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Original Research Article

Infectious and noninfectious epiglottitis in adults: our experience

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ABSTRACT

Background: The present prospective study was conducted in the department of ENT at GMC Doda for a period of three years from February 2019 to March 2022. The study aimed at evaluating the causes, presentation and management of adult epiglottitis.
Methods: The patients presenting with the sign and symptoms of epiglottitis were evaluated and were subjected to rigid/flexible endoscopic examination. Patients presenting with respiratory distress were categorized as per Freidman's classification.
Results: Epiglottitis was seen in 21 patients with 13 male and 8 female patients. The age distribution was between 26 and 68 years (mean, 44.4±11.3). Infection, as a cause of epiglottitis was present in 14 subjects and 7 patients had non infectiousetiology. Corrosive ingestion (HCL) and angioedema was seen in two patients each. Hot water aspiration, hot milk and foreign body aspiration (fish bone) was present in the rest of three patients each. Most common complaint of patients in our study was sore throat followed by painful swallowing and voice change.
Conclusions: Epiglottitis in adults can be easily overlooked because of its non-specific presentation. Importance needs to be stressed upon the examination of larynx in patients presenting with sore throat not responding to conventional treatment or with symptoms of respiratory distress and voice change. Airway management should be take preference in patients having stridor before embarking on laryngeal examination with close Follow up.

Keywords: Epiglottitis, Stridor, Sore throat

INTRODUCTION

Acute epiglottitis represents acute inflammation of the supraglottic larynx.[1] Acute epiglottis is mainly the disease of childhood but recent trends show increasing incidence in adults. Presentation of patients with acute airway obstruction is not so common in adults because of wider anatomy of airway, but the mortality is about 18-21% because of non specific presentation and delayed treatment.

Sore throat is the commonest presentation. Increased salivation, painful swallowing, voice change and breathing difficulty are some of the other common complaints seen in patients ofepiglottitis.[2-4]Bacterial infection is the most common etiological agent, noninfectious agents such as caustic injury and thermal burn are the rare causes of acute epiglottitis.[5-7] History and clinical examination along with laryngoscopy forms the basis of diagnosing epiglottis.[3]

Our study evaluated 21 patients of acute epiglottitis for etiology, clinical presentation, management, therapeutic options and acute airway obstruction.

The present prospective study was conducted in the department of ENT at GMC DODA for a period of three years from February 2019 to March 2022. The study

aimed at evaluating the causes, presentation and management of adult epiglottitis

METHODS

This prospective study was conducted in the department of ENT at GMC DODA for a period of three years from February 2019 to March 2022. Informed consent was taken from the patients. During the period of three years, 21 patients were diagnosed with acute epiglottitis.

Inclusion criteria

Patient presenting with the symptoms and signs of acute epiglottitis were included.

Exclusion criteria

Chronic laryngitis patients and patients with other known disorders of larynx were excluded from the study.

Infection as an etiology was more common (14 patients) as compared to non infectious etiology (7 patients). History, clinical examination and laryngoscopy was done to make the diagnosis of acute epiglottitis. Patients presenting with acute airway were categorized as per Freidman's classification (Table 1).[8] Steroids (prednisolone 1 mg/kg) was given to every patient on presentation and 3rd generation cephalosphorin (cefotaxime 1 gm IV 12 hourly) and metronidazole (100 ml TID) was given to patients having infectious etiology.

Table 1: Friedman's classification of acute epiglottitis in adults.

Clinical stages	Friedman's classification
Stage 1	No respiratory complaints, respiratory rate less than 20
Stage 2	Subjective respiratory complaint, respiratory rate greater than 20
Stage 3	Moderate respiratory distress, stridor, retractions, perioral cyanosis, respiratory rate greater than 30
Stage 4	Severe respiratory distress, stridor, retractions, cyanoses, delirium, decreased consciousness, respiratory arrest

Statistical analysis

The SPSS 20.0 (IBM, Chicago, USA) program was used for descriptive statistical analysis.

RESULTS

During the study period of three years, 21 patients were diagnosed with epiglottitis, with approximately two-third being male (13 patients) and one third (8patients) female. The youngest patient in our study was 26 years old and the oldest was 68 years (mean, 44.4±11.3) (Table 2). Data of age distribution, sex, presenting symptoms, etiology and Friedman's stage are summarized in Tables 3 and 4.

Table 2: Demographic distribution of patients diagnosed with infectious epiglottitis.

Total number of patients	Male	Female	Mean age (Years)
21	13	8	44.4±11.3

Table 3: Clinical characteristic of 14 patients diagnosed with infectious epiglottitis.

