

# Acute Epiglottitis in Adults. Diagnosis and Treatment in Our Experience of 30 Cases

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**Objective:** We present the 15-year-long experience of 2 hospitals in our region regarding the therapeutic management of acute epiglottitis in adults.

**Patients and method:** Thirty patients with an average age of 46 years were diagnosed as having acute epiglottitis, either by indirect laryngoscopy or fibroscopy, and studied through a series of clinical parameters: age, sex, personal history, complementary tests, clinical symptoms, treatment, evolution, and average stay in hospital.

**Results:** We found an obvious predominance of this urgent pathology in males, with most patients reporting dysphagia or odynophagia (90%). Dyspnoea was confirmed in 40% of the cases but only 7 required intubation, coniotomy, or tracheotomy. The complications recorded include 1 case of mediastinitis and another of death due to sudden cardiorespiratory arrest.

**Conclusions:** We feel that a specific protocol must be established to take into account, apart from admission to hospital, personal contact with an intensive care unit (ICU) even though in most cases it is ultimately unnecessary to ensure airway patency as seen in the various case series published.

**Key words:** Acute epiglottitis in adults. Fibroscopy. Odynophagia. Intubation. Coniotomy. Tracheotomy. ICU.

## Epiglottitis aguda en adultos. Nuestra experiencia clínica en 30 casos

**Objetivo:** Dar a conocer la experiencia conjunta de 2 hospitales de nuestra región en los últimos 15 años sobre el manejo terapéutico de los casos de epiglottitis aguda en adultos.

**Pacientes y método:** Se incluye a 30 pacientes con una media de edad de 46 años, diagnosticados de epiglottitis aguda mediante laringoscopia indirecta o fibroscopia, de los que se recogió una serie de parámetros clínicos: edad, sexo, antecedentes personales, estudios complementarios, síntomas clínicos, tratamiento, evolución y estancia hospitalaria.

**Resultados:** Encontramos un claro predominio de esta enfermedad urgente en varones, que en su mayoría referían disfagia u odinofagia (90%). Se constató disnea en un 40% de los casos, de los que sólo 7 requirieron intubación, coniotomía o traqueotomía. Entre las complicaciones registramos un caso de mediastinitis y una muerte por parada cardiorrespiratoria súbita.

**Conclusiones:** Creemos que se debe establecer un protocolo de actuación que incluya, aparte del ingreso hospitalario, un contacto personal con una unidad de cuidados intensivos (UCI) aunque en la mayoría de los casos finalmente no sea necesario asegurar la vía respiratoria, como se comprueba en las diferentes casuísticas publicadas.

**Palabras clave:** Epiglottitis aguda en adultos. Fibroscopia. Odinofagia. Intubación. Coniotomía. Traqueotomía. UCI.

## INTRODUCTION

Acute epiglottitis is a relatively infrequent condition in adults but it is potentially very serious and even fatal, caused more often than not by *Haemophilus influenzae* type B (more than 3/4 of all cases). Other germs implicated, such as

*Streptococcus pneumoniae*, *Staphylococcus aureus*, *Streptococcus pyogenes*, *Pasteurella multocida*, and *H. paraphrophilus*, are less frequent, as is viral aetiology due to herpes simplex.

Its incidence in the general population of Extremadura in the pre-vaccination era was estimated at 2-4 cases per 100 000 inhabitants and year,<sup>1-3</sup> mostly in the paediatric population (children under 10 years of age). As a result of the massive vaccination campaigns against *H. influenzae* type B, we are currently witnessing an increase in cases among adults, in whom early identification is essential.

