Approach to Sore Throat, Depression and Acne

Year 3 Clerkship Guide, Family Medicine Department
Schulich School of Medicine and Dentistry

Objectives

Approach to Sore Throat

- Conduct an appropriate history and physical exam for a patient presenting with sore throat.
- Know the most common cause of sore throat.
- Describe common presenting features of viral pharyngitis and appropriate management.
- Describe common presenting features of infectious mononucleosis (IM) and management.
- Be able to describe common presenting features of Group A ß-hemolytic streptococcal (GABHS) infection, and appropriate management.

Approach to Depression

- Be able to screen for and diagnose depression.

Approach to Acne

- Understand and be able to identify types of acne.
- Be able to describe appropriate treatment for acne depending on the type and severity.

Approach to Sore Throat

History

- Determine the onset, duration and nature of the sore throat, including aggravating and relieving factors and whether the onset was abrupt, occurring over days, weeks or months
  - Determine if onset is related to environmental exposures
  - Is the sore throat worse at night/morning, after a meal or while lying down?
- Ask about systemic symptoms, including malaise, headache, fever, poor appetite, fatigue, malaise or myalgias – a positive hx of systemic symptoms suggests an infectious cause
- Ask about other symptoms of a URTI: rhinorrhea, nasal congestion, conjunctivitis, cough, sneezing - these may differentiate viral pharyngitis from strep throat
- Ask about respiratory distress, it can signal obstruction when occurring with sore throat.
- Ask about medical conditions – GERD or a history of atopy can point towards a non-infectious cause of sore throat, while those who are immunocompromised have increased susceptibility to a number of infections.

Physical Exam

- Determine vitals, including body temperature.
- Determine if the child looks acutely ill – if so, a life-threatening condition may be responsible for the sore throat, which will require urgent or emergent treatment.
- Complete a thorough head + neck examination, checking:
  - Ears: middle ear effusion, signs of inflammation
  - Nose: turbinates
  - Oropharynx: tonsils for erythema, enlargement, exudate
  - Neck lymph nodes: check for enlargement + tenderness
- Complete a respiratory examination, checking for adventitious lung sounds such as wheezes or crackles, presence of normal breath sounds on both sides
- Complete an abdominal exam: palpate the spleen and liver, checking for tenderness or enlargement

Life-threatening conditions appearing with sore throat

- Epiglottitis
- Retropharyngeal abscess
- Lateral pharyngeal abscess
- Peritonsillar abscess
- Tonsillar hypertrophy secondary to Epstein Barr virus
- Diphtheria
- Lemierre's syndrome

Suspect a more serious cause with inability to move neck, toxic appearance, respiratory distress or difficulty swallowing.

Condition	Expected Findings
Viral Pharyngitis	Nasal congestion, cough, fever, and palpable posterior cervical lymph nodes
Group A ß-hemolytic streptococcal infection	Tonsillar swelling and exudate, tender anterior cervical lymphadenopathy, absence of cough, fever
Infectious Mononucleosis	Jaundice, palatal petechiae, splenomegaly, fatigue, anterior or posterior cervical lymphadenopathy

Differential Diagnosis

The first step in diagnosing sore throat is distinguishing between non-infectious and infectious causes. Once non-infectious causes are ruled out via history and physical, differentiate between GABHS, IM and viral pharyngitis.

