

Acute epiglottitis in a 47-year-old male: case report

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ABSTRACT

Acute epiglottitis (AE), an inflammation of the epiglottis and adjacent supraglottic structures, can lead to a fatal airway obstruction. We report the case of a 47-year-old male who developed AE after experiencing a sore throat, odynophagia, and high-grade fever for a week. The patient came in with late signs of AE, suggesting a poor prognosis. Laryngoscopy revealed a swollen epiglottis obstructing the patient's tracheal opening. He had cardiopulmonary arrest due to the airway obstruction. The patient was successfully resuscitated but had several episodes of generalized seizure after the return of spontaneous circulation. He was discharged in a persistent vegetative state. Because AE is unusual in the adult population, a clinician's high index of suspicion for the diagnosis and the emergency team's prompt intervention are crucial factors in the management approach to AE. Physicians working in the emergency room must be equipped with skills in establishing a definitive airway, especially in securing a surgical airway.

Keywords. epiglottitis, acute care, laryngoscopy, tracheostomy, cricothyrotomy

INTRODUCTION

Acute epiglottitis (AE), an inflammation of the epiglottis and adjacent supraglottic structures, is a potentially life-threatening airway obstruction.¹⁻⁴ It follows after an infection of the epiglottis, commonly with *Haemophilus influenzae*, but other organisms and noninfectious etiologies can also cause the condition.⁵

The incidence of AE among children in the United States and Europe has significantly declined after the introduction of the *Haemophilus influenzae* type B (Hib) vaccine in 1985.^{6,7} A decade later, AE primarily became an issue among adults who have not been immunized against Hib.^{4,8-12} In the Philippines, a total of 24 cases of AE were recorded from 2008 to 2019.^{13,14}

The risk factors that are most significant in adults with AE are comorbid conditions, including diabetes mellitus, hypertension, and immunodeficiency disorders.^{4,15-17} Other risk factors that influence the severity of AE include substance abuse, a body mass index (BMI) greater than 25 kg/m², concurrent pneumonia, and the presence of an epiglottic mass upon admission.^{1,4,5,18-23}

The most common presenting symptoms of AE are sore throat, dysphagia/odynophagia, and voice hoarseness or muffling.^{13,24} The early recognition of AE through the physician's high clinical index of suspicion is vital for initiating interventions, preventing irremediable complications, and avoiding unnecessary morbidity and mortality.^{1,4,15,19,25-30}

Unstable patients, particularly those with airway compromise, may benefit from an

emergency surgical airway, such as cricothyrotomy or needle-jet ventilation, especially in cases of failed intubation by direct laryngoscopy.^{5,7} Obstruction, due to pharyngeal edema, may be reduced with corticosteroid use.^{31,32}

AE is a medical emergency with a 1% fatality rate in adults due to sudden airway obstruction and other complications. Adults with AE have a better prognosis with prompt airway management and immediate initiation of antibiotics.⁵

We report the case of a middle-aged male who developed AE after experiencing a sore throat, odynophagia, and high-grade fever for a week. The patient came in with late signs of AE and had a more aggressive course of the disease, indicating a poor prognosis.

IN ESSENCE

Acute epiglottitis (AE) is uncommon among adults. A physician must have a high clinical index of suspicion to immediately diagnose the condition and administer treatment.

In this case report, a 47-year-old male had sudden-onset dyspnea and voice hoarseness one week after experiencing a sore throat, odynophagia, and fever. The diagnosis of AE was established based on the history and the finding of a swollen epiglottis obstructing the patient's tracheal opening.

The patient had a swollen epiglottis, which obstructed his airway. Therapeutic interventions included a tracheostomy and antibiotics for the infection.



He had a cardiopulmonary arrest due to airway obstruction, was revived, and was later discharged from the hospital in a persistent vegetative state.

