

# ACUTE EPIGLOTTITIS IN ADULT: CASE SERIES AND REVIEW OF LITERATURE

## EPIGLOTTITE AIGUË DE L'ADULTE: SÉRIE DE CAS ET REVUE DE LA LITTÉRATURE

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### ABSTRACT

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**Aim:** Acute epiglottitis is characterized by inflammation of the epiglottis, which still occurs in adults, and can be severe in some cases. Our study aims to investigate the clinical characteristics, therapeutic management, and prognosis of acute epiglottitis in adults.

**Methods:** We retrospectively reviewed the medical records of adult patients diagnosed with acute epiglottitis at our institution for 10 years. Data collected included demographics, clinical presentation, laboratory findings, imaging studies, treatment modalities, and results.

**Results:** In this study, ten patients were included. The mean age was 51 years. The most commonly observed clinical features among the patients were dysphagia, odynophagia, and hypersalivation. Four cases had stridor. Two of our patients required airway intervention. All patients were treated with a combination of antibiotics and parenteral corticosteroids and achieved a full recovery.

**Conclusion:** Our study highlights the importance of early diagnosis of adult epiglottitis through a good understanding of clinical symptoms, which allows appropriate and rapid management.

**Keywords:** Epiglottitis, Adult, Airway intervention, Treatment

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### RÉSUMÉ

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**Objectif:** L'épiglottite aiguë est caractérisée par une inflammation de l'épiglotte, qui survient encore chez l'adulte, et peut être sévère dans certains cas. Notre étude vise à analyser les caractéristiques cliniques, la prise en charge thérapeutique et le pronostic de l'épiglottite aiguë chez l'adulte.

**Méthodes:** Nous avons réalisé une revue rétrospective des dossiers médicaux des patients adultes diagnostiqués avec une épiglottite aiguë dans notre institution sur une période de 10 ans. Les données collectées incluaient les caractéristiques démographiques, la présentation clinique, les résultats biologiques, les examens d'imagerie, les modalités thérapeutiques et les résultats.

**Résultats:** Cette étude a inclus 10 patients, avec un nombre égal d'hommes et de femmes. L'âge moyen était de 51 ans. Les symptômes cliniques les plus fréquemment observés chez les patients étaient la dysphagie, l'odynophagie et l'hypersalivation. Quatre cas présentaient un stridor. Deux de nos patients ont nécessité une intervention sur les voies aériennes. Tous les patients ont été traités par une combinaison d'antibiotiques et de corticoïdes parentéraux et ont obtenu une récupération complète.

**Conclusion:** Notre étude souligne l'importance d'un diagnostic précoce de l'épiglottite de l'adulte grâce à une bonne connaissance des symptômes cliniques, permettant une prise en charge adaptée et rapide.

**Mots-clés:** épiglottite, adulte, voies aériennes, traitement

### INTRODUCTION:

Acute epiglottitis is a rapidly progressing medical emergency characterized by inflammation in the supraglottic region, particularly the epiglottis, arytenoids, and aryepiglottic folds. This inflammation can obstruct airflow, leading to severe respiratory distress and potentially becoming life-threatening [1,2]. While childhood cases have declined due to widespread

Hib vaccination, adult incidence has increased to 0.9-1.6 cases per 100,000 adults annually [3,4]. Establishing evidence-based treatment guidelines for adults is hampered by a lack of comprehensive data on clinical presentation and management. Recent studies highlight the importance of early diagnosis and intervention, as adults may not have the classic symptoms of severe sore throat, swallowing difficulty, and noisy breathing. Instead, they may present with



more subtle signs such as fever, painful swallowing, and neck discomfort, emphasizing the need for prompt recognition and management to prevent potential complications. [4].

We aim to investigate the clinical characteristics, treatment modalities, and prognosis of acute epiglottitis in adults.

