PHOTO ROUNDS

"My airway is closing"

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A 29-year-old man came to the emergency department with a 3-day history of progressively worsening sore throat, dysphagia, odynophagia (pain on swallowing), and shortness of breath after unsuccessful treatment for *Streptococcus* pharyngitis. He reported having fevers and chills at home, and he had not slept the past 2 nights for fear that his "airway was closing." He had tachycardia and tachypnea at presentation.

Physical examination was significant for an erythematous posterior oropharynx without tonsillar enlargement or exudates. The white blood cell count was 29,300 cells/mm^3, with 92.6% neutrophils and 89% bands. A lateral soft-tissue x-ray of the neck was obtained (**FIGURE 1**), and compared with a cervical spine x-ray view taken the year before (**FIGURE 2**).

- **What is your diagnosis?**
- **How should the diagnosis be confirmed?**
- **How should the patient be treated?**

FIGURE 1 Soft-tissue neck radiograph

A lateral soft-tissue radiograph of the patient's neck.

FIGURE 2 The same patient a year before

A comparison view of the same patient from a cervical spine radiograph taken 1 year earlier.

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FIGURE 3 Enlargement of the epiglottis

The arrow marks the enlargement of the epiglottis.

FIGURE 4 The same patient a year before

The arrow notes the normal epiglottis 1 year earlier.

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The epiglottis occupies most of the supraglottic space and displays the classic "thumbprint sign," pathognomonic for epiglottitis

Diagnosis: Acute adult epiglottitis

The lateral soft-tissue view of the neck demonstrates marked enlargement of the epiglottis (**FIGURE 3,** arrow) in comparison with the patient's normal epiglottis from films taken the year before for neck pain (**FIGURE 4,** arrow); this is indicative of acute adult epiglottitis. The epiglottis occupies most of the supraglottic space and displays the classic "thumbprint sign," which is pathognomonic for epiglottitis.

Differential diagnoses

Given the patient's fever, sore throat, odynophagia, and shortness of breath, other diagnoses to consider are pharyngitis, tonsillitis, peritonsillar abscess, retropharyngeal abscess, and angioedema.

Pharyngitis and tonsillitis can easily be evaluated by visualizing the oropharynx. If epiglottitis is suspected, however, a tongue depressor should not be used as it may precipitate loss of the airway.

A retropharyngeal abscess will result in enlargement of the prevertebral soft tissues on the lateral soft tissue view of the neck. Diagnostic confirmation of a retropharyngeal abscess is made with a contrast enhanced computed tomography scan of the neck, demonstrating rim-enhancing fluid collections within the retropharyngeal space.

Angioedema may be associated with cutaneous manifestations, such as urticaria, and sometimes an inciting agent can be identified.

Epidemiology and pathophysiology of acute epiglottitis

Acute epiglottitis is a rapidly progressive supraglottic infection that can lead to life-threatening airway obstruction. Although it is becoming less common in pediatric populations secondary to the *Haemophilus influenzae* type b vaccine, the adult incidence of approximately 1.8 per 100,000 persons remains stable, if not increasing.[1]

As in childhood epiglottitis, *H influenzae* is the most common causative agent in acute adult epiglottitis. Other causative agents include *Streptococcus pneumoniae,* Group A Streptococci, *Staphylococcus aureus,* viruses, and caustic agents. Patients

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most often present with nonspecific symptoms of odynophagia, dysphagia, sore throat, and a muffled voice. In more serious cases, adults will present with respiratory complaints, indicating that the supraglottic infection is jeopardizing the patient's airway. The mortality rate for acute adult epiglottitis is approximately 7%.[2]

Diagnostic work-up: Laryngoscopy and x-rays

The diagnosis of epiglottitis is usually made clinically but can be confirmed by direct visualization with a laryngoscope under monitored conditions.[3] This should be done by personnel trained in management of a difficult airway—ie, anesthesiologists and otolaryngologists—and a cricothyrotomy tray should be readily available in the event that the patient's airway becomes compromised.

Lateral soft-tissue x-rays of the neck can be obtained if the patient is stable. However, the interpretation of these films can be difficult in equivocal cases. For this reason, a negative lateral soft-tissue view should not exclude the diagnosis of epiglottitis if clinical suspicion is high.

Once the diagnosis of epiglottitis is confirmed and the patient is stabilized, blood cultures and throat cultures may be obtained; however, their utility is questionable. More often than not, a causative agent will not be identified. Regardless of the laboratory results, current recommendations call for broad-spectrum antibiotic coverage, since many of these infections can be polymicrobial.

Management: Monitor the airway, administer antibiotics

Airway management is crucial in patients with epiglottitis. There is a debate in the literature as to whether or not these patients require immediate intubation due the danger of quickly losing an airway with little warning. Though most authors believe children with epiglottitis require a definitive airway at the time of presentation, adults can be closely monitored and treated conservatively[4]—ie, hospital admission to a medical intensive care unit in a facility that has immediate access to anesthesiology and otolaryngology support.

Medical management consists of broad-spectrum antibiotic coverage with a third-generation cephalosporin.[5] The use of steroids to reduce airway inflammation and potentially avoid the need for intubation is controversial, since the literature fails to show a direct benefit regarding the need for intubation, the length of intubation, or duration of hospital stay.[6] Despite the lack of supporting evidence, steroids are often used as adjuvant treatment for epiglottitis.

Patient follow-up

The patient in this case was admitted to the hospital for close airway monitoring. He was treated conservatively with intravenous ceftriaxone, clindamycin, and Decadron, and his symptoms were significantly reduced by the second day in the hospital. He was discharged to home in stable condition on day 3. The patient fully recovered after a 10-day outpatient course of clindamycin and cefpodoxime. ■

DISCLAIMER

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Most authors think that children with epiglottitis require a definitive airway at presentation, while adults can be treated conservatively