

URTIs TBL

Mentioned by the doctor, Important, Notes

Done by: Maha AlGhamdi

Case: A 27 y/o male came to your clinic complaining of nasal discharge for 1 day, how would you approach him?

- History: onset, take more details regarding the discharge (color, smell, volume very imp), constitutional symptoms (if pt said he has fever: is it documented and if yes did he take خافض حرارة), smell, sleep, post nasal drip, cough (is it dry or productive), abdominal pain (GI symptoms), headache, allergy, asthma symptoms, ear symptoms, sore throat, travel (china, iran), contact with camel within the last 14 days, smoking (shisha, electronic)
- Physical Ex: vitals, nose, throat, abdomen, lymphnodes (ant cervical if painful could be group B strept), chest auscultation (look for consolidation, transmitted noise from the nose which could be isolated by asking pt to breath from mouth).

A. Rhinosinusitis

1. Classify Rhinosinusitis according to etiology?

- Infectious (viral, bacterial, fungal) الأونست يومين يعني أكيوت
- non-infectious (allergic rhinitis, nasal polyps, tumors, mucus plug, septal deviation). عادة الأونست هنا أشهر يعني كرونك

افرضي جاك مريض عنده نيزل دستشارج من أربع أيام وما اعرف إذا هو انفكتف أو لا وش أسوي؟ حطي ببالك ان الأدوية اللي تنوصف للفايرل تنفع للأليرجك فماراح تفيدك بالتفريق. ممكن نسوي له فولو أب وما نشخصه من أول زيارة إلين نكتشف السبب

2. Classify infectious Rhinosinusitis according to etiology?

- Viral: Influenza viruses, Rhinoviruses, coronaviruses and adenoviruses.
- Bacterial: S. pneumonia, H. influenzae and M. catarrhalis
- Fungal: Aspergillus

3. Classify viral Rhinosinusitis according to etiology?

- Common cold & Influenza

4. How many types of viruses can cause Influenza?

- 3 A, B & C.

5. What is the family of Influenza viruses?

- Orthomyxoviridae

6. What are other viruses' families that can cause common cold?

- Rhinoviruses, Coronaviruses, and adenoviruses, human respiratory syncytial virus (in adults), parainfluenza viruses.

لو جاك واحد قال أنا أخذت لقاح الانفلونزا ومع ذلك مازالت تجيني ويمكن أكثر من قبل وش تردي عليه؟ فيه ملايين الأنواع الفيروسية واحنا بس حصناه من الموسست كومون فمممكن قاعد يجيه نوع مختلف من الانفلونزا

Harrison's Principles of Internal Medicine, 19e >

Chapter 223

Table 223.1

7. Compare between the 3 influenza viruses types in terms of the following: causing epidemics, & antigenic stability.

1-Influenza type A is antigenically highly variable and is responsible for most cases of epidemic influenza.

2-Influenza type B may exhibit antigenic changes and sometimes causes epidemics.

3-Influenza type C is antigenically stable and causes only mild illness in immunocompetent individuals.

4-Type D primarily affect cattle and are not known to cause illness in humans.

Jawetz, Melnick, & Adelberg's Medical Microbiology, 27e >

Chapter 39: Orthomyxoviruses (Influenza Viruses)

INTRODUCTION

8. What are the mechanisms of influenza transmission?

Main transmission mechanism: Large respiratory droplets:

- exposure to large particle (>5 micrometer) respiratory droplet when someone coughs, sneezes, or talks.
- These travel only for short distance (0-2 meters).
- droplet do not remain suspended in the air.
- transmission via large particle droplets require close contact between source and recipient individuals.

Secondary transmission mechanisms:

1-Self contamination through hand-to-nose, hand-to-eye, hand-to-mouth transmission:

- after touching virus contaminated clothes, objects, surfaces, or skin/hands of another person, and then touching own nose, eye, or mouth.

2- small particle transmission at several meters:

- can be suspended as small particle in air (but only with procedures such as suction, intubation, aspiration,...).

9. How to differentiate between common cold and influenza?

1-it can be difficult to tell the difference between them based on symptoms alone. In general, the flu is worse than the common cold.

2-Flu can have very serious associated complications: such as pneumonia, bacterial infections, or hospitalizations.

<https://www.cdc.gov/flu/about/qa/coldflu.htm>

10. What is the incubation period of influenza?

1-7 days

11. What are the symptoms of Rhinosinusitis?

- Two or more symptoms:
 - Nasal obstruction/blockage/congestion
 - Nasal discharge (rhinorrhoea / postnasal drip)
 - ± Facial pain / pressure
 - ± Reduction or loss of smell

12. How to properly exam a patient with rhinosinusitis?

-vital sign: temperature, respiratory rate to see if there is lower respiratory involvement, other vitals: BP (To know if you can prescribe systemic decongestant or not), O2, HR.

-Nose: Anterior rhinoscopy:

- Mucosal edema and erythema and nasal discharge (purulent, greenish or brownish)

then you should examine the throat, and ears



Pictures are from: Management Of Rhinosinusitis In Adults In Primary Care Professor Dr Salina Husain

13. What are the diagnostic tests for influenza?

Test	description	Advantages	
Rapid Influenza Diagnostic Tests (RIDTs)	antigen detection tests	Quick results!!!!	-sensitivity 62.3% -specificity 98.2% -False negative results occur more commonly than false positive results. - a negative result does NOT exclude a diagnosis of influenza in a patient with suspected influenza.
RT-PCR	More accurate but takes longer time.		
Viral culture	When influenza is suspected and antiviral treatment is indicated, antiviral treatment should begin as soon as possible and should not wait for the results of testing.		

