

# Sudden Death from Acute Epiglottitis and Epiglottic Abscess in Adult

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Acute epiglottitis is an inflammation of the epiglottis and adjacent structures. Although the incidence is extremely rare, acute epiglottitis is a life-threatening medical emergency and can cause sudden respiratory obstruction. Herein, we describe two cases of sudden death from epiglottitis and epiglottic abscess. A 39-year-old man and 66-year-old man died after suffering from shortness of breath. Autopsies revealed diffuse swelling and abscess formation in the epiglottis and neighboring structures. These cases emphasize the medicolegal importance of sudden death from acute epiglottitis and epiglottic abscess in adults.

**Key Words:** Epiglottitis; Abscess; Airway obstruction; Sudden death; Adult

## Introduction

Acute epiglottitis and epiglottic abscess are forms of acute inflammation of the epiglottis and adjacent structures. They are potentially life-threatening conditions and likely to be underdiagnosed or misdiagnosed in adults. Traditionally, acute epiglottitis is regarded as a disease of children; however, its prevalence among children has decreased owing to vaccination. In contrast, the prevalence of adult epiglottitis has increased steadily. Moreover, epiglottic abscess formation is not an uncommon complication of adult epiglottitis. Epiglottic abscess is reported to be a predictor of airway obstruction and immediate airway intervention is needed in this clinical situation [1]. Herein, we de-

scribe the autopsy findings of two cases of sudden death from acute epiglottitis complicated by epiglottic abscess in adults, identified during postmortem examination.

## Case Reports

### 1. Case 1

According to the police report, a 39-year-old man who was being treated in a psychiatric hospital for schizophrenia presented with sore throat and dyspnea. His vital signs were blood pressure of 140/90 mm Hg, pulse rate of 98 per minute, respiration rate of 18 breaths per minute, and body temperature of 37.5°C. After being administered a non-steroidal anti-inflammatory drug injection, the patient suddenly developed

respiratory failure. Cardiopulmonary resuscitation (CPR) was performed by the medical staff, but the patient died an hour after the first complaints of his symptoms. Previous medical records indicated that the patient had no medical health problems except schizophrenia. Autopsy findings indicated that his height was 181 cm and body weight was 87 kg. External examination indicated the presence of CPR-related bruises on the chest and froth in the mouth. Internal examination revealed that the right and left lungs weighed 1,123 g and 928 g, respectively, with edema and petechiae on the surface; the trachea and both bronchi were filled with white froth; the heart weighed 470 g and showed petechiae and stenosis of the right coronary artery; the epiglottis was erythematous and swollen with cystic changes on the lingual surface (Fig. 1A).

## 2. Case 2

According to the police report, a 66-year-old man visited an outside emergency room for dyspnea one hour prior to his death. Two days prior, he had received medicine for sore throat at another clinic but his symptoms did not improve. Physical examination revealed redness of the throat only; however, laryngo-

scopic examination failed to provide an adequate view of the laryngeal structures. For diagnosis and proper management, the patient was transferred to a larger hospital. During transfer, his symptoms worsened and he developed respiratory arrest. Resuscitation was performed but he failed to recover and died. His family reported that he had taken medication for hypertension. Autopsy findings indicated he was 178 cm tall with ordinary body type. Internal examination revealed that the right and left lungs weighed 1,245 g and 1,050 g, respectively, with edema and petechiae on the pleural surface. The heart showed petechiae and mild coronary artery stenosis. The epiglottis was severely edematous and erythematous and there was a focal yellowish color change along the right aryepiglottic fold (Fig. 1B). Both tonsils were normal.

In both the cases, microscopic examination of the epiglottis revealed numerous acute inflammatory cells and necrotic debris in the mucosal and submucosal connective tissues (Fig. 2). These findings were consistent with epiglottitis and epiglottic abscess. There was no evidence of alternative lethal diseases or injuries to be the cause of death and no toxic agents or alcohol was detected.