The characteristic clinical symptoms of epiglottitis, such as dysphagia-odynophagia, sialorrhea, fever, dyspnoea, or stridor, are not always found as such, initially or in the course of the illness, in all patients. Nor is it unusual to find also

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cellulitis in all the supraglottic tissues. There are documents showing that acute epiglottitis was the likeliest cause of the death of such historic figures as George Washington in 1799.<sup>4</sup>

Although the prognosis in adults is normally good, cases have been reported of sudden cardiorespiratory failure and death, therefore we feel it is necessary to have a protocol for hospital action including contact with an intensive care unit (ICU) to admit the patient and provide appropriate intravenous treatment, without overlooking the possibility of ensuring the airways by orotracheal intubation (OTI), coniotomy or tracheotomy if necessary.<sup>5</sup>

## PATIENTS AND METHOD

Retrospective study covering from 1991 to 2006 and comprising a total of 30 adult patients diagnosed as having acute epiglottitis belonging to 2 hospitals in Extremadura; 28 (93.3%) were males aged between 30 and 70 years of age (mean, 46).

In all cases, the patients were admitted to hospital via the emergency service and the following clinical variables were collected apart from age and gender: personal history, clinical symptoms and how long had elapsed since their initial appearance, diagnostic and/or complementary tests, intravenous treatment prescribed, and course of the illness.

Of the symptoms present in this condition, we distinguish the following: odynophagia-dysphagia, fever syndrome, acute pharyngeal or cervical pain, sialorrhea, dysphonia-throaty voice, stridor and breathing difficulty, or dyspnoea. As for the complementary examinations, we highlight indirect laryngoscopy, laryngeal fibroscopy and radiological studies such as lateral x-rays of the neck and, occasionally, computerized tomography (CT). Fibroscopy has been the

diagnostic instrument most commonly used by us in the last 7 years, whereas indirect laryngoscopy was used more in the period 1991-1995.

Having an ICU available has allowed us to perform additional assessments of the patients' situation and determines, assuming sufficient beds are available in the unit, whether or not they can be admitted for a specified period for monitoring of vital constants and intravenous treatment. We justify this close vigilance on the real possibility, described in the literature, of a sudden cardiorespiratory failure with immediate life-threatening impact for the patient, which may require urgent recovery of the airways by intubation or coniotomy-tracheotomy if the first option is not possible.

The Microsoft Access, Filemaker and Microsoft Word 2000 applications were used for data processing.

## RESULTS

The diagnosis was based on the clinical history and the findings of the otorhinolaryngological examination. Nasolaryngeal fibroscopy was the technique most used and showed a very swollen cherry-red epiglottis in all patients, of whom 8 also presented oedema of the hypopharynx (26.6%). In another 3 patients oedema of the uvula was observed. Among the personal history, we will cite 2 cases who reported similar previous episodes (1 unconfirmed), 3 adults with allergy to betalactams and another 3 diabetics, or with poorly controlled hyperglycaemia.

The clinical symptoms found are reflected in Table 1. Odynophagia-dysphagia was present in intense or evident forms in 90% of the cases, followed by fever (56.7%), and dyspnoea (40%). The intensity of the fever is an important clinical datum, although we have not recorded the maximum temperatures attained in each case. Somewhat less common are acute pharyngocervical pain (36.7%), sialorrhea (33.3%), throaty voice (33.3%) and stridor (23.3%). Three quarters of the patients reported evolution of their symptoms over  $\leq 48$  hours. The most constant analytical finding was leukocytosis with marked neutrophilia, although it was only detected in 20 of the 30 patients, whereas, at least on admission to hospital, this was normal in the remainder.

In general, intravenous treatment consisted in the administration of second or third generation cephalosporins (cefotaxime or ceftazidime) together with corticosteroids, omeprazole, and/or oxygen therapy. We have followed the recommendations and protocols of our hospital and those of the ICU when beginning therapy, tending towards the use of third-generation intravenous cephalosporins in recent years, providing that the patient was not allergic to betalactams. Other antibiotics used, albeit less frequently, were intravenous amoxicillin-clavulanic acid, aminoglycosides, and erythromycin.