Viral Pharyngitis	Most likely diagnosis for sore throat based on prevalence alone. Presenting symptoms include typical URTI symptoms of nasal congestion, rhinorrhea, sneezing and sore throat. As well, patients may present with cough, fever and palpable posterior cervical lymph nodes. The dry throat associated with viral pharyngitis is typically itchy and dry in nature. The usual culprits include: the common cold viruses (rhinovirus, coronavirus, respiratory syncytial virus, parainfluenza virus), adenovirus, herpes virus and coxsackie virus. However, it is not usually important to distinguish between these agents.
Group A ß-hemolytic streptococcal infection	Suspect GABHS with: 1. a patient who is younger than 15 years old 2. presence of tonsillar swelling and exudate 3. tender *anterior* cervical lymphadenopathy 4. absence of cough 5. fever > 38°C 6. sore scratchy throat accompanied with dysphagia Patients may also complain of myalgia, chills and headaches. GABHS accounts for 15-30% of cases of acute pharyngitis in children and 5-10% of cases in adults. It is most frequently encountered in the winter/spring months. Presence of cough, conjunctivitis, rhinorrhea or diarrhea decreases likelihood of GABHS.
Non-infectious (allergy, irritant exposure, GERD)	Non-infectious causes are more likely with a positive irritant/allergen exposure history, symptoms of allergic rhinitis, and no history of recent onset of illness. GERD: history of sore throat that is accompanied by dyspepsia and waterbrash. Symptoms usually occur following meals, at night and early in the morning. Sore throat is relieved following several days' use of antacids and histamine-2 blockers.
Infectious Mononucleosis (IM)	IM and GABHS look similar in a teenager but IM usually presents with a history of significant fatigue. IM typically occurs in children and teens and follows a 3-5 day prodrome of malaise, fever, myalgia and headache. These symptoms are similar to those found in GABHS and the two conditions coexist in 5-30% of patients. IM is also characterized by fever, *posterior* cervical lymphadenopathy (present in > 90%), palatal petechiae (50%), jaundice (10%), rash (4%) and absence of cough. It is caused by the Epstein-Barr virus. Splenomegaly is present in 50% of patients with IM. A minority present with upper left quadrant abdominal pain. With severe pain, urgent surgical consult is warranted for query splenic rupture.

Investigations

Investigations chosen depend on the clinical picture formed following the history and physical exam. The Centor Scale is used to quantify clinical suspicion of streptococcal infection, using 5 criteria (fever, absence of cough, swollen anterior cervical nodes, tonsillar swelling/exudate and age). It provides an estimate for the probability of a positive culture, in order to decrease overuse of antibiotics and reduce the need for rapid streptococcal screen and throat culture.

Modified Centor Scale for Strep Culture Management Approach

Criteria	Points
Temperature >38° C	1
Absence of Cough	1
Swollen, Tender Anterior Cervical Nodes	1
Tonsillar Swelling or Exudate	1
Age	
3-14 Years	1
15-44 Years	0
45 Years or Older	–1

Score	Risk of Streptococcal Infection[8,9]	Suggested Management
≤0	1%-2.5%	No Further Testing or Antibiotic
1	5%-10%	
2	11%-17%	Culture All; Antibiotics Only for Positive Culture Results
3	28%-35%	
≥4	51%-53%	Treat Empirically With Antibiotics and/or Culture

- With a high suspicion of viral pharyngitis (Centor score ≤ 1) and low suspicions of streptococcal infection, no investigations need to be undertaken and antibiotics are not warranted.
- With a high pre-test probability of streptococcal infection (Centor score ≥ 4), no further investigations need to be done as the likelihood of disease in the presence of negative rapid streptococcal screen remains approximately 50%
    - Empirical antibiotic treatment should be instituted
- In intermediate probability patients (Centor score of 2-3), a rapid streptococcal screen would be the next step in management followed by a throat culture in the event of negative screening results, as RAS will miss 14-23% of cases of strep throat. The false negative rate for culture is 5%
- The monospot, CBC and differential are indicated in situations of suspected IM.

2004. JAMA. 291(13). http://jama.ama-assn.org/cgi/content/full/291/13/1587/FIGJOC31951F1

Throat Culture	Throat culture is the gold standard diagnostic test for streptococcal pharyngitis. Culture of a single throat swab on a blood agar plate has a sensitivity of 90-95% for detecting GABHS in the pharynx. Those with positive results should be treated with Abx. False-positives may occur in carriers without acute infection.
Rapid Antigen Detection Test (RAS)	RAS uses immunoassay to detect a carbohydrate Ag from throat swab. The test can be completed in minutes and has a high specificity (>95%) but lower sensitivity (75%-85%). Therefore, a negative result should be followed by a throat culture. A positive test indicates presence of a GABHS infection.
Monospot	The monospot test is a heterophile Ab test that tests for IM. The test is rapid and highly specific (96-100%) but only 70-92% sensitive. Hence, a negative test does not exclude EBV. The test is generally only detects active infection and may be negative in the first week of illness. Use the monospot with a CBC and peripheral blood smear to establish diagnosis of IM. A smear showing >50% lymphocytes and 10% atypical lymphocytes helps confirm the diagnosis.