<https://www.cdc.gov/flu/professionals/antivirals/summary-clinicians.htm>

14. How to differentiate between bacterial & viral rhinosinusitis?

The following clinical presentations (any of 3) are recommended for identifying patients with acute bacterial vs viral rhinosinusitis:

- i. Onset with persistent symptoms or signs compatible with acute rhinosinusitis, lasting for ≥ 10 days without any evidence of clinical improvement (strong, low moderate);
- ii. Onset with severe symptoms or signs of high fever (≥ 39 C [102 F]) and purulent nasal discharge or facial pain lasting for at least 3–4 consecutive days at the beginning of illness (strong, low-moderate); or
- iii. Onset with worsening symptoms or signs characterized by the new onset of fever, headache, or increase in nasal discharge following a typical viral upper respiratory infection (URTI) that lasted 5–6 days and were initially improving (“double sickening”) (strong, low-moderate).

IDSA Clinical Practice Guideline for Acute Bacterial Rhinosinusitis in Children and Adults

Definition of ARS

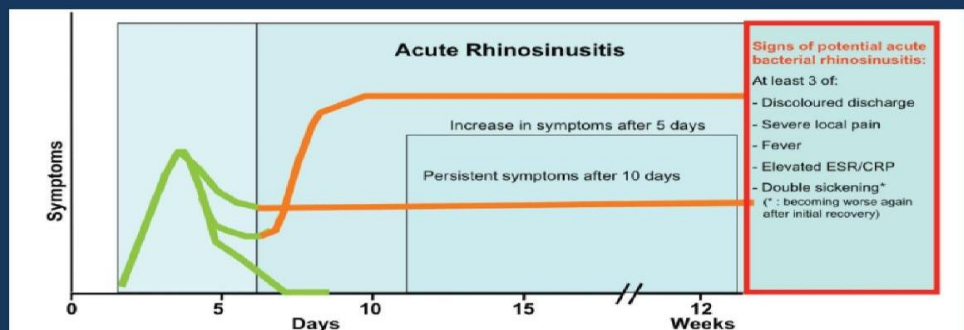


Figure 1. Definition of Acute Rhinosinusitis

Modified from: Fokkens WJ, Lund VJ, Mullol J et al. European Position Paper on Rhinosinusitis and Nasal Polyps 2012. Rhinol Suppl. 2012 Mar (23): 1-298

15. A patient presents to you with a rhinosinusitis that is most likely viral in nature, he asks you to prescribe him an antibiotic in order to prevent secondary bacterial infection, what should you do? هذي ممكن تجي اوسكي ستيشن

- You should not prescribe him an antibiotic, and explain to him than only 0.5%-2% of viral rhinosinusitis are complicated by bacterial infection, and give him follow up so in case his symptoms persists or worsen you can reexamine and prescribe him an antibiotic if he really develops a bacterial infection.

Clinical Practice Guideline (Update): Adult Sinusitis Richard M. Rosenfeld P s.9

16. When do we call bacterial Rhinosinusitis acute or chronic?

- Acute: <4 weeks , Subacute:4-12 weeks, Chronic: >12 weeks

Clinical Practice Guideline (Update): Adult Sinusitis Richard M. Rosenfel

17. What is the rule of imaging in acute rhinosinusitis? CT

- Clinicians should not routinely obtain radiographic imaging for patients who meet diagnostic criteria for acute rhinosinusitis (bacterial or viral), unless a complication or alternative diagnosis is suspected.
- Complications of ABRS include orbital, intracranial, or soft tissue involvement. Alternative diagnoses include malignancy and other noninfectious causes of facial pain.

Clinical Practice Guideline (Update): Adult Sinusitis Richard M. Rosenfeld P s.10&s.11

18. How to manage viral and bacterial rhinosinusitis symptomatically?

في الأوسكي إذا انسالتي عن مانجمنت لازم تقولي فيه فارما ونون فارما!!!!

- Acute VRS may not completely resolve within 10 days but is expected to improve after 1 week, but sometimes the cough can last even longer, especially if the patients is a smoker.
- inform the patient about the self-limited nature of the viral rhinosinusitis can help manage his expectations, limit antibiotic use, and avoid unnecessary over-the-counter purchases.

Non pharmacological therapy

Symptom	Rest	fluids	Saline irrigation	Humidified air	Honey
Fatigue	✓	✓			
fever		✓			
Nose/sinus congestion			✓		

cough				✓	✓ in children (don't give it to less than 1 year old)
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pharmacological therapy

Symptom	Paracetamol	NSAIDS (mainly ibuprofen)	Antihistamines Oral/topical*	Decongestants Oral/topical	camphor, menthol, & eucalyptus oils ointment (in children ≥2 years)
Fatigue	✓	✓			
fever	✓	✓			
rhinorrhea			✓		
Nose/sinus congestion			✓	✓	✓
cough					✓

Treat complications, e.g. antibiotics for secondary bacterial infection; treatment of exacerbations of COPD or asthma.

Clinical Practice Guideline (Update): Adult Sinusitis Richard M. Rosenfeld Table 3

19. Besides symptomatic management, how would you initially approach a bacterial rhinosinusitis?

Either:

1-offer watchful waiting (without antibiotics).