CLINICAL FEATURES, DIAGNOSTIC, AND THERAPEUTIC APPROACHES

A 47-year-old male came per wheelchair in our emergency room (ER) for sudden-onset dyspnea and hoarseness of voice. Seven days prior to the onset of dyspnea, the patient complained of sore throat, pain on swallowing, and undocumented high-grade fever. The patient did not seek medical attention, but claimed to have been relieved of the symptoms after taking an alcoholic beverage. A few hours prior to admission, the patient complained of a worsening of his sore throat, developed a hoarse voice, and began to have difficult breathing. The patient has an unknown immunization history, no known food or drug allergies, no comorbidities, no history of prior hospitalization, and no known heredo-familial diseases. The patient is a carpenter. He has a 40-pack-year smoking history, and has been drinking alcoholic beverages daily for around 25 years, consuming one 375-ml bottle of rum per day or up to the point of intoxication. Prior to his arrival at the ER, the patient had no complaints of productive cough, colds, discomfort in the nasal passages, sneezing, nasal congestion, pain or pressure within the face, or changes in the sense of smell.

Upon arrival at the ER, the patient was conscious but in respiratory distress, with a respiratory rate of 30 cycles per minute, oxygen saturation of 85% in room air, blood pressure of 160/80 mmHg, heart rate of 120 beats per minute, temperature of 37°C, Glasgow coma scale (GCS) score of 15, weight of 67 kilograms (kg), height of 1.60 meters (m), and BMI of 26.17 kg/m². The patient had labored breathing, with use of breathing accessory muscles, grunting, and stridor. Upon chest auscultation, no cardiac murmurs were noted, but wheezes and crackles could be heard on all lung fields. Upon direct laryngoscopy, the patient's epiglottis appeared swollen, obstructing the tracheal opening, with mucopurulent exudates pooling at the posterior oropharynx. There was minimal movement of the epiglottis upon respiration. We proceeded to manage the patient as having acute respiratory failure, secondary to upper airway obstruction, secondary to acute epiglottitis.

While preparing to intubate the patient, we gave him oxygen by face mask at 10 liters per minute, attached a cardiac monitor with pulse oximeter, initiated venoclysis with a 0.9 saline solution, and sedated him with diazepam. Since the patient's swollen epiglottis was obstructing his airway, attempts at intubation were unsuccessful. We then prepared to create an emergency surgical airway, but before it could be done, the patient went into cardiopulmonary arrest. We performed chest compressions, gave two doses of epinephrine, and delivered 200 joules for defibrillation once. After another cycle of chest compressions, the patient had a return of spontaneous circulation. We cardioverted the patient thrice because of persistent ventricular tachycardia with pulse. To maintain the sinus rhythm, we gave the patient 150 milligrams (mg) of amiodarone as intravenous (IV) bolus after cardioversion. We gave the patient one dose of 7.5 mg dexamethasone IV for the inflammation in AE. To cover for the respiratory tract infection, we also started the patient on 2 grams (g) of IV ceftriaxone.

It took us 9 minutes from the start of the cardiorespiratory arrest to stabilize the patient. An emergency tracheostomy was then performed. A chest radiograph post-resuscitation showed reticulonodular densities on both lung fields, suggesting bilateral pneumonia. Seventy minutes post-arrest, the patient started to have a generalized tonic-clonic seizure, which lasted for 2 minutes. We gave the patient midazolam 1.4 mg IV and started him on an IV drip with midazolam 5.6 mg, set to run within 4 hours. Several similar seizure episodes subsequently occurred, and a total of 20 seizure episodes were recorded within the next hour.

We transferred the patient to an intensive care unit. Four hours post-tracheostomy, the patient was hooked to a mechanical ventilator. The patient was started on norepinephrine drip at a rate of 0.2 mg/kg/day. For sedation and control of seizures, the patient was maintained on a midazolam+fentanyl drip.

