

# Epiglottic Abscess Causing Acute Airway Obstruction in an Adult

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## ABSTRACT

Acute epiglottitis is an acute inflammation in the supraglottic region of the oropharynx which is a potentially life-threatening condition leading to rapid upper airway obstruction. An infrequent sequel of acute epiglottitis is the epiglottic abscess. Less than 50 cases have been reported in the international literature and even less are the cases that acute surgical intervention was necessary to secure the airway. We report a young man with sudden onset of odynophagia, dysphonia and dyspnea and rapidly progression of upper airway obstruction. Clinical examination with fiberoptic nasopharyngolaryngoscope in emergency department demonstrated an epiglottic abscess. An urgent tracheostomy was performed in order to secure patient's airway and afterward, the patient underwent direct laryngoscopy and drainage of abscess and intravenous antibiotics were administered. The diagnosis of epiglottic abscess should be considered in adult patients with odynophagia and dysphonia. Principles of treatment include aggressive airway management, surgical drainage of abscess and intravenous antibiotics.

**Key Words:** *Epiglottitis. Epiglottic abscess. Acute airway obstruction. Airway management. Adult.*

## INTRODUCTION

Epiglottitis is an acute inflammation in the supraglottic region of the oropharynx with inflammation of the epiglottis, arytenoids, vallecula and aryepiglottic folds. It was believed that the disease occurred exclusively in children but recent reports have shown that the incidence in adults has increased recently.<sup>1,2</sup> Acute epiglottitis may result in a life-threatening upper airway obstruction. An uncommon sequel of acute epiglottitis is the epiglottic abscess that can be developed during acute epiglottitis due to coalescence or secondary infection of an epiglottic mucocele. Diagnosis of epiglottic abscess is generally made on the basis of the patient's history and by endoscopic examination with flexible fiberoptic nasopharyngolaryngoscope. Patients with epiglottic abscesses show more severe symptoms than those with acute epiglottitis and they are at increased risk of airway compromise. A patient in extremis requires immediate airway management.

We report an extremely rare case of a 27-year-old man with acute onset of upper airway obstruction due to an epiglottic abscess and the urgent required airway management. This case demonstrates the rapidity and

severity of upper airway obstruction caused by this rare but extremely dangerous condition.

## CASE REPORT

A 27-year-old man presented to the emergency department complaining of sore throat, odynophagia and dyspnea for the previous 6 hours. Physical examination revealed a patient in marked respiratory distress with stridor, tachypnea, tachycardia and hoarseness. Arterial oxygen saturation was 82% on an FiO<sub>2</sub> of 85% oxygen through a face mask. Intercostal and supraclavicular fossae retractions were also observed. On examination, his tonsils were erythematous but without exudates. Flexible fiberoptic nasopharyngolaryngoscopy revealed an enlarged edematous, asymmetric, yellow-red epiglottis causing approximately 90% airway obstruction at the level of supraglottis (Figure 1).



**Figure 1:** Flexible laryngoscopy an enlarged edematous, asymmetric, yellow-red epiglottis causing approximately 90% airway obstruction at the level of supraglottis.

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Received: July 20, 2012; Accepted: November 16, 2012.

An orotracheal intubation was not achievable due to high grade obstruction of the upper airway. Therefore, an urgent tracheostomy was performed in operation room to secure the airway. A direct laryngoscopy was performed that revealed an abscess involving the entire lingual surface of epiglottis. The abscess was incised and drained and purulent fluid was obtained for cultures. All cultures were negative. He was treated with intravenous antibiotics, consisting of a third-generation cephalosporin and metronidazole. A daily flexible fiberoptic endoscopy revealed the improvement of the epiglottic enlargement. The patient was decannulated on postoperative day 9 and discharged on the next day.

## DISCUSSION

Epiglottitis is an acute inflammation in the supraglottic region of the oropharynx. It was considered a disease of childhood. Recently, there has been a noticeable decline in the number of paediatric cases.<sup>1</sup> The most likely explanation is the introduction of haemophilus influenzae type-B vaccine in the 1990s. Contrary, the incidence in adults has shown a steady increase.<sup>1</sup> The ratio of incidence in children to adults was 2.6:1 in 1980 and dropped to 0.4:1 in 1993.<sup>2</sup> The incidence in adults is about 1 case per 100.000 per year. It is considered that this increase is due to greater awareness and recognition of the disease in adults. Epiglottitis is more common in males than in females with a ratio approximately 3:1. The average age among adults presenting with acute epiglottitis is 45 years.<sup>2,3</sup>

Adults with acute epiglottitis could demonstrate a variety of symptoms, but the most common is a progressive dysphagia and odynophagia. Other frequent symptoms are change in voice, drooling, fever and cervical lymphadenopathy. The incidence of dyspnea and stridor in adults is lower than in children because of the larger and more rigid airways of the adults. Although, few cases have been reported with a rapid onset and progression of symptoms, particularly those concerning the upper airway.<sup>1,4</sup>

An uncommon complication of acute epiglottitis is the formation of an epiglottic abscess. In the present case, this took place in a very short period of time since the initiation of the symptoms. Less than 10 cases have been reported in which an emergency tracheotomy was inevitable in order to secure the airway.<sup>3,5-7</sup>

Epiglottic abscess is an uncommon sequel of acute epiglottitis that can obstruct the airway severely, leading to the death in some patients.<sup>5,8</sup> Abscesses occur principally to the lingual surface of the epiglottis probably due to the higher incidence of mucocele on the lingual surface and to the loose mucosal covering of the cartilage.<sup>3</sup>

Sore throat and odynophagia are the most common initial symptoms, others being fever, drooling and

muffled voice. Symptoms from respiratory system such as dyspnea, stridor and muffled voice are significantly more common in patients with epiglottic abscesses than in the acute epiglottitis group.<sup>8,9</sup> Epiglottic abscess may present with rapid progression of respiratory symptoms leading to complete airway obstruction within 6 – 12 hours.<sup>9</sup> In the present case, the patient was in acute respiratory distress because of an epiglottic abscess that caused an almost 90% obstruction of the upper airway.

A diagnosis of epiglottic abscess should be considered in any adult presenting with a sore throat, epiglottitis, dyspnea and stridor. Lateral neck radiographs and CT imaging can be helpful but the prompt and accurate diagnosis is established with the flexible fiberoptic nasopharyngolaryngoscopy. Physical findings that should raise the suspicion of an epiglottic abscess are the epiglottic asymmetry, a yellow-coloured epiglottis, prominent median glossoepiglottic furrow and taut-appearing epiglottic mucosa.<sup>5</sup> The differential diagnosis include abscesses of the deep neck space, peritonsillar abscess, lingual tonsillitis, laryngitis and ingested foreign body with or without perforation.

The principles of treatment for patients with epiglottic abscess are immediate airway management, direct laryngoscopy with incision and drainage of the abscess and intravenous administration of broad-spectrum antibiotics.<sup>8</sup> Patients in acute respiratory distress with severe airway symptoms and signs such as dyspnea, stridor, cyanosis require immediate establishment of an airway either by intubation or acute surgical intervention such as tracheostomy or cricothyrotomy.<sup>7</sup> The advantage of performing cricothyrotomy is that cricothyroid membrane is superficial and accessible with minimal dissection required. The disadvantage is that the cricothyroid membrane is small and adjacent structure such as central cricothyroid arteries, conus elasticus and cricothyroid muscles are in risk of injury. Damage to the cricoid cartilage from scalpel or from pressure necrosis leads to perichondritis and stenosis.

Broad spectrum antibiotics should be administered intravenously, alone or in combination with metronidazole. Although effectiveness of steroids in shortening the hospitalization period has not been proved, they have been used empirically.<sup>10</sup>

After the procedure, regular indirect laryngoscope should be performed to determine the dimension of remaining epiglottic swelling and the possible danger of airway obstruction. Even after the complete amelioration of swelling, the patients with an epiglottic abscess who undergo tracheostomy, should be observed for 2 – 4 days before decannulation to prevent relapse.<sup>9</sup>

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