Upper Respiratory Infections: Common Cold, Sinusitis, Pharyngitis, Epiglottitis and Laryngotracheitis

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1 Summary

Most upper respiratory infections are of viral etiology. Epiglottitis and laryngotracheitis are exceptions with severe cases likely caused by Haemophilus influenzae type B. Bacterial pharyngitis is often caused by Streptococcus pyogenes (also known as Group A Beta-Hemolytic Streptococcus).

Organisms gain entry to the respiratory tract by inhalation of droplets and invade the mucosa. Epithelial destruction may ensue, along with redness, edema, hemorrhage and sometimes an exudate.

Initial symptoms of a cold are runny, stuffy nose and sneezing, usually without fever. Other upper respiratory infections may have fever. Children with epiglottitis may have difficulty in breathing, muffled speech, drooling and stridor. Children with serious laryngotracheitis (croup) may also have tachypnea, stridor and cyanosis.

Common colds can usually be recognized clinically. Bacterial and viral cultures of throat swab specimens are used for pharyngitis, epiglottitis and laryngotracheitis.

Viral infections are treated symptomatically. Streptococcal pharyngitis and epiglottitis caused by H influenzae are treated with antibacterials. Haemophilus influenzae type B vaccine is commercially available and is now a basic component of childhood immunization program.

2 Introduction

Infections of the respiratory tract are grouped according to their symptomatology and anatomic involvement. Acute upper respiratory infections (URI) include the common

cold, pharyngitis, epiglottitis, and laryngotracheitis. These infections are usually benign, transitory and self-limited, although epiglottitis and laryngotracheitis can be serious diseases in children and young infants. Etiologic agents associated with URI include viruses, bacteria, mycoplasma and fungi. Respiratory infections are more common in the fall and winter when school starts and indoor crowding facilitates transmission.

3 Common Cold

Common cold is usually self-limited and resolves within a few days. Most people experience at least one common cold per year. It is an acute, self-limiting inflammation of the upper respiratory tract mucosa that may involve any or all of the nose, throat, sinuses, and larynx.

The condition is not characterised by a discrete set of specific symptoms, with the illness varying according to individual and causative pathogen. Fever is rare. Occasionally, there is spread to the lower respiratory tract. Symptoms include sore throat, sneezing, blocked, and/or runny nose, headache, cough, malaise, and low-grade fever. Diagnosis is generally clinical, based on history and examination. Investigations may be required when symptoms worsen or do not resolve in the usual timeframe.

The condition is associated with more than 200 virus subtypes. Common colds are the most prevalent entity of all respiratory infections. Rhinoviruses with more than 100 serotypes are the most common pathogens. Coronaviruses may be responsible for more than 10% of cases. Parainfluenza viruses, respiratory syncytial virus, adenoviruses and influenza viruses have all been linked to the common cold syndrome.

Treatment of the uncomplicated common cold is generally symptomatic. Decongestants, antipyretics, fluids and bed rest usually suffice. Restriction of activities to avoid infecting others, along with good hand washing, are the best measures to prevent spread of the disease. No vaccine is commercially available for cold prophylaxis. Treatment includes reassurance that this is a self-limiting condition, rest, adequate fluid intake, and symptom relief. Antibiotics are not recommended.

4 Sinusitis

Acute sinusitis (also commonly known as acute rhinosinusitis) is a symptomatic inflammation of the mucosal lining of the nasal cavity and paranasal sinuses, presenting with purulent nasal drainage accompanied by nasal obstruction, facial pain/pressure/fullness, or both for 4 weeks or less.

Majority of cases of acute sinusitis in adults and children are of viral aetiology. It can be caused by either a viral or a bacterial infection, but it most often follows a common cold which is usually of viral etiology. Vasomotor and allergic rhinitis may also be antecedent to the development of sinusitis. The most common bacterial agents responsible for acute sinusitis are Streptococcus pneumoniae, Haemophilus influenzae, and Moraxella catarrhalis.

Pain, sensation of pressure and tenderness over the affected sinus are present. Malaise and low grade fever may also occur. A purulent nasal discharge is the most constant finding.

Condition is usually self-limiting; however, symptomatic therapy is recommended. Symptomatic treatment with analgesics and moist heat over the affected sinus pain and a decongestant to promote sinus drainage may suffice. For antimicrobial therapy, amoxicillin-clavulanate or a cephalosporin may be used.

5 Pharyngitis

Acute pharyngitis is characterized by acute onset of sore throat; the absence of cough, nasal congestion and discharge suggests a bacterial aetiology. Acute pharyngitis is characterised by the rapid onset of sore throat and pharyngeal inflammation (with or without exudate). It can be caused by a variety of viral and bacterial pathogens, including Group A beta-hemolytic Streptococcus (GAS).

Pharyngitis usually presents with a red, sore, or "scratchy" throat. An inflammatory exudate or membranes may cover the tonsils and tonsillar pillars. Vesicles or ulcers may also be seen on the pharyngeal walls. Depending on the pathogen, fever and systemic manifestations such as malaise, myalgia, or headache may be present. Anterior cervical lymphadenopathy is common in bacterial pharyngitis and difficulty in swallowing may be present.

Rapid antigen detection tests allow immediate point-of-care assessment of GAS pharyngitis. The goal of treatment of GAS infection is to prevent acute rheumatic fever, reduce the severity and duration of symptoms, and prevent transmission.

Acute pharyngitis is generally a self-limiting condition with resolution within 2 weeks. Infected individuals are not immune to reinfection with most aetiological pathogens. Treatment typically involves supportive care (e.g., analgesics) and treatment of the causative pathogen (e.g. antibiotics for GAS infections).

6 Epiglottitis and Laryngotracheitis

Epiglottitis is an infection of the supraglottis that may cause airway compromise due to inflammation and swelling. It is an airway emergency, especially in children, and precautionary measures must be taken. It is classically described in children aged 2 to 6 years of age; however, it may manifest at any age, including in newborns. In countries that have introduced routine Haemophilus influenzae type B (Hib) vaccination, it is now extremely rare in children and may be more common in adults.

Inflammation of the upper airway is classified as epiglottitis or laryngotracheitis (croup) on the basis of the location, clinical manifestations, and pathogens of the infection. Haemophilus influenzae type B is the most common cause of epiglottitis, particularly in children age 2 to 5 years. Most cases of laryngotracheitis in adults are due to viruses.

The syndrome of epiglottitis begins with the acute onset of fever, sore throat, hoarseness, drooling, dysphagia and progresses within a few hours to severe respiratory distress and prostration. The clinical course can be fulminant and fatal. The pharynx may be inflamed, but the diagnostic finding is a "cherry-red" epiglottis.

Epiglottitis is a medical emergency, especially in children. Patients with croup are usually successfully managed with close observation and supportive care. For prevention, Haemophilus influenzae type B conjugated vaccine is recommended for all pediatric patients.