Management of Acute Pharyngitis

Viruses or irritants cause 80-90% of sore throats and thus antibiotics are not indicated in their management. In order to reduce the costs of inappropriate antibiotic use, the use of antibiotics should be based on strict criteria.

Management of GABHS
The Centor Scale is useful in determining when to prescribe antibiotics and whether RAS or a throat culture is required beforehand. See page 3 for details.

Traditionally, antibiotic treatment has been recommended for strep throat to speed symptomatic recovery and to prevent suppurative and non-suppurative complications. Symptomatic improvement is only marginally better with antibiotics than without – recovery is about 24-48 hours quicker. Ninety percent of treated and untreated patients are asymptomatic in one week and rates of suppurative complications are extremely low in both groups. Early treatment of strep throat does not prevent acute glomerulonephritis and rheumatic fever is now so uncommon (except in high risk groups such as the aboriginal population) that it is not a consideration in the management decision in most cases.

Pharmacotherapy for GABHS
Penicillin is the drug of choice for GABHS and **erythromycin** is typically used in patients allergic to penicillin. Treatment should be continued instituted for 10 days.

	Adult dose	Pediatric Dose
Penicillin	500 mg PO bid or tid for 10 days	30-50 mg/kg/day q12h or q8h for 10 days
Erythromycin	500 mg PO bid for 10 days	30-50 mg/kg/day q12h, q8h or q6h for 10 days

Patients with GABHS become culture negative within 24 hours of initiation of antibiotic treatment. As such, if return to school is a concern, it is recommended that children stay home the day after the office visit.

Follow up throat swabs to document cure are not needed. Between 15-20% of children and 5-10% of adults are carriers of ß-hemolytic strep, as are 25% of patients adequately treated with penicillin. Carriers do not appear to be contagious and are not at risk for complications.

If patients do not recover after one week of antibiotic treatment consider non-adherence or wrong diagnosis. To address these issues, a Monospot test should be performed to rule out IM and a regimen for penicillin-resistant organisms should be instituted (cephalosporin).

Infectious Mononucleosis
If IM is present, then the treatment is supportive as 95 % of IM cases resolve in 2-3 weeks with adequate rest and analgesics. Prednisone therapy may be indicated in situations of hemolytic anemia, thrombocytopenia, granulocytopenia, airway obstruction, or severe hepatitis.

Complications of IM and GABHS
Life threatening situations associated with IM and/or GABHS include peritonsillar abscess, splenic rupture, and upper airway obstruction.

Peritonsillar abcess is a rare complication of GABHS. Patients with this condition have a toxic appearance (fever and chills), altered mental state, and hoarse/muffled voice. The tonsil on the affected side is often pushed towards the midline, giving it and the uvula an asymmetric appearance. Another sign of peritonsillar abscess is extreme sensitivity towards direct palpation by a gloved hand. If peritonsillar abscess is suspected, a surgical consult is required for abscess drainage.

Splenic rupture is another serious complication that should be suspected in patients with IM and severe left upper quadrant abdominal pain.

Lastly, upper respiratory tract obstruction can occur with both IM and GABHS.

Viral Infections
Viral infections due to common cold viruses, adenovirus, coxsackie virus, and herpes virus are self-limited and last anywhere from a few days to two weeks. Symptomatic relief can be obtained from increased fluid-intake, analgesic drugs (ASA, acetaminophen), and decongestants. Gargling with salt and water is effective and may reduce inflammation. For patients with severe sore throat, gargling with 2% viscous lidocaine and the use of OTC topical sprays is recommended.

Non-infectious causes of acute pharyngitis
The treatment for irritant and allergen causes of sore throat is primarily avoidance. Patients in low humidity environments should use a humidifier.