**METHODS:**

We retrospectively reviewed the medical records of 10 adult patients diagnosed with acute epiglottitis who were hospitalized in our ENT department between 2013 and 2023.

Diagnosis was confirmed by endoscopic examination, specifically for inflammatory epiglottic edema. We collect demographic data, medical history, disease course, and clinical outcomes for all patients.

To categorize the severity of epiglottic swelling, we used the Katori and Tsukuda classification system [3]. This system classifies the severity based on the visibility of the vocal cords during endoscopy:

Type I: Mild swelling, entire length of both vocal cords visible.

Type II: Moderate swelling, at least half of both vocal cords visible.

Type III: Severe swelling, less than half of both vocal cords visible.

Furthermore, arytenoid edema was classified as type A (absent) or type B (present). Friedman’s classification was used to assess each patient’s respiratory distress level (Table I).

**Table I : Friedman classification**

Stage	Symptoms
I	No respiratory complaints, a respiratory rate of less than 20
II	Subjective respiratory complaints, a respiratory rate greater than 20
III	Moderate respiratory distress, stridor, retractions, perioral cyanosis, respiratory rate greater than 30
IV	Severe respiratory distress, stridor, retractions, cyanosis, delirium, decreased consciousness, respiratory arrest

**RESULTS:**

There were 10 patients, with an equal number of men and women. Their average age was 51 years, ranging from 38 to 86 years. On average, patients sought medical consultation for their condition after a delay of 24 hours. Out of the 10 patients, three had a pre-existing diagnosis of diabetes; no cases of immunodepression or external trauma have been reported.

The most commonly observed clinical features among the patients were dysphagia, odynophagia, and hypersialorrhoea. Eight patients reported these symptoms, while four patients also had stridor (Table II). During nasofibroscope examination, four patients were found to have severe epiglottic edema, with less than one third of the posterior vocal cords visible (Figure 1). Swelling of all supraglottic structures was noted in five cases. In one patient, the upper throat was covered with whitish, dirty-appearing false membranes,

accompanied by purulent secretions. Samples were taken from this patient, and *Trichomonas* was identified. In the other cases, bacteriological cultures were not obtained due to the urgency of the situation. A general anesthesia endoscopy was recommended for a patient who swallowed a foreign object. A meat bone was found partially lodged in the epiglottis. This patient also had swelling affecting the entire supraglottic area. The foreign body has been successfully removed.



**Figure 1:** Endoscopic findings: edematous and thickened epiglottis

Upon admission, only four patients were classified as stage III according to Friedman’s classification of respiratory distress. These patients had suprasternal draught and oxygen saturation levels ranging from 93% to 90%. The respiratory status of the remaining patients was reassuring.

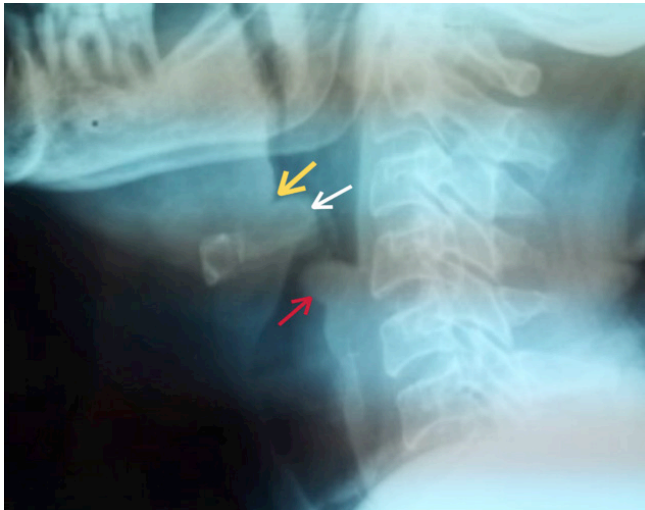
**Table II: Clinical features of our patients**