The clinical course was favourable in 28 of the 30 patients in our series, with progressive improvement of the symptoms, especially after 48 hours of hospital treatment. Nonetheless, we did record 1 case of epiglottitis complicated with acute mediastinitis and another male with sudden

**Table 1.** Clinical Symptoms Reported by the 30 Patients in the Study on Admission to Hospital

<i>Clinical Symptom</i>	<i>Cases, n</i>
Dysphagia-odynophagia	27
Fever syndrome	17
Dyspnoea	12
Pharyngeal-cervical pain	11
Sialorrhea	10
Throaty voice	10
Stridor	7

**Table 2.** Percentage of Adults With Acute Epiglottitis Classified by Clinical Course

Favourable outcome with medical treatment only	70%
Favourable, but it was necessary to ensure airway patency	23.3%
Epiglottitis complicated with mediastinitis	3.33%
Death due to sudden non-recoverable cardiorespiratory failure	3.33%

unexpected cardiorespiratory failure whom it was impossible to revive. In approximately a quarter of the patients (7 out of 30), it was necessary to ensure the airway by means of orotracheal intubation (OTI), urgent coniotomy, or tracheotomy (Table 2).

The mean time in hospital was 3-4 days and prior to discharge we always proceeded to perform an indirect laryngoscope or laryngeal fibroscope for verification, as well as the establishment of medical treatment at home for at least 7-10 days, with subsequent revision at the Otorhinolaryngology Out-Patients Clinic.

## DISCUSSION

Acute epiglottitis in adults is a clinical condition requiring early diagnosis and treatment in order to avoid possible complications which, although not as frequent now as they were in the days before antibiotics or among the infant population, may seriously compromise the lives of our patients.<sup>1-3</sup> Its incidence is estimated at between 1 and 2 cases per 100 000 inhabitants and year.<sup>4</sup> Apart from the infectious aetiology already described, it may also be due to other causes: allergy, tumour, or radiation therapy.

In most of the series consulted,<sup>5,6</sup> the authors have encountered a significant predominance of acute epiglottitis in certain seasons of the year, although the greater frequency of this illness in summer months was not significant in our series. On the other hand, and coinciding with the opinion of other authors, we have confirmed a higher number of diagnoses in males than in females and above 40-50 years of age.<sup>7,8</sup>

There is no contraindication in adults with epiglottitis to prevent a careful indirect laryngoscope or laryngeal fibroscope to confirm the diagnosis, unlike in the paediatric population, where these manoeuvres may trigger an acute obstruction of the airways.<sup>9</sup> Epiglottitis may be combined with oedemas in other locations such as the uvula, the tongue, the oral cavity or the hypopharynx (40% of our series).<sup>10</sup>

We maintain that the most appropriate treatment for epiglottitis in adults consists in the patient's admission to a hospital with an ICU, application of an action protocol, close monitoring of each case, and intravenous treatment with broad spectrum antibiotics. It is necessary to take into account the possible resistance of *H influenzae* type B to amoxicillin-clavulanic acid and to make use of second or third generation cephalosporins such as cefotaxime, or ceftazidime.<sup>11,12</sup>

Most adults, including those in our case series, progress satisfactorily in a mean course lasting 24-48 hours with

intravenous treatment plus hospital monitoring and, in general, in less than a quarter of the occasions was it necessary, in addition to the above, to ensure airway patency during admission. Nonetheless, this possibility must be included in an action protocol and it must be remembered that it is not always possible to put a tube in place and urgent coniotomy or tracheotomy may be required.<sup>13,14</sup> Another fact that we have confirmed is that there are cases which do not debut with dyspnoea or stridor but may have very serious complications, such as cases of sudden cardiorespiratory failure and death despite treatment. Apart from contact with the ICU, we recommend close monitoring of all patients with confirmed acute epiglottitis, whether or not they present dyspnoea on admission. Mortality ranges from 1% to 1.5% in the different series.<sup>15-20</sup>

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