Patient no.	Symptom	Friedman's classification
1	Sore throat, odynophagia, dyspnoea	3
2	Sore throat, odynophagia, dyspnoea	3
3	Sore throat, odynophagia, dyspnoea	3
4	Sore throat, odynophagia, dyspnoea	4
5	Sore throat, odynophagia	2
6	Sore throat, odynophagia	1
7	Sore throat, odynophagia, dyspnoea	3
8	Sore throat, odynophagia, dyspnoea	3
9	Dyspnoea, stridor	3
10	Sore throat, dyspnoea	3
11	Sore throat, odynophagia, dyspnoea	2
12	Sore throat, odynophagia	2
13	Sore throat, odynophagia	2
14	Sore throat, dyspnoea	3

Table 4: Clinical characteristic of 7 patients diagnosed with noninfectious epiglottitis.

Patient no.	Symptoms	Friedman's classification	Etiology
1	Dyspnoea, stridor	4	angioedema
2	Dyspnoea	3	angioedema
3	Dyspnoea	2	Corrosive ingestion
4	Hoarseness, sore throat	2	Corrosive ingestion
5	Hoarseness, sore throat, dyspnoea	2	Hot water aspiration
6	Sore throat, odynophagia	3	Hot milk aspiration
7	Sore throat, odynophagia, dyspnoea	1	Fish bone

In ourstudy of 21 patients, 14 had infection as thecause of epiglottitis (Figure 1), rest of thepatients had non infectiousetiology. Among the patients having non infectious cause, two patients each were diagnosed with angioedema (Figure 2) and corros iveingestion (Figure 3). Thermal injury due to hot water and milk aspiration (Figure 4) and fish bone were the other etiological factors of non infectious supraglottitis.

Figure 1: Infectious epiglottitis.

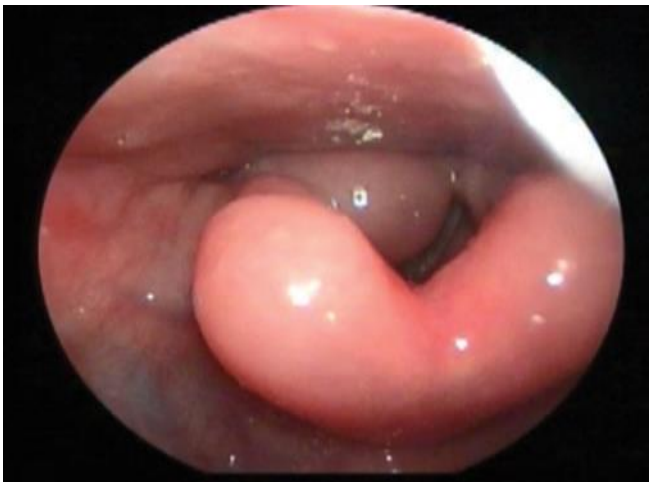

Figure 2: Angioedema.

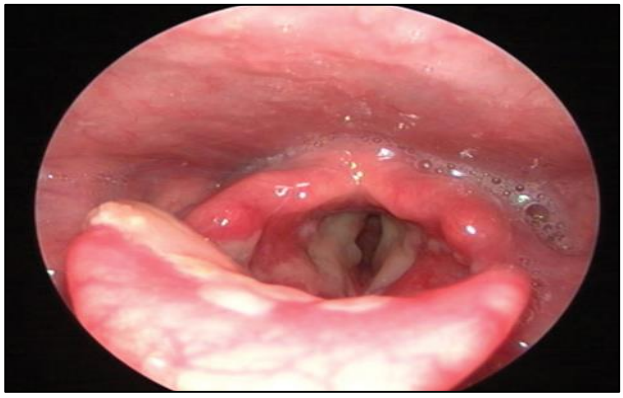

Figure 3: Organophosphorus ingestion.

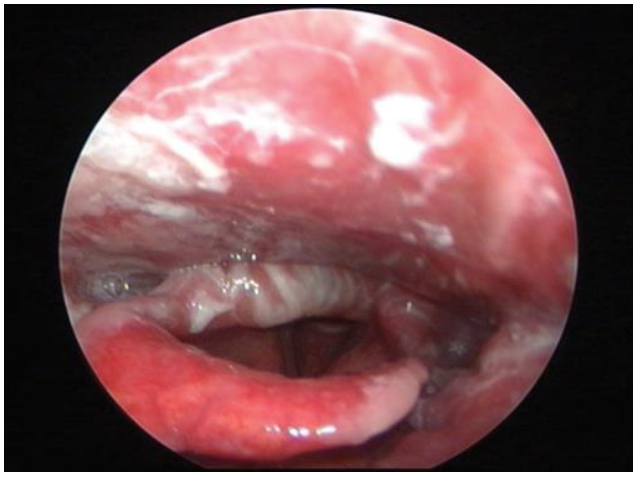

Figure 4: Hot water aspiration.