OUTCOMES

On the third day of hospitalization, the patient's GCS score was 3, indicating a poor prognosis. The patient was referred for palliative care, and the service apprised the patient's family of his condition. The patient's family eventually decided to stop subjecting the patient to further diagnostics and to any

heroic therapeutic measures. The patient's vasopressors and antibiotics were discontinued, and he received supportive care. However, his succeeding chest radiographs suggested that he was responsive to the antibiotic treatment for pneumonia, even if treatment was stopped on the 8th day of hospitalization.

The patient was successfully weaned from the mechanical ventilator on his 31st day of hospitalization. The following day, he was able to breathe comfortably via tracheostomy tube without oxygen support. From the 33rd to 55th day of hospitalization, the patient's GCS had constantly been 6 (eye opening 1, verbal response 1, motor response 4), and a neurologic evaluation done on the 45th day had established that the patient was not brain-dead. The patient was discharged from the hospital after 171 days, with a GCS score of 8 (eye opening 4, verbal response 1, motor response 3). His home medications included a maintenance dose of an anticonvulsant, vitamin supplements, and a laxative. His caregiver was also given adequate instructions regarding his maintenance medications, saline nebulization, necessary medications for febrile episodes and increased secretions, diet, tracheostomy care, and bedside exercises.

DISCUSSION

Our patient presented with dyspnea and hoarseness of voice 7 days after the initial symptoms of sore throat, odynophagia, and high-grade fever. A diagnosis of AE was clinically established based on the history of present illness and the direct laryngoscopy finding of swollen epiglottitis that obstructed the patient's tracheal opening. The compromised airway eventually led to cardiorespiratory arrest, brain hypoxia, and seizures. The working impression post-arrest was status epilepticus, secondary to hypoxic-ischemic encephalopathy, secondary to post-

arrest syndrome, secondary to upper airway obstruction, secondary to AE.

Initially, AE management will include giving supplemental humidified oxygen, IV hydration, cardiac monitoring, pulse oximetry, and administration of IV antibiotics.^{7 25} Signs of respiratory distress and airway obstruction are uncommon in adults.³⁰ However, our patient was obese, and had a heavy smoking and alcohol consumption history. Obesity has been associated with severe AE.²⁰ Alcoholism and cigarette smoking are also known risk factors for suppressed immunity and increased susceptibility to infections associated with severe epiglottitis.^{1 17 18 22 23}

Cricothyrotomy or needle cricothyrotomy is the preferred procedure in case intubation fails due to the swelling or distortion of supraglottic features.⁷ Tracheostomy may also be done, and patients who undergo the procedure have better recovery in swallowing and communication after their hospitalization.^{33 34} The drug of choice for the underlying infection in AE is ceftriaxone. Other recommended antibiotics include cefotaxime, vancomycin, ampicillin-sulbactam, or piperacillin-tazobactam.^{5 7 15}

Patients who present with dyspnea, stridor, and drooling—late signs of AE—tend to have a more aggressive course of the disease.^{35 36} As in the case of our patient, the aggressiveness of the course stems from the risk of respiratory failure caused by airway obstruction. Respiratory failure can subsequently lead to a hypoxic state, which in turn can lead to seizures, permanent brain damage, or even death.^{5 7}

Because AE is unusual in the adult population, a clinician's high index of suspicion for the diagnosis and the emergency team's timely intervention are life-saving during the presentation of these rare cases. Skills in establishing a definitive airway, especially in securing a surgical airway, are a must for all physicians working in the emergency room.

Contributors

MILNT and JRP contributed to the diagnostic and therapeutic care of the patient in this report. Both of them acquired relevant patient data, and searched for and reviewed relevant medical literature used in this report. MLNT wrote the original draft, performed the subsequent revisions. Both approved the final version, and agreed to be accountable for all aspects of this report.

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Patient consent

Obtained

Reporting guideline used

CARE Checklist
(<http://www.care-statement.org/downloads/CAREchecklist-English.pdf>)

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