2-prescribe initial antibiotic therapy for adults with uncomplicated ABRS.

-Watchful waiting should be offered only when there is assurance of follow-up, such that antibiotic therapy is started if the patient's condition fails to improve by 7 days after ABRS diagnosis or if it worsens at any time.

Clinical Practice Guideline (Update): Adult Sinusitis Richard M. Rosenfeld Table 3

20. What is the preferred 1st line antibiotic for bacterial rhinosinusitis?

- amoxicillin with or without clavulanate as first-line therapy for 5 to 10 days for most adults.

Clinical Practice Guideline (Update): Adult Sinusitis Richard M. Rosenfeld

21. When we consider the treatment for acute bacterial rhinosinusitis a failure?

- If the patient fails to improve with the initial management option by 7 days after diagnosis or worsens during the initial management, the clinician should reassess the patient to:
 - 1-confirm ABRS.
 - 2-exclude other causes of illness.
 - 3-detect complications.(you have to see the patient again in your clinic).
- If ABRS is confirmed in the patient initially managed with observation, the clinician should begin antibiotic therapy.
- If the patient was initially managed with an antibiotic, the clinician should change the antibiotic.

Clinical Practice Guideline (Update): Adult Sinusitis Richard M. Rosenfeld

22. Who are the candidates for antiviral therapy for influenza?

- children aged younger than 2 years;1
- adults aged 65 years and older;
- persons with chronic pulmonary (including asthma), cardiovascular (except hypertension alone), renal, hepatic, hematological (including sickle cell disease), and metabolic disorders (including diabetes mellitus), or neurologic and neurodevelopment conditions (including disorders of the brain, spinal cord, peripheral nerve, and muscle, such as cerebral palsy, epilepsy [seizure disorders], stroke, intellectual disability [mental retardation], moderate to severe developmental delay, muscular dystrophy, or spinal cord injury);
- persons with immunosuppression, including that caused by medications or by HIV infection;
- women who are pregnant or postpartum (within 2 weeks after delivery);
- persons aged younger than 19 years who are receiving long-term aspirin therapy;
- persons who are morbidly obese (i.e., body mass index is equal to or greater than 40); and
- residents of nursing homes and other chronic care facilities.

In summary: patients who are at extremes of Age, patients with chronic diseases, patients who are immunosuppressed, pregnant patients

<https://www.cdc.gov/flu/professionals/antivirals/summary-clinicians.htm>

23. What is the preferred antiviral agent for pregnant women?

- Oral oseltamivir is preferred for treatment of pregnant women

<https://www.cdc.gov/flu/professionals/antivirals/summary-clinicians.htm>

24. How to prevent influenza & common cold?

1-Try to avoid close contact with sick people.

2-If you are sick with flu-like illness, CDC recommends that you stay home for at least 24 hours after your fever is gone.

3-Cover your nose and mouth with a tissue when you cough or sneeze. Throw the tissue in the trash after you use it.

4-Wash your hands often with soap and water. If soap and water are not available, use an alcohol-based hand rub.

5-Avoid touching your eyes, nose and mouth.

6-Clean and disinfect surfaces and objects that may be contaminated with germs.

7-Influenza vaccination yearly.

25. The influenza vaccine is recommended for whom?

- Recommended for all persons six months and older who do not have contraindications.

لو جاك واحد بفايرل ساينوسايتس وقال بيبي ياخذ الفلو فاكسين، وش تقولي له؟ اول شئ تسألني نفسك اذا كان وصوله للمستشفى سهل أو صعب. إذا سهل لا تعطيه عشان لو صار له كمبلكيشنز من المرض حقتة ما يحط السبب في الفاكسين. لو وصوله صعب استغلي الفرصة وعطيه الفاكسين.

26. What is the frequency of influenza vaccination?

- Yearly.
- Children six months to eight years of age who have not received influenza vaccination before require two doses for the first season. They should receive their first dose as soon as vaccine becomes available, followed by a second vaccination no earlier than four weeks later.

27. What does the influenza vaccine contain?

- 3-4 strains. it changes from season to season, with one or more vaccine strains replaced annually to provide protection against viruses that are anticipated to circulate during the upcoming season.

28. When should the influenza vaccine be offered?

- During fall season.

29. A patient planning for Hajj asked you when is the best time to take the influenza vaccine?

- It is preferred to be taken at least 2 weeks before Hakk in order for antibodies to develop.

30. Which food allergy you should ask about before giving influenza vaccine?

- Egg

31. What are the Advisory Committee on Immunization Practices (ACIP) recommendations regarding persons with egg allergy and influenza vaccination?

- ACIP recommends that persons with a history of egg allergy who have experienced only hives after exposure to egg should receive any of the recommended influenza vaccines appropriate for the recipient's age and health status. Persons who have had reactions to egg

involving symptoms other than hives (e.g., angioedema, respiratory distress, lightheadedness, recurrent emesis) or who required epinephrine or another emergency medical intervention may receive the cell culture–based or recombinant influenza vaccines appropriate for the recipient’s age and health status.

32. What are the contraindications to the influenza vaccine?

- A previous severe allergic reaction to influenza vaccine is a contraindication to future receipt of the vaccine.

33. What are the Precautions to the influenza vaccine?

- Moderate or severe acute illness with or without fever.
 - Guillain–Barré syndrome within 6 weeks following a previous dose of influenza vaccine.
-

B. Sore Throat

a sore throat refers to pain, itchiness, or irritation of the throat. patients may have difficulty swallowing food and liquids, and the pain may get worse when they try to swallow.