More than two thirds (79%) of the patients had sore throat on presentation. Painful swallowing and voice change were some of the other common complaints, while acute dyspnoea was common in patients of angioedema and thermal injury. Fever was only present in patients having infectious etiology.

Among the patients having infectious etiology, two patients also had associated tonsillitis and the throat cultures were positive for *Streptococcus pneumoniae*, while mixed culture was obtained from the patient having epiglottic abscess secondary to fish bone aspiration. The patient also required immediate tracheostomy and abscess drainage. Tracheostomy was also needed in one of the patients of infectious etiology having stage 4 disease as per Friedman's classification.

Most of the patients having non infectious epiglottitis were managed conservatively, with only one patient of angioedema requiring endotracheal intubation.

Treatment included oral / IV antibiotics (cefotaxime and metronidazole) especially for patients having infectious etiology, while as parenteral steroids were given at the initial presentation.

DISCUSSION

By definition acute epiglottitis is the acute inflammation of epiglottis orsupraglotticlarynx, which can turn out to be a fatalevent due toairwaycompromise ifnotmanaged promptly.[9-10]Recent trends have shown an increase in the number of adult patients presenting with epiglottitis and decreasing incidence in paediatric population due to the vaccination.[11,12]

Bacterial and viral[5] etiology have been the major etiological agents of infectious epiglottis. However, the microorganisms responsible are not easily cultured, as was in our study, we could identify only one case of *S. pneumoniae.*

Non infectious epiglottis, although less common but a number of varied causative factors have been reported in different studies.[6,7,13-15] Corrosive ingestion, thermal injury, autoimmune diseases, foreign body are some of the common factors responsible for non infectious epiglottis, as was demonstrated in our study also.

In adults, inflammation of supraglottic region usually has an atypical presentation, with many of its symptoms being non specific. The common symptoms of epiglottitis in adults are painful swallowing, sore throat, breathing difficulty, voice change and fever.[2,3,9] In our study, sore throat was the most common symptoms. Painful swallowing and hoarseness were the other common presentation of infectious and non infectious epiglottis respectively. Fever with leucocytosis was present in infectious cases only.

Disease course is determined by many factors including patients age and the causative agent, with adults usually having delayed presentation as compare to paediatric[1] patients due to the anatomical differences. Acute epiglottitis has a more rapid course in pediatric patients, whereas progression takes days in adults. [3] Also the non infectious cases develop early symptoms, within minutes of insult to the larynx.

The diagnosis of epiglottitis in adults is made on history and clinical examination, supplemented by examination of larynx using direct/indirect laryngoscope, as examination of larynx is quite safe in adults due to the wider airway as compared to the children.[2,3,12]

Lateral radiographic study, demonstrating thumb sign were not performed in our patients due to its low sensitivity and specificity.[16,17] Chan et al reported that the thumb sign was observed in 65% of 32 adult patients.[18]

The most common finding on laryngeal examination is erythema and swelling of epiglottis except for the patients having angioedema, where only odema was present without any congestion. Besides this, ulceration of supraglottic larynx is commonly observed in cases of corrosive and thermal injury.

Maintaining an open airway forms the mainstay of the treatment. Vitals need to be monitored, including the oxygen saturation and the development of the stridor.[3,4,12] In our study, tracheostomy was needed in two patients and one patient needed endotracheal intubation.

The treatment of epiglottitis is governed by the etiology and clinical presentation, with parenteral steroids usually required for the patients having stridor. However, in our study only single dose of steroid (prednisolone 1 mg/kg) was needed, 3rd generation cephalosphorin (cefotaxime 1 gm IV 12 hourly) and metronidazole (100 ml TID) was given to patients having infectious etiology.

The limitation of this study was that only 21 patients were diagnosed with epiglottitis during the given time period of study.

CONCLUSION

Although adult epiglottis is less common than paediatric epiglottitis, but the mortality rate is high in adults, as these patients tend to be easily overlooked due to overlapping symptomatology with other upper respiratory infections. These patients should be closely monitored for the development of acute airway obstruction as some of them may require tracheostomy or endotracheal intubation.

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