

Case presentation: Adult epiglottitis a distinct presentation

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Epiglottitis in the adult population was previously considered a rare entity. During the last two decades there has been a steady increase in the incidence. We present the emergency care of a 52yr old male with acute epiglottitis at Darlington Memorial Hospital.

Case report

A 52-year-old male smoker with type 2 diabetes mellitus and hypertension presented to his general practitioner with a three day history of odynophagia (painful swallowing), dysphagia, pyrexia and reduced oral intake. On examination his throat was visibly swollen with the uvula deviated to the right, he was pyrexial (37.9°C), and exhibited tachycardia at 100 beats per minute.

Treatment commenced with phenoxymethylpenicillin 250mg orally and benzydamine hydrochloride oral rinse. He was advised to recontact his general practitioner should his symptoms significantly deteriorate. Early the next morning he was referred to Darlington Memorial Hospital. The general practitioner was concerned regarding the possibility of a peritonsillar abscess as odynophagia had increased in severity coupled with progressive dyspnea.

Initial review and examination in hospital showed a right-sided peritonsillitis and fiberoptic nasal endoscopy revealed edematous vocal cords. The airway was otherwise clear with no stridor and oxygen saturation was 100%. Initial blood tests showed WBC 23.7 (normal 4-11), CRP 326 (normal 0-10).

ENT review later that day showed the patient to be pyrexial and sitting up drooling. A further fiberoptic nasal endoscopy showed severe epiglottitis. Intravenous Cefuroxime, metronidazole and dexamethasone were

administered. Nebulised adrenaline was commenced in the ward before the patient was transferred to theatre to perform surgical tracheostomy.

In theatre, local anesthesia was employed to secure the airway involving an awake tracheal intubation technique. A fiberoptic scope and size 6 Ring—Adair—Elwyn (RAE) naso-tracheal tube were used to secure the airway. A dose of 2.5ml 4% lidocaine was administered via a nebulizer then phenylcaine to the right nostril. A further 2ml of 4% lidocaine was vaporized using atomizer down the right nostril.

Sedative analgesia using a remifentanil infusion, concentration 50mcg/ml was started at 7.5ml/hr. The nasotracheal tube was placed through the vocal cords under direct vision, end tidal carbon dioxide was confirmed and oxygen saturation remained stable throughout at 96%. General anaesthesia was commenced using sevoflurane and incremental doses of propofol.

Surgical tracheostomy was successful and a size 7 cuff tracheo tube sited. Insertion of a nasogastric tube at the end of the procedure visualized a very swollen epiglottis. Re-intubation was predicted to be very difficult even with a fiberoptic scope.

Immediately post operation the patient was transferred to the intensive care unit for overnight monitoring. There was no evidence of cognitive impairment and intravenous antibiotics and steroid therapy were continued.

After 24 hours on the ENT ward a tracheostomy cuff leak test proved negative. The patient could not vocalize and there was no audible leak, confirming persistent swelling of the upper airway. After a further 48 hours a leak test was confirmed positive. The patient was able to vocalize and felt much better. A fiberoptic nasal endoscopy confirmed epiglottic swelling had

subsided considerably. He was decannulated later that day and discharged home to complete a course of oral Augmentin.

Discussion

Severe epiglottitis is an ENT and anaesthetic emergency. Interestingly George Washington was probably one of the first recorded deaths from epiglottitis¹ despite the finest treatment of the day, which involved the letting of five pints of blood within the short course of his illness².

Incidence and mortality has declined in the paediatric population secondary to introduction of the *Haemophilus influenzae* type b vaccine in the 1980s^{3,4}. The incidence in adults has paradoxically risen at 1-2.9/100,00 per annum⁵. Factors cited include increased awareness and diagnosis; pathogens developing resistance to commonly used antibiotics and the development of a successful vaccination programme in the paediatric population against *haemophilus influenzae* type b⁵.

Haemophilus influenzae type b is implicated as a causative organism in adult epiglottitis along with a wide variety of others. Blood cultures are frequently negative for all organisms in this group suggesting a possible viral aetