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Main Article

Acute epiglottitis in adults – a recent review in an Indian hospital

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Abstract

Objectives To examine the mode of presentation, clinical course and treatment of acute epiglottitis in a series of adult patients.

Method All adults with acute epiglottitis admitted to teaching hospital over a period of 12 months were included in this retrospective study. The diagnosis of epiglottitis was eatablished by laryngoscopy and soft tissue X-ray neck lateral view.

Results Twelve patients were included. Three patients had concurrent acute tonsillitis. Blood cultures were negative in all the cases. Pathogens were isolated by throat swabs only in three patients with acute tonsillitis. Two patients underwent intubation for management of airway obstruction. A combination of coamoxy-clav and metronidazole was the most common antibiotic regimen used.

Conclusion The rising incidence of acute epiglottitis in the adults necessitates the close observance on the part of the otolaryngologist. Selective airway intervention is recommended for patients with more than 50% airway obstruction.

Keywords Acute epiglottitis · Adult population · *Haemophilus influenzae* · Laryngoscopy

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Introduction

Acute epiglottitis is a bacterial infection of the supraglottic structures resulting in the symptoms of sore throat, stridor, odynophagia, muffled (hot potato) voice and high fever. It may be fatal secondary to sudden airway obstruction. After the advent of *Haemophilus influenzae* type B (HiB) vaccine, the incidence of epiglottitis in children is on the fall whereas there has been a steady rise in the number of adult cases of acute epiglottitis. Acute epiglottitis in adults has been reported to have a more indolent course than in children and thus reduces the probability of a serious airway obstruction [1]. Despite this the airway intervention rates have been reported to be upto 18–21% [2–5].

The purpose of this study is to review cases of epiglottitis in adults at our institution and to discuss the reason behind the apparent recent increase in incidence.

Materials and methods

This study is a retrospective review of 12 consecutive cases with diagnosis of acute of acute epiglottitis admitted under the care of the Department of Otolaryngology, Head and Neck Surgery at Ramakrishna Mission Seva Pratishthan, Kolkata, India, over a period of eight months between May and December 2007.

The diagnosis of acute epiglottitis was established by laryngoscopy, performed by a consultant or a specialist registrar, which demonstrated edema and erythema of the epiglottis or supraglottis. A subjective assessment of the degree of laryngeal airway obstruction was made by the examiner. Patients with more than 50% airway narrowing were considered for intubation depending on the severity of the symptoms. Clinical history, laboratory findings and outcome parameters were collected for all patients.

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Results and analysis

There were 12 patients, four women and eight men. The mean age was 47.5 years (ranging from 25 to 78 years). The duration of symptoms before hospital admission ranged from 16 hours to 5 days (mean 2.5 days). The presenting symptoms were mainly sore throat, odynophagia, fever and muffled (hot potato) voice (Table 1).

In most cases, examination of larynx showed edematous, erythematous epiglottis and swollen aryepiglottic folds and false cords (Table 2).

Three patients simultaneously had infected palatine tonsils. Supraglottic airway narrowing of more than 50% was seen in two patients. None of the patients had ever received the HiB vaccine.

Leucocytosis (white blood cell count >10,000/mm^3) was present in all 12 cases (100%). Throat swabs were obtained in all cases. Growth of pathogens was present in the three patients who had infected palatine tonsils (*Streptococcus pyogenes* in one and *Streptococcus pneumoniae* in the other two). A growth of *Candida albicans* was present in one patient who was later found out to be diabetic. Throat swabs showed no growth of bacteria in the rest of the patients.

Two patients (16.6%) had supraglottic airway narrowing of more than 50% and they both required intubation and admission to intensive care unit. One was a 65-year-old man who was brought to the emergency department of the hospital with severe respiratory distress. He was immediately transferred to the operating theater for intubation and examination of the larynx and was extubated after 72 hours. The other case was a 50-year-old woman who presented to the emergency with mild stridor along with sore throat. Examination revealed an airway narrowing of more than 50%. She was intubated in the intensive care unit and extubated after three days.