1. Classify pharyngitis? Pharyngitis [C07.550.781]

- Nasopharyngitis
- Retropharyngeal Abscess
- Tonsillitis
- Peritonsillar Abscess

<https://meshb.nlm.nih.gov/record/ui?ui=D014069>

2. list infectious etiologies of pharyngitis:

1-viruses:

-most common 50-80%.

-influenza virus, parainfluenza virus, rhinovirus, coronavirus, adenovirus, respiratory syncytial virus, epstein-barr virus.

2-Bacteria:

-Group A β -hemolytic streptococcus (GAS) also called streptococcus pyogenes (most common bacterial etiology 15-30% in children & 10% in adults).

-Group C & G streptococcus.

-Fusobacterium necrophorum (Lemierre's syndrome) rare but can cause serious complications (thrombophlebitis of the internal jugular vein).

-chlamydia pneumonia.

-mycoplasma pneumonia.

3-Fungal.

<http://dfcmopen.com/wp-content/uploads/2014/11/Approach-to-The-Patient-With-Sore-Throat.pdf>

3. List non-infectious etiologies of pharyngitis?

- post-nasal drainage due to rhinosinusitis, gastroesophageal reflux disease, acute thyroiditis, persistent cough, passive or active smoke inhalation, foreign body, post intubation.

<http://dfcmopen.com/wp-content/uploads/2014/11/Approach-to-The-Patient-With-Sore-Throat.pdf>

4. Why GAS is important?

- Because it's complications such as rheumatic fever and scarlet fever.

Essentials of medical microbiology 2016 p174

5. What are the complications of rheumatic fever and scarlet fever?

- Rheumatic fever:
 - Carditis (valve damage).
 - Migratory polyarthritis
 - Sydenham's chorea
- Scarlet fever:
 - acute glomerulonephritis

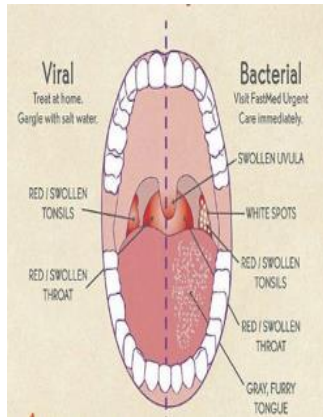
6. What are the symptoms and findings suggestive of viral etiology of pharyngitis?

- Conjunctivitis
- Coryza
- Cough
- Diarrhea
- Hoarseness
- Discrete ulcerative stomatitis
- Viral exanthem (rash)

IDSA Guideline for Managing Group A Streptococcal Pharyngitis p.6

7. What are the symptoms and findings suggestive of bacterial etiology of pharyngitis?

- Tonsillar exudates (White patches or pus on tonsils)
- Fever
- Tender anterior cervical adenopathy
- abdominal pain (especially in children due to abdominal lymphadenopathy).



8. What are the alarming symptoms for someone with sore throat (suggests serious etiology or a complication)?

- Drooling (might be due to epiglottitis which might cause airway obstruction requiring intubation)
- Respiratory distress
- Inability to open mouth fully (trismus=lockjaw, suggestive of retropharyngeal abscess)
- Muffled voice or hot potato voice* (peritonsillar or retropharyngeal abscess)
- Stiff neck (meningitis)
- Erythema of neck
- Rigors
- Night sweat
- History of recent foreign body impaction or oropharyngeal procedure (trauma)

The patient history, an evidence based approach to differential diagnosis 2e p.192

* <https://www.youtube.com/watch?v=dSBmpC1G52U>

9. What is the best way to use the clinical examination to diagnose group A beta-hemolytic streptococcal (GAS) pharyngitis?

Modified centor criteria

Can't be used in <3 years old

Symptoms onset should be <3 days

Score (1 point is given for each item, unless otherwise specified)

Fever >38

Cervical adenopathy in anterior cervical chain

Tonsillar exudate or swelling

No cough

Age (1 point for age 3-14 years, 0 point for age 15-44, -1 point for age > 44 years)

Interpretation (point/ item total and % strep)

Rapid test and/or culture and/or immediate prescription of antibiotics ≥ 4 points (55%)

Rapid test and/or culture and/or delayed prescription of antibiotics 2 or 3 (29%)

Symptomatic therapy only, No further testing or antibiotics. ≤ 1 (12%)

<https://www.mdcalc.com/centor-score-modified-mcisaac-strep-pharyngitis#next-steps>

10. Diagnosis of Streptococcal Pharyngitis

- MARK H. EBELL,

11. Which age group is primarily affected by GAS pharyngitis?

- Children 5-15 (37%), it is lower in younger children (24%), and even lower in adults (5-15%).
- IDSA Guideline for Managing Group A Streptococcal Pharyngitis

12. How to test for GAS Pharyngitis?

- Swabbing the throat and testing for GAS pharyngitis by rapid antigen detection test (RADT)
 - not indicated for children <3 years old because acute rheumatic fever is rare in children <3 years old and the incidence of streptococcal pharyngitis and the classic presentation of streptococcal pharyngitis are uncommon in this age group.
 - Selected children <3 years old who have other risk factors, such as an older sibling with GAS infection, may be considered for testing

IDSA Guideline for Managing Group A Streptococcal Pharyngitis

how to take a throat swab? FROM RIGHT, LEFT TONSILS AND BACK OF PHARYNX.