Patients	sex	Age (year)	Friedman’s classification	Main symptoms	Katori classification
1	M	52	I	Sore throat, dysphagia	IA
2	F	38	III	Dyspnea, Dysphagia , excessive salivation	IIIB
3	M	48	I	Sore throat, dysphagia	IA
4	M	38	I	Sore throat excessive salivation	IIB
5	M	61	III	Sore throat Dysphagia, dyspnea	IIIB
6	M	47	I	Sore throat Dysphagia	IIA
7	F	40	I	Sore throat, excessive salivation	IIA
8	F	45	II	Sore throat, dysphagia	IIB
9	F	57	III	dyspnea, sore throat	IIIB
10	F	86	III	dyspnea, sore throat	IIIA

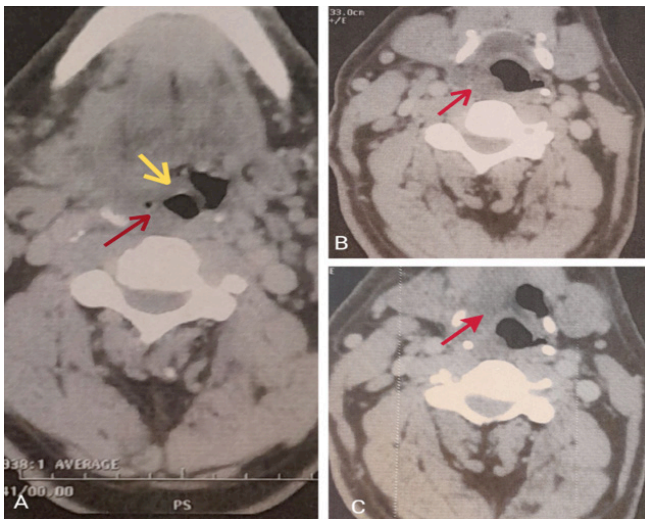
Once the patient’s respiratory status stabilized, a radiological assessment was conducted; two patients underwent plain lateral radiographs of the neck which revealed a swollen epiglottis or “thumb sign” (Figure 2)



A CT scan was performed in all cases to assess the spread of the infection and detect any collections. a thickened epiglottis was noted in all cases. In two patients, the scans also showed an extension of the inflammation to adjacent extralaryngeal structures, with edematous infiltration of the tongue base and piriform sinus (Figure 3).



**Figure 2:** Lateral neck radiograph: showing a swelling epiglottis called «thumb sign» (white arrow) and obliteration of vallecula (yellow arrow), swelling of supraglottic region (red arrow).



**Figure 3:** Cervical scan in axial planes: showed swelling and thickening of the epiglottis, the right tonsil area (A), the right piriform sinus (B) and the right vallecula (C).

The therapeutic approach involved a combination of parenteral antibiotics and intravenous corticosteroids. Five patients received dual therapy with amoxicillin-clavulanic acid (3g daily) and metronidazole (maximum daily dose of 30 mg/kg), while four patients received dual therapy with cefotaxime (6 g daily) and metronidazole. Only one patient was treated with monotherapy with cefotaxime. The average duration of treatment was 8 days, ranging from seven to 15 days. Corticosteroids was administered intravenously (IV); Hydrocortisone hemisuccinate 100mg twice daily for an average of 5 days.

Two of our patients required airway intervention and a 48-hours stay in intensive care ; The first patient

with severe trichomonal epiglottitis experienced a deterioration during his hospital stay, which necessitated an emergency tracheotomy and the other patient had foreign body epiglottitis and was was intubated for an extended period due to difficulties with extubation.

Two other patients required oxygen therapy, which was administered using a high-concentration mask.

The average hospitalization time for all patients was 8 days.

All patients had a favorable clinical outcome, demonstrating successful treatment and recovery.

**Discussion:**

Epiglottitis is a life-threatening condition characterized by inflammation and swelling of the epiglottis. Although it is commonly associated with children, adults can also be affected [2,5].