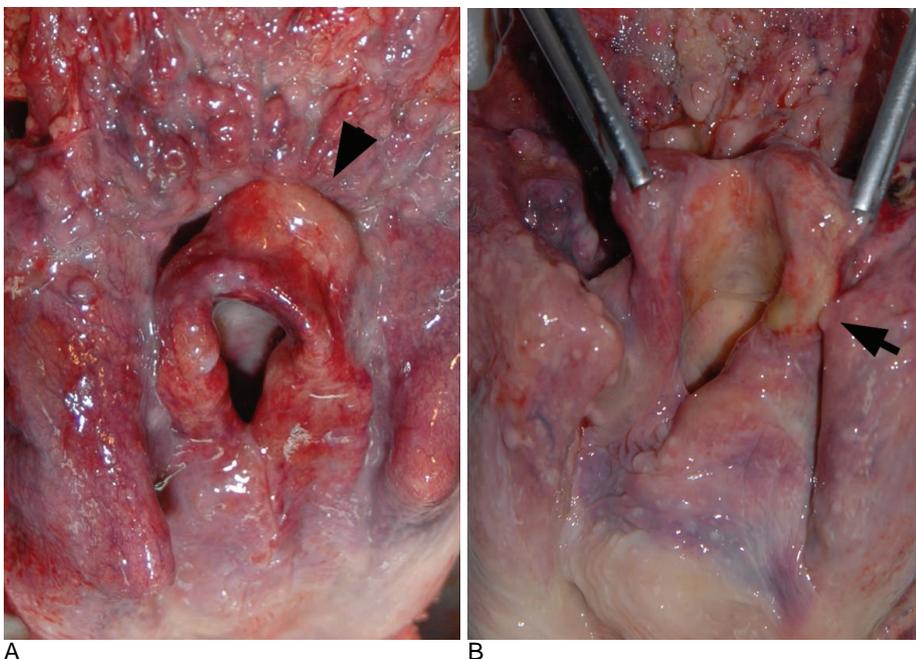


Fig. 1. (A) Case 1: diffuse swelling of epiglottis with redness and cystic dilation on the right lingual surface (arrowhead). (B) Case 2: diffuse swelling of epiglottis with the formation of visible, yellowish abscess along the right aryepiglottic fold (arrow).

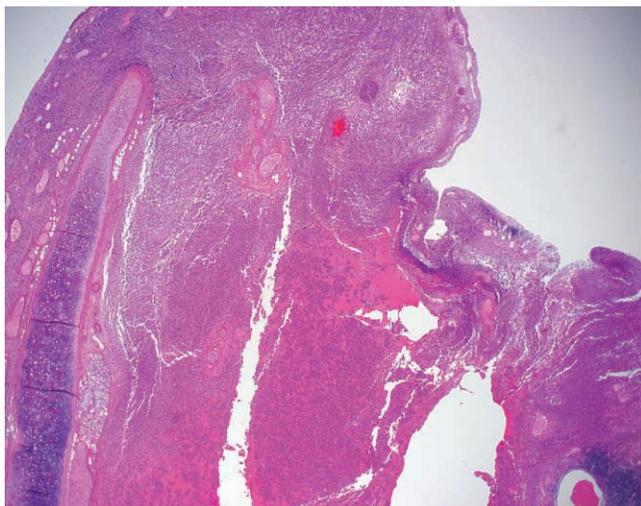


Fig. 2. Microscopic finding of epiglottitis and epiglottic abscess, with dense infiltration of neutrophils and necrotic material in mucosal and submucosal tissues (H&E,  $\times 20$ ).

## Discussion

Acute epiglottitis is a lethal condition and usually occurs in children. Since the widespread use of *Haemophilus influenzae* type B vaccination, there has been a reduction in the incidence of acute epiglottitis in the pediatric population. However, the incidence of adult epiglottitis has not decreased and acute epiglottitis has mostly become a disease of adults [2]. The annual incidence of adult epiglottitis per 100,000 residents has ranged between 0.88 and 3.10 and is increasing. The individuals affected tend to be predominantly men [1,3].

The major cause of epiglottitis is a primary infection due to *Haemophilus influenzae* type B or *Streptococcus* spp. in all age groups. *Streptococcus pneumoniae* is the major cause of adult epiglottitis [2]. In most cases, there is a low probability of identifying the causative pathogen by blood or respiratory tract cultures. Noninfectious causes include trauma, inhalation burn, and the inhalation of drugs and chemical agents.

Epiglottic abscess complicate 24% of the cases of adult epiglottitis and occur more frequently in adults than in children. The prevalence of abscess is two-fold higher among those who need airway intervention [1]. The progression and manifestation of symptoms of

acute epiglottitis in adults is slower than that in children because the adult respiratory tract has a wider diameter [4,5]. The slow-progressing nature of adult epiglottitis contributes to the frequent formation of abscess in adults due to prolonged inflammation and coalescence. Epiglottic abscess may result from a coalescent epiglottic infection or secondary infection of an epiglottic retention cyst. Epiglottic abscess may also occur after radiotherapy for laryngeal cancer [4]. Anatomically, the lingual surface of the epiglottis is commonly involved [1]. In the present study, the patient in case 1 had a cystic dilation of the lingual surface of the epiglottis and there was a visible yellow-colored abscess along the aryepiglottic fold in case 2.

In many cases of adult epiglottitis, the patients have comorbid diseases such as diabetes, hypertension, alcoholism, hepatitis, and malignancy [1,6,7]. The patient in case 2 received medication for hypertension for a long time. Occasionally, death from epiglottic abscess occurs in patients with psychotic disorders such as schizophrenia [8]. Communication difficulties limit detection of the disease at an early stage. Furthermore, caustic and thermal epiglottitis due to ingestion of foreign materials is more likely to occur in patients with mental disorders [9,10]. In case 1, the patient was hospitalized for schizophrenia and complained of a sore throat and dyspnea. Airway obstruction progressed quickly and he died an hour after the first complaints of his symptoms.

These cases emphasize the medicolegal importance of sudden death from acute epiglottitis and epiglottic abscess in adults for clinicians and forensic pathologists. In the two cases reported herein, patients died during hospitalization or transfer to the hospital, and medico-legal autopsies were requested to assess the possibility of medical negligence and to determine the cause of death. Sudden death from acute epiglottitis or epiglottic abscess is uncommon in adults and laryngeal examination can be overlooked. We recommend considering a diagnosis of epiglottitis and a careful examination by clinicians and forensic pathologists. Furthermore, it is important to remember that epiglot-

tic abscess can develop frequently in patients with adult epiglottitis, particularly among those with comorbidities, such as diabetes, hypertension, and mental disorders.

#### Conflicts of Interest

No potential conflict of interest relevant to this article was reported.

#### References

1. Berger G, Landau T, Berger S, et al. The rising incidence of adult acute epiglottitis and epiglottic abscess. *Am J Otolaryngol* 2003;24:374-83.
2. Isakson M, Hugosson S. Acute epiglottitis: epidemiology and *Streptococcus pneumoniae* serotype distribution in adults. *J Laryngol Otol* 2011;125:390-3.
3. Guldred LA, Lyhne D, Becker BC. Acute epiglottitis: epidemiology, clinical presentation, management and outcome. *J Laryngol Otol* 2008;122:818-23.
4. Harvey M, Quagliotto G, Milne N. Fatal epiglottic abscess after radiotherapy for laryngeal carcinoma. *Am J Forensic Med Pathol* 2012;33:297-9.
5. Stack BC Jr, Ridley MB. Epiglottic abscess. *Head Neck* 1995;17:263-5.
6. Hindy J, Novoa R, Slovik Y, et al. Epiglottic abscess as a complication of acute epiglottitis. *Am J Otolaryngol* 2013;34:362-5.
7. Shah RK, Stocks C. Epiglottitis in the United States: national trends, variiances, prognosis, and management. *Laryngoscope* 2010;120:1256-62.
8. Yang KM, Jung NE, Kim JK, et al. Sudden death due to epiglottic abscess. *Korean J Leg Med* 2007;31:89-91.
9. Kahn MW, Miovic M, Perez-Cahill D. Epiglottitis in a psychotic, non-English-speaking adult. *Psychiatr Serv* 2000;51:254.
10. Kornak JM, Freije JE, Campbell BH. Caustic and thermal epiglottitis in the adult. *Otolaryngol Head Neck Surg* 1996;114:310-2.