Approach to Depression

A useful screen for depression is the **presence of depressed mood or interest** plus **4** of the 9 following symptoms which can be remembered using the mnemonic SIGECAPS:
- **S**leep: change patterns
- **I**nterest: loss of interest/pleasure
- **G**uilt: or low self-esteem
- **E**nergy: low, fatigue
- **C**oncentration: lack of
- **A**ppetite: change
- **P**sychomotor: agitation/slow
- **S**uicidal ideation

Additional diagnostic criteria include:
- The presence of these symptoms everyday or most days for at least **two weeks**
- The absence of any other medical condition, substance abuse, mood disorder or psychotic condition that may cause such symptoms.

Depression is influenced by both genetic and environmental factors. If depression is suspected based on a screening test, a discussion regarding useful coping strategies should be initiated and a follow-up appointment should be arranged in two weeks time (or sooner if necessary).

Approach to Acne

Acne Vulgaris is a chronic skin condition that results from the blockage of pilosebaceous unit and build-up of desquamated cells and sebum due to increased sebum and follicular production. In some cases there may be inflammation of the underlying dermis. Acne is most prevalent in adolescents. Other factors involved in the pathogenesis or exacerbation of acne include genetics, stress, overgrowth of Propionibacterium acnes, excessive skin friction (sweatbands), androgens, and certain cosmetics (oil-based) or medications (corticosteroids, isoniazid, and OCPs with increased androgenicity).

Classification

There is no universal classification system, but for clinical utility, acne can be grouped into three categories: *1) non-inflammatory, 2) inflammatory,* and *3) severe inflammatory*.

- Non-inflammatory acne is characterized by small (1-5mm) open (blackheads) and closed (whiteheads) comedones.
    - Whiteheads are flesh-coloured or whitish palpable lesions
    - Blackheads are flat or slightly raised lesions that are black or brownish in colour
- Mild to moderate inflammatory acne is characterized by papules (<5 mm) and pustules (superficial papules containing pus).
- Nodules (>5mm) and cysts are seen in severe forms of inflammatory acne.
    - Nodules are larger and situated deeper in the dermis than papulo-pustular lesions.
    - Acne cysts are large fluid-filled nodules that have suppurated.
- Scarring and pitting may occur following the resolution of severe forms of acne.

Treatment

The goal of treatment is to decrease the severity and frequency of exacerbations, thereby minimizing scarring and improving cosmetic appearance. Patients should be advised that many factors aggravate acne, including genetics, medications (corticosteroids), stress and certain cosmetics (oil-based). However, poor hygiene, oily or fatty foods and sexual activity are not associated with exacerbations. In fact, excessive scrubbing often makes the acne worse. There is no evidence for dietary restriction in acne management. However, if the patient feels certain foods are consistently associated with exacerbations, then those foods can be avoided. Picking and popping pimples increases inflammation and scarring and should be avoided.

Pearls of Acne Management

- Topical **benzoyl peroxide** (Clearasil, ProActiv V) and **retinoid compounds** are the first-line treatment of all forms of acne. Benzoyl peroxide has anti-microbial properties to decrease inflammation caused by P. acnes while retinoids work to decrease follicular hyperkeratosis and also decrease inflammation.
    - Retinoids increase sun sensitivity - patients should use sunscreen daily.
    - Cosmetic improvement with treatment is typically seen *3-6 weeks* after initiation of treatment. Acne may worsen in the first two weeks of topical retinoid use.
- Some treatments such as cleansing soap bars contain weak acid formulations (e.g. salicylic acid) that may be useful in those with sensitive skin.
- Topical and systemic **antibiotics** are used to treat inflammatory acne by reducing P. acnes. **Benzamycin**, a combination of benzoyl peroxide and erythromycin, is a particularly effective agent.
- **Low-androgenic OCPs** are effective treatment in females with inflammatory acne.
- **Isotretinoin (accutane)** is a very potent topical retinoid used to treat severe or refractory forms of acne by decreasing P. acnes, reducing sebum production and normalizes follicular keratinization. However, it should be used with extreme caution in females due to its teratogenicity. A negative pregnancy test should be documented prior to prescription for severe inflammatory acne. Furthermore, 2 forms of contraception should be used one month before, during and one month after discontinuation of use.
- **Spironolactone** is an anti-androgen that may be considered for use in some females with severe inflammatory acne.
    - The most common side effect of treatment is menstrual irregularity.