Due to childhood immunization against Haemophilus influenzae type b (Hib), acute epiglottitis has predominantly affected adults, with an estimated incidence of approximately 1 to 4 cases per 100,000 individuals annually [6,7]. While Hib remains a potential cause, other pathogens such as Streptococcus pneumoniae, Staphylococcus aureus, and various viral infections are also associated with adult cases. Additionally, non-infectious causes such as thermal or chemical injuries, foreign body aspiration, and trauma can also lead to epiglottitis [5]. In our series, the most common cause was an infectious disease, with one case of trauma resulting from the ingestion of a meat bone.

Risk factors for acute epiglottitis include alcohol and tobacco use, male sex, and immunocompromised states [8-10]. In some cases, recurrent forms have been linked to underlying medical conditions such as gastroesophageal reflux disease, chronic obstructive pulmonary disease, and diabetes [11].

Common clinical symptoms include stridor, shortness of breath, and excessive drooling [5-7]. The most common symptoms in our population were odynophagia and/or dysphagia associated with dyspnea and excessive salivation. A conclusive diagnosis can be established through nasolaryngoscopy, often using a flexible fiberoptic scope. This procedure is typically performed in the emergency room for a cooperative adult patient [5,12,13].

Imaging studies, such as lateral neck radiograph, CT (CT), or magnetic resonance imaging (MRI), can be ordered to assess the severity of the condition and guide future treatment decisions. Plain lateral neck radiographs reveal a distinctive “thumb sign,” which refers to the appearance of a thumb-print-like projection in the lateral view due to swelling of the epiglottis and/or other supraglottic structures [14,15]. CT scans are valuable for evaluating possible complications, such as infection dissemination or the formation of abscesses [11,16].

The lack of consensus on airway management in epiglottitis leads to various approaches, depending on the otolaryngologist’s experience. In adults, some authors recommend early prophylactic intubation in all cases, while others argue that a more cautious approach



can be adopted due to the larger diameter of the adult larynx [3]. Recent literature supports nonsurgical airway approaches, such as awake fiberoptic intubation, as an alternative to surgery [17,18].

The following factors have been identified as important indicators for airway management in acute epiglottitis cases in adults: orthopnea, significant swelling of the epiglottis, severe swelling of the arytenoids, and onset of dyspnea within 24 hours. However, the most critical clinical factor is the laryngoscopic finding that shows that less than 50% of the glottis area is visible [18,19]. According to Penella et al [6], factors such as epiglottic abscess, hypersalivation, and smoking were found to be strong predictors of the need for airway intervention.

In our series, airway management was required in two cases classified as stage III B according to the Katori endoscopic classification.

Antimicrobial treatment should be guided by the findings of blood and epiglottic cultures, if possible. Empirical combination antibiotic therapy typically involves a third-generation cephalosporin in conjunction with an antistaphylococcal agent and is commonly recommended [4,5,20].

Initial use of glucocorticoids is not universally recommended due to a lack of clear evidence supporting significant benefits, such as a shorter hospital stay or a shorter duration of intubation in the intensive care unit (ICU) [3,5]. Certain studies have suggested that when

steroids are administered, hospital stays tend to be longer [20].

The treatment in our study was mostly empirical. It involved dual therapy targeting both *Streptococcus* and *Haemophilus*. Steroids were administered in small doses in all cases and we achieved a satisfactory result with favorable progress.

## CONCLUSION:

Although widespread vaccination has significantly reduced the incidence of acute epiglottitis, maintaining a high index of suspicion for this condition remains critical in adult patients. Early recognition and accurate diagnosis are essential to prevent rapid respiratory failure and severe complications. This case highlights the importance of emergency physicians to consider epiglottitis in people who present with symptoms such as odynophagia, dysphagia, and stridor. Prompt identification and appropriate management can prevent the need for intubation and the potentially life-threatening consequences of this illness.

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## Conflicts of Interest

The authors declare no conflict of interest.

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