<https://www.youtube.com/watch?v=vX3CJKueq18>

13. If Rapid antigen test (RADT) is negative, should I do a throat culture?

- RADT may miss cases of GAS pharyngitis depending on the sensitivity of the RADT available in your setting (ranges from 59%-95% and it is higher in newer kits).
- A negative RADT should be accompanied by a follow-up or back-up throat culture in children and adolescents, while this is not necessary in adults under usual circumstances
- (Because children are at higher risk of complications such as peritonsillar abscess, rheumatic fever, and poststreptococcal glomerulonephritis)

IDSA Guideline for Managing Group A Streptococcal Pharyngitis p.8

14. What are the complications of pharyngitis?

A-suppurative:

-Quinsy (peritonsillar abscess)

Signs: unilateral peritonsillar swelling, difficulty swallowing (even saliva), and trismus (difficulty opening jaw).

Rx: refer for IV antibiotics + incision and drainage

-Retropharyngeal abscess: Occurs in children

Signs: inability to swallow, fever.

Rx: for IV antibiotics + incision and drainage

B-nonsuppurative:

-Rheumatic fever:

60% develop chronic rheumatic heart disease (70% mitral valve) Likelihood correlates with severity of initial disease

Recurrence may occur after further streptococcal infection or be precipitated by pregnancy or combined hormonal contraception

-Scarlet fever (occurs at the same time with pharyngitis).

-Acute glomerulonephritis.

15. What is the symptomatic treatment for pharyngitis?

- Warm fluids and foods such as teas soups
- Foods that coat the throat, including honey and hard candies
- Paracetamol
- Nsaids (beware of gi and renal side effects, aspirin should be avoided in children)

IDSA Guideline for Managing Group A Streptococcal Pharyngitis p.2

16. When to consider giving antibiotics immediately?

-Acute sore throat where more than 4 centor criteria are present

-Patient is systemically very unwell

-Symptoms and signs suggestive of serious illness and/or complications (e.g. peritonsillar abscess, peritonsillar cellulitis)

-High risk of serious complications because of pre-existing comorbidity (e.g. significant heart, lung, renal, liver, or neuromuscular disease, immunosuppression, cystic fibrosis, and young children born prematurely)

17. What is the 1st line antibiotic for the treatment of GAS Pharyngitis?

- Penicillin or amoxicillin for 10 days

IDSA Guideline for Managing Group A Streptococcal Pharyngitis p.2

18. What are the alternative antibiotics for the treatment of GAS Pharyngitis for people allergic to penicillin?

- first generation cephalosporin (eg cephalexin) for 10 days, clindamycin or clarithromycin for 10 days, or azithromycin for 5 days

IDSA Guideline for Managing Group A Streptococcal Pharyngitis p.2.

19. What are the benefits of antibiotic therapy?

-Antibiotics give a modest benefit in symptom relief (8h less symptoms) and may confer slight protection against some complications (e.g. quinsy = peritonsillar abscess, otitis media).

-In a meta-analysis of 14 randomized trials comparing penicillin with placebo in over 8000 adults and children with sore throat, penicillin decreased the risk of rheumatic fever by about two-thirds.

-Antibiotics probably prevent poststreptococcal glomerulonephritis based on a meta-analysis of 10 randomized trials comparing antibiotics with placebo in adults and children with sore throat

20. What are the two main possibilities for a patient with a pharyngitis, who tests +ve for GAS at close intervals?

- 1- chronic pharyngeal GAS carrier who is experiencing repeated viral infections
- 2- they really have >1 episode of GAS pharyngitis at close intervals

IDSA Guideline for Managing Group A Streptococcal Pharyngitis p.2

21. Are chronic GABHS carriers at increased risk of rheumatic fever?

- no

22. do chronic GABHS carriers carry an increased risk of infecting close contacts?

- No

23. do chronic GABHS carriers need antibiotic therapy?

- no

IDSA Guideline for Managing Group A Streptococcal Pharyngitis p.3

24. Do we have to test or treat contacts of GAS Pharyngitis?

- Diagnostic testing or empiric treatment of asymptomatic
- household contacts of patients with acute streptococcal
- pharyngitis is not routinely recommended

IDSA Guideline for Managing Group A Streptococcal Pharyngitis p.2

25. When should you suspect & test for MERS-CoV or SARS-CoV-2 for someone with acute URTI?

Clinical Presentation	Epidemiologic Link	Virus
severe acute respiratory infection (fever, cough, and requiring admission to hospital), AND with no other etiology that fully explains the clinical presentation	history of travel to or residence in China during the 14 days prior to symptom onset	SARS-CoV-2
	Not required	MERS-CoV
Unexplained deterioration of a chronic condition of patients with congestive heart failure or chronic kidney disease on hemodialysis	Within 14 days before symptom onset:	
acute respiratory illness	1. contact with a confirmed or probable case of SARS-CoV-2 infection, or 2. worked in or attended a health care facility where patients with confirmed or probable SARS-CoV-2 acute respiratory disease patients were being treated	SARS-CoV-2
Acute febrile illness (T ≥38 C) with/without respiratory symptoms OR Gastrointestinal symptoms (diarrhea or vomiting), AND leukopenia (WBC≤3.5x10 ⁹ /L) or thrombocytopenia (platelets < 150x10 ⁹ /L)	Within 14 days before symptom onset: 1. Exposure to a confirmed case of MERS-CoV infection OR 2. Visit to a healthcare facility where MERS-CoV patients(s) has recently (within 2 weeks) been identified/treated OR 3. Contact with dromedary camels or consumption of camel products (e.g. raw meat, unpasteurized milk, urine)	MERS-CoV

