CLINICAL QUIZ

How much do you know about epiglottitis?

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WHAT IS EPIGLOTTITIS?

The epiglottis is an elastic fibrocartilaginous valve that covers the superior aperture of the larynx. During swallowing, the epiglottis functions to occlude the laryngeal opening and thus prevents material from entering the trachea. Epiglottitis, also known as supraglottitis, is an acute, severe and life-threatening inflammation of the upper airway. Epiglottitis occurs in both adult and pediatric populations. Since the introduction of a novel childhood vaccine in the late 1980s, the pediatric incidence of this infection has significantly decreased. Considering the decreasing frequency and variable presentation of this infection, early recognition of this condition may become increasingly difficult. Failure to suspect and aggressively treat epiglottitis early contributes to its continuing mortality.

The following quiz is designed to evaluate your knowledge of epiglottitis. Answers with explanations are located at the end of the quiz.

Question #1
Which statement regarding epiglottitis in pediatric populations is correct?

a) Highest incidence is between November and January.
b) Prevalence is equal in both male and female children.
c) Worldwide incidence shows little geographic variance.
d) Case fatality rates are extremely high with misdiagnosis.

Question #2
What childhood vaccination has significantly reduced the incidence of epiglottitis in children?

a) Diphtheria
b) H. influenzae type B
c) Pertussis
d) Varicella

Question #3
In North America, peak incidence of H. influenzae type B epiglottitis is seen in the following age group:

a) 0-6 months
b) 6-12 months
c) 1-18 years
d) 18 years +

Question #4
Anatomical structures affected by epiglottitis include all of the following EXCEPT:

a) Aryepiglottic folds
b) Vocal cords
c) Prevertebral soft tissues
d) Arytenoids

Question #5
Differential diagnosis for epiglottitis include all the following, EXCEPT:

a) Croup (laryngotracheobronchitis)
b) Retropharyngeal abscesses
c) Diphtheria
d) Laryngitis

Question #6
Classic presentation of epiglottitis in the pediatric population includes:

a) Fever, dyspnea and cough
b) Cough, fever and stridor
c) Stridor, drooling and fever
d) Fever, cough and drooling
Question #7
When comparing adult and pediatric presentations of epiglottitis, the following statement is INCORRECT:

a) Adults exhibit more stridor
b) Adults are less likely to have dyspnea, fever or cough
c) Adults are more likely to complain about painful swallowing
d) Adults are likely to have neck tenderness

Question #8
The safest positioning of a patient with epiglottitis is:

a) Lying supine
b) Lying prone
c) Patient’s position of choice
d) Sitting in “tripod” position

Question #9
The most important step in the acute management of epiglottitis is:

a) Rapid administration of appropriate IV antibiotics
b) Protecting the airway
c) Obtaining a lateral neck radiograph
d) Direct visualization of the epiglottis

Question #10
A characteristic radiographic finding of epiglottitis is the:

a) Thumb sign
b) Hourglass sign
c) Halo sign
d) Steeple sign

Question #11
First line antibiotic treatment of epiglottitis is:

a) IV penicillin, amoxicillin or pivampicillin
b) IV chloramphenicol or levofloxacin
c) IV erythromycin
d) IV cefuroxime or ceftriaxone

Question #12
Children with epiglottitis may subsequently develop:

a) Meningitis
b) Pharyngitis
c) Tonsillitis
d) Ludwig’s angina

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ANSWERS

Question #1: D
Without accurate diagnosis and rapid initiation of a treatment plan that includes protection of the airway, mortality rises. Epiglottitis does not show seasonal variation. Incidence varies widely with geographic location and there is a 60% predominance in males.

Question #2: B
H. influenzae type B vaccination has significantly reduced the incidence of epiglottitis in pediatric populations. However, HiB is still the leading cause of epiglottitis in children. Other infectious causes include Staphylococcus aureus, Streptococcus pneumoniae, Candida albicans as well as several viruses. Traumatic epiglottitis can occur from direct trauma and thermal injury.

Question #3: D
Peak incidence of epiglottitis has historically been in children. However, with the introduction of the H. influenzae type B vaccine, epiglottitis in North American pediatric populations has virtually been eradicated. The highest incidence is now in adults who did not receive this vaccine as children or who develop the infection from other etiological organisms.

Question #4: B
Epiglottitis can cause edema to numerous supraglottic structures including the aryepiglottic folds, the arytenoid cartilage and the prevertebral soft tissues of the neck. However, the vocal cords are spared.

Question #5: D
Croup, retropharyngeal abscesses and diphtheria can all cause airway obstruction and therefore can present like epiglottitis. Other differential diagnoses include: foreign body aspiration, bacterial tracheitis (pseudomembranous croup), peritonsillar abscesses, and thermal injuries.

Question #6: C
The most common presentation of epiglottis in children includes stridor, drooling and fever. Stridor results from the attempted movement of air past an enlarged, inflamed epiglottitis. Children who are unable to swallow due to a narrowed, painful airway will drool. As an acute infectious process, epiglottitis mounts a systemic immune response which often includes a febrile state on presentation.

Question #7: A
In adults, epiglottitis often includes the supraglottic structures more extensively. Therefore, presenting complaints often focus on pharyngeal symptoms including severe pain and odynophagia. These symptoms often occur before symptoms of respiratory distress. Conversely, the initial presentation of epiglottitis in children is more commonly focused around symptoms of respiratory distress.

Question #8: C
Patients should be permitted to assume any position of comfort at all times, including sitting up during transport. Forcing children to assume specific positions, including removing them from parent’s lap, may cause distress leading to complete obstruction.

Question #9: B
Due to the mortality and morbidity associated with complete obstruction, airway control is the main priority in managing patients with suspected epiglottitis. Manipulation of the head for neck radiographs may result in complete obstruction of the airway. Direct visualization of the epiglottis or irritation caused by starting an IV may also cause patient distress leading to airway compromise. Therefore, all of the above are contraindicated unless performed in a controlled setting with the support of physicians appropriately trained in otolaryngology or anesthesia.

Question #10: A
The thumb sign describes the thickened free edge of the epiglottis, as seen on the lateral neck radiograph. The hourglass sign and steeple sign are both signs of croup, seen on the anteroposterior view of the neck. Both describe a widening of the hypopharynx with concomitant subglottic narrowing. The halo sign is a ring of air surrounding the heart on chest x-ray and is indicative of pneumopericardium.
Question #11: D
IV cefuroxime or ceftriaxone is first line treatment in epiglottitis. IV chloramphenicol or levofloxacin are second line treatment. Penicillin, amoxicillin and pivampicillin, and erythromycin are first and second line therapies respectively for bacterial pharyngitis caused by group A streptococcus in adults. Following bacterial penetration of the mucosal barrier and invasion into the blood stream. This mechanism allows seeding of the epiglottis and surrounding tissues as well as infection of the meninges, skin, lungs, ears, and joints.

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REFERENCES