Table 1 Clinical presentations of the patients with acute epiglottitis

Presentation	Patients (n)
Sore throat	11 (91.66%)
Odynophagia	10 (83.33%)
Fever (>37.5)	10 (83.33%)
Muffled (hot potato) voice	8 (66.66%)
Severe dyspnea	2 (16.66%)

Figures within parentheses are percentages

Table 2 Clinical findings on examination in these patients

Findings	Patients
Edematous, erythematous epiglottis	11 (91.66%)
Swollen aryepiglottic fold and false cord	11 (91.66%)
Erythematous vocal folds	3 (25%)
Infected palatine tonsils	3 (25%)
Airway narrowing >50%	2 (16.66%)

Figures within parentheses are percentages

The antibiotic regimen in most of the cases was intravenous coamoxy calvulunic acid and metronidazole. The patient with candida infection was given amphotericin B along with insulin to control the hyperglycemia. Patients were treated with intravenous antibiotics for mean period of 4.6 days, followed by a course of oral antibiotics fro a mean of 7.9 days. Intravenous steroids were used in nine patients (75%) for a mean period of 4 days.

The average hospital stay was 8.5 days (range 5–25 days). Of the patients none had any serious complications and all made full recovery.

Discussion

Acute epiglottitis had been a disease of childhood [6]. However, while the incidence of childhood epiglottitis declined after the advent of HiB vaccine, the incidence of acute epiglottitis in adults has shown a steady rise [1, 7]. The current showed a relatively high number of cases in a relatively short period of time.

The exact reason for the rise is not clear but as the history revealed that none of the patients in our case had been vaccinated against *Haemophilus influenzae*. In adults the other bacteria besides *Haemophilus influenzae* B which causes epiglottitis are *Streptococcus pyogenes*, *Streptococcus pneumoniae*, *Staphylococcus aureus* and *Klebsiella pneumoniae* [8]. In one of our cases the epiglottitis was caused by *Candida albicans* and the patient was diabetic. The other pathogens that cause epiglottitis is more common in the adults and is characterized by slower onset, absence of bacteremia and absence of severe symptoms as stated by Mayo Smith et al. [5]. They attributed the rise in acute epiglottitis in adults to non-HiB organisms. The rise can also be related to the indiscriminate use of antibiotics, leading to the emergence of spread of antibiotic resistance [9, 10]. The indiscriminate use of antibiotics is rampant in the developing countries adding to the load of the problem.

Two patients in this study required intubation, the management of which is consistent with most centers. Signs of severe respiratory distress requires immediate airway establishment either by trachaeostomy or endotrachael intubation [3, 8, 11]. Patients whose airway is reduced more than 50% usually are the patients who present with respiratory distress and require immediate intervention [3, 12]. Patients with milder symptoms, and mild to moderate edema, require admission for close airway monitoring and commencement of intravenous antibiotics and steroids. Delayed airway obstruction occurring several days after admission, has been reported, highlighting the need for regular examination of larynx to rule out signs of progressive airway obstruction [4, 13, 14]. Moreover, certain factors have been suggested as signs of impending airway obstruction. These include dyspnea, drooling, history of diabetes mellitus, Rapid onset of symptoms and epiglottic abscess [3, 4]. Both the patients

in the present study who had airway obstruction had these predictor signs. One patient was a diabetic and the other patient had a rapid onset of symptoms within 14 hours and severe dyspnea. Three patients in this study had acute follicular tonsillitis, suggesting that it had occurred secondary to the oropharyngeal infection.

Throat swabs yielded growth of organisms in three patients; and all three had infected palatine tonsils at the time the swab was taken. Throat swab of the fourth patient had shown growth of *Candida albicans*, but this patient had history of insulin-dependent diabetes mellitus, and it is possible that this growth may have been simply a representative of opportunistic infection. Throat swabs were negative in all the other patients. This low yield of throat swabs is consistent with the study of Chan et al. [12] and Hebert et al. [3]. on the contrary a higher rate of positivity was noted from cultures which had been taken from the surface of epiglottis [3, 8, 12]. However swabbing the epiglottis is difficult and potentially dangerous as per Nakamura [15] and has not been done in our cases.

Blood cultures performed yielded negative results in all the cases. This is consistent with the low yield of blood culture in the studies by [3, 8, 9].

In adults, it is possible that acute epiglottitis is caused by microorganisms besides *Haemophilus influenzae*. Thus broad spectrum antibiotics were used alone or in combination with metronidazole [12]. Metronidazole is used as anerobes are commonly implicated as pathogens in throat infections, and anerobes have been isolated from the epiglottis in patients with acute epiglottitis [12]. We used a combination of Coamoxy clavulunic acid and metronidazole in most of our patients, and the therapeutic efficacy of this combination has been satisfactory.

Corticosteroids are widely used in an effort to reduce supraglottic edema thus decreasing the chances of acute airway obstruction. We used dexamethasone in 75% of our cases, which is in lieu with the rate of usage in the other studies [1, 3, 5, 8]. Steroids have also been used to shorten the length of hospital stay in more serious patients [12].

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