- All suspected cases should have samples collected for testing (nasopharyngeal swabs or sputum, and when intubated, lower respiratory secretions).
- Exposure is defined as: -“Close Contact” is defined as: - Health care associated exposure, including providing direct care for SARS-CoV-2 or MERS CoV patients, working with HCWs infected with SARS-CoV-2 or MERS CoV, visiting patients or staying in the same close environment of a SARS-CoV-2 or MERS CoV patient. - Working together in close proximity or sharing the same classroom environment with a with SARS-CoV-2 or MERS CoV patient. - Traveling together with SARS-CoV-2 or MERS CoV patient in any kind of transportation. - Living in the same household as a SARS-CoV-2 or MERS CoV patient.
- Exposure to camels include:
 - a. Direct physical contact with camels or their surroundings (milking and handling excreta are especially risky), drinking raw camel milk or other unpasteurized products derived from camel milk, and handling raw camel meat.
 - b. Indirect contact include casual contact with camel places like visiting camel market or farms without direct physical contact with camels, living with a household member who had direct contact with camels.
 - Probable case: A suspect case for whom testing for SARS-CoV-2 or MERS-CoV is inconclusive or is tested positive using a pancoronavirus assay and without laboratory evidence of other respiratory pathogens.
 - Confirmed case: A person with laboratory confirmation of SARS-CoV-2 or MERS-CoV infection, irrespective of clinical signs and symptoms

APPENDIX B

Visual Triage Checklist

Visual Triage Checklist for Acute Respiratory Illness

Date: _____ Time: _____ MRN: _____
 Name: _____ ID#: _____ Hospital: _____

	Points (adults)	Pints (children)	Score
A. Clinical symptom/sign			
Fever	2	1	
Cough (New or worsening)	2	1	
Shortness of breath (New or worsening)	2	1	
Nausea, vomiting, diarrhea	1	-	
Sore throat and/or runny nose	1	-	
Chronic renal failure, CAD/heart failure	1	-	
B. Risk of exposure to MERS			
Exposure to a confirmed MERS case in the last two weeks	3	3	
Exposure to camel or products (Direct or indirect*) in the last two weeks	2	2	
Visit to a healthcare facility that had MERS case in the last two weeks	1	1	
Total Score			

* Patient or household

A SCORE ≥ 4, PLACE PATIENT IN AN ISOLATION ROOM AND INFORM MD FOR ASSESSMENT

MERS COV TESTING SHOULD BE DONE ONLY ACCORDING TO CASE DEFINITION

Staff name: _____ ID number: _____

Visual Triage Checklist

Visual Triage Checklist for Acute Respiratory Illness

Date: _____ Time: _____ MRN: _____
 Name: _____ ID#: _____ Hospital: _____

	Points (adults)	Score
A. Clinical symptom/sign		
Fever >= 37.8	1	
Cough (New or worsening)	1	
Shortness of breath (New or worsening)	1	
Sore throat and/or runny nose	1	
B. Risk of exposure to 2019-nCoV		
A history of travel to China in the last 14 days prior to symptom onset	5	
Total Score		

* Patient or household

A SCORE ≥ 6, PLACE PATIENT IN AN ISOLATION ROOM AND INFORM MD FOR ASSESSMENT

2019-nCoV TESTING SHOULD BE DONE ONLY ACCORDING TO CASE DEFINITION

Staff name: _____ ID number: _____

MIDDLE EAST RESPIRATORY SYNDROME CORONAVIRUS; GUIDELINES FOR HEALTHCARE PROFESSIONALS

<https://www.moh.gov.sa/CCC/healthp/regulations/Documents/MERS-CoV%20Guidelines%20for%20Healthcare%20Professionals%20-%20May%202018%20-%20v5.1%20%281%29.pdf>

C. Otitis Media (OM)

1. Which age group commonly suffer from OM?

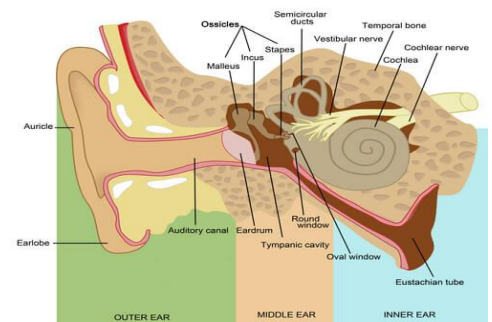
- Children

<http://www.aafp.org/afp/2013/1001/p435.html>

2. What are the 3 most common organisms that causes OM?

Bacterial: Streptococcus pneumoniae, Haemophilus influenzae (nontypable), and Moraxella catarrhalis

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viral: rhinovirus, parainfluenza virus, influenza virus

<http://www.aafp.org/afp/2013/1001/p435.html>

3. What are the risk factors for OM?

- Pediatrics:
 - o Age (children before school age are the most common affected group)
 - o No breastfeeding (supine bottle feeding)
 - o Pacifier use
 - o Gastroesophageal reflux
 - o attending group day care
 - o All age groups:
 - o Allergies
 - o Craniofacial abnormalities
 - o Exposure to environmental smoke or other respiratory irritants
 - o Family history of recurrent acute otitis media
 - o Immunodeficiency
 - o Upper respiratory tract infections

