
- **Chronic Obstructive Pulmonary Disease (COPD)**
- **Asthma**
- **Cystic fibrosis**
- **Bronchiectasis**
- **Elderly or immunocompromised patients**

Pathophysiology

- Infection leads to **inflammation and edema** of the bronchial epithelium.
- **Mucociliary clearance is impaired**, and **excess mucus production** follows.
- The hallmark symptom is **persistent cough** due to airway irritation.
- In rare cases, infection can progress to **bronchiolitis** or **bronchopneumonia**.

Clinical Manifestations

Symptoms

- **Persistent cough** (initially dry, later productive)
- **Sputum**: May be clear, purulent, or blood-streaked
- **Mild dyspnea**
- **Chest tightness or pain with breathing**
- **Low-grade fever**
- **Fatigue**

? *High fever or systemic symptoms may suggest pneumonia or influenza.*

Physical Exam Findings

- Often normal
- May reveal **rhonchi** or **wheezing**
- **No signs of consolidation** (differentiates it from pneumonia)

Diagnosis

Clinical Diagnosis:

- Based on **history and physical examination**
- Typical duration: **<3 weeks**
- **Cough >5 days** is characteristic

When to Consider Further Testing:

- **Chest X-ray**: Only if pneumonia is suspected (e.g., abnormal vital signs, hypoxia, rales, consolidation)
- **Pertussis testing** (nasopharyngeal PCR or culture): If cough >2 weeks with paroxysms or whooping
- Rule out: **asthma, postnasal drip**, or **GERD** if chronic cough

Management

Supportive Treatment (Mainstay)

- **Rest and hydration**
- **Analgesics/antipyretics**: Acetaminophen or ibuprofen
- **Antitussives**: Only if cough disturbs sleep (e.g., dextromethorphan, codeine)

Bronchodilators ***(only if wheezing present)*:**

- **Inhaled ?2-agonists** (e.g., albuterol)
- **Inhaled anticholinergics** (e.g., ipratropium)

Inhaled corticosteroids:

- Consider if cough persists beyond 2 weeks due to airway hyperreactivity

Antibiotics: Use is Generally Discouraged

Indications for Antibiotics:

- **Suspected Pertussis**
- **COPD exacerbation** with at least 2 of the following:
  - Increased dyspnea
  - Increased cough frequency
  - Increased sputum purulence

Recommended Antibiotics (if indicated):

Drug	Dosage	Duration
Amoxicillin	500 mg PO TID	7 days
Doxycycline	100 mg PO BID	7 days
Azithromycin	500 mg PO daily	4 days
TMP-SMX (Co-trimoxazole)	160/800 mg PO BID	7 days

> ? *Empiric antibiotics have no benefit in most viral acute bronchitis cases and contribute to antimicrobial resistance.*

Prognosis

- Symptoms resolve within **10–14 days** in most patients.
- **Cough** may persist for **up to 3 weeks** due to bronchial hyperresponsiveness.
- Chronic or recurrent cases should be evaluated for **underlying lung disease** or **alternative diagnoses**.

Patient Education

- Avoid tobacco smoke and irritants
- Encourage hand hygiene to prevent viral transmission
- Reassure about the benign nature of the condition
- Emphasize the **limited role of antibiotics**

Key Pearls

- Acute bronchitis is a **clinical diagnosis**.
- **Cough lasting >5 days** is often the only symptom.
- **Antibiotics are not indicated** unless pertussis or COPD exacerbation is suspected.
- **Chest X-ray is only warranted** if pneumonia is a concern.
- Persistent cough >2–3 weeks ? **evaluate for asthma, GERD, or postnasal drip**.