<http://www.aafp.org/afp/2013/1001/p435.html>

4. What is the main mechanism responsible for acute otitis media?

- Eustachian tube dysfunction/obstruction/abnormality due to:
 - swelling of tubal mucosa (e.g. rhinosinusitis)
 - obstruction/infiltration of Eustachian tube ostium.
 - inadequate tensor palatini function: cleft palate (even after repair)
 - Abnormal Eustachian tube

5. What are the symptoms of acute otitis media?

- Otagia (earache)
- Fever (especially in younger children)
- Otorrhea
- decreased hearing
- Irritability
- Vomiting
- loss of appetite

- Headache

6. Which instruments can help diagnose OM & OME?

- Otoscopy
- Pneumatic otoscopy
- Tympanometry

<http://www.aafp.org/afp/2013/1001/p435.html>

7. What are the findings on clinical examination?

- Otoscopy of TM :
 - Bulging .
 - Decreased mobility of the tympanic membrane (can be assessed using pneumatic otoscopy).
 - Redness or cloudiness of the tympanic membrane.

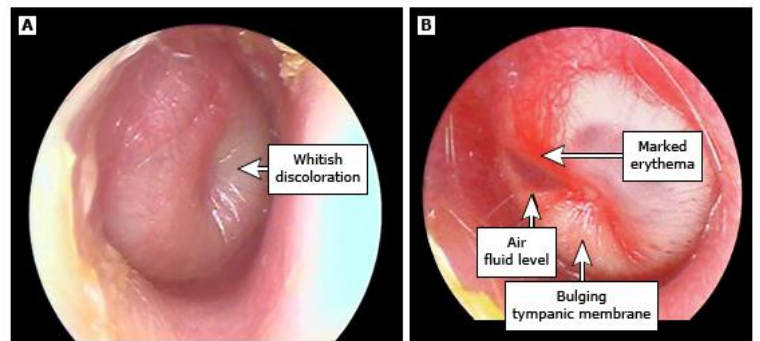
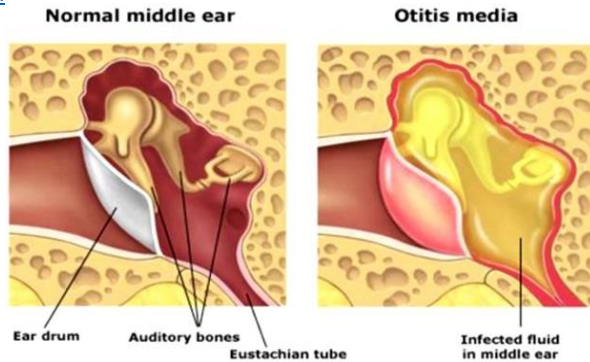
8. When should you diagnose acute otitis media?

1-children who present with moderate to severe bulging of the tympanic membrane (TM) or new onset of otorrhea not due to acute otitis externa.

2-children who present with mild bulging of the TM and recent (less than 48 hours) onset of ear pain (holding, tugging, rubbing of the ear in a nonverbal child) or intense erythema of the TM.

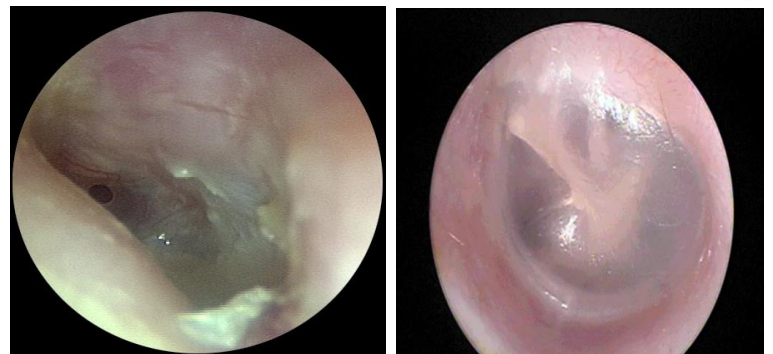
3-you should not diagnose AOM in children who do not have middle ear effusion (MEE) (based on pneumatic otoscopy and/or tympanometry).

<http://www.aafp.org/afp/2013/1001/p435.html>

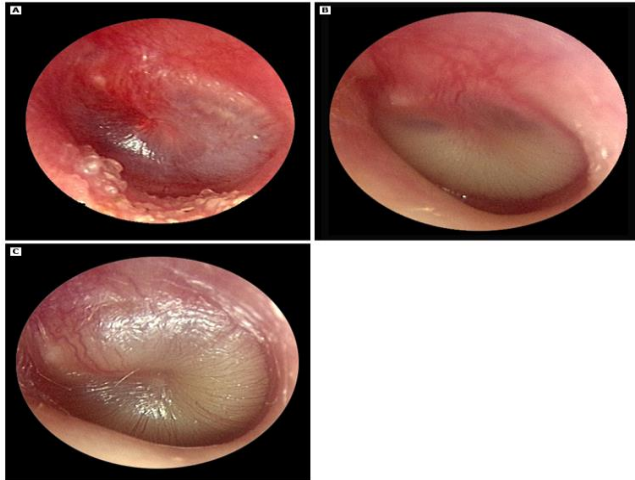


Acute tympanic membrane perforation with otorrhea

Normal left tympanic membrane with pearly gray color.



- Examples of the white, bulging tympanic membrane seen in acute otitis media. Panel A demonstrates a bulging tympanic membrane with minimal erythema. Panel B demonstrates tympanic membrane bulging, marked erythema along the handle of the malleus, and an air-fluid level in the anterosuperior portion of the tympanic membrane.

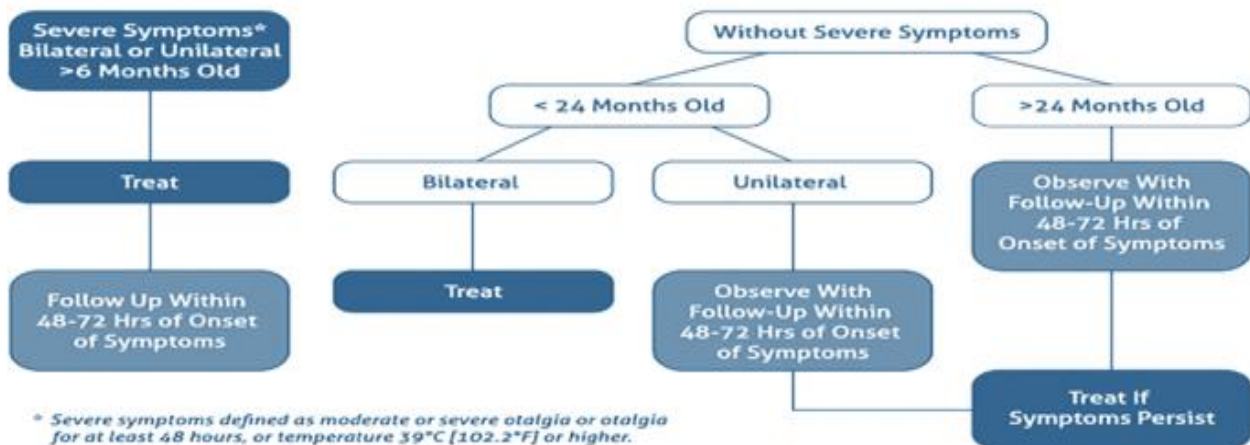


(A) Early acute otitis media with inflammation; subsequently progressed to effusion.

(B) Purulent effusion with air-fluid level.

(C) Bulging purulent effusion filling the middle ear.

Treatment of Acute Otitis Media



10. What is the symptomatic treatment for OM?

- Paracetamol or ibuprofen
- Ibuprofen and acetaminophen are recommended for symptoms of ear pain, fever, and irritability.

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11. When it is a must to treat with antibiotics for OM?

-otorrhea without otitis externa

- severe signs or symptoms at any age (moderate or severe otalgia, otalgia for at least 48 hours, or temperature of 102.2°F [39°C] or higher)

-Bilateral OM in 6-24 months old.

<http://www.aafp.org/afp/2013/1001/p435.html>

12. When you have a choice whether to start antibiotic therapy or observation?

- Unilateral without severe signs and symptoms or >24 months without severe signs and symptoms

<http://www.aafp.org/afp/2013/1001/p435.html>

13. If observation was chosen, what are the mechanisms that must be in place to ensure appropriate treatment if symptoms persist for more than 48 to 72 hours?

- Strategies include a scheduled follow-up visit or providing patients with a backup antibiotic prescription to be filled only if symptoms persist

14. What is the antibiotic of choice for OM?

- Amoxicillin: High-dose Amoxicillin (80-90 mg/kg/day divided into two doses).

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15. What if the patient was allergic to penicillin?

- 2nd generation cephalosporins (eg cefuroxime)

<http://www.aafp.org/afp/2013/1001/p435.html>

16. What if symptoms persist 48-72 hours after initiating antibiotic therapy?

- Repeat ear examination for signs of otitis media
 - If otitis media is present, initiate or change antibiotic therapy
 - If symptoms persist despite appropriate antibiotic therapy, consider amoxicillin+clavulanate, if penicillin allergic consider intramuscular ceftriaxone , clindamycin, or tympanocentesis

<http://www.aafp.org/afp/2013/1001/p435.html>

17. What is a common side effect to antibiotic treatment of OM?

- Diarrhea. You can suggest probiotics, or yogurt containing active culture.

<http://www.aafp.org/afp/2013/1001/p435.html>

18. When tympanostomy can be considered for recurrent OM?

- three or more episodes in six months, or four episodes within 12 months with at least one episode during the preceding six months

<http://www.aafp.org/afp/2013/1001/p435.html>

19. What are the strategies for preventing recurrent OM?

- Check for undiagnosed allergies leading to chronic rhinorrhea
- Eliminate bottle propping and pacifiers
- Eliminate exposure to passive smoke
- Routinely immunize with the pneumococcal conjugate and influenza vaccines
- Use xylitol gum in appropriate children (two pieces, five times a day after meals and chewed for at least five minutes)

<http://www.aafp.org/afp/2013/1001/p435.html>

20. What are the complications of acute otitis media?

- Intertemporal Complications:
 - Hearing loss and Language delay
 - Mastoiditis (most common serious complication of AOM in children)
 - Facial Nerve Paralysis
 - Labyrinthitis
 - Labyrinthine fistula
- Intracranial Complications:
 - Extradural Abscess
 - Subdural Abscess
 - Meningitis
 - Sigmoid Sinus Thrombosis
 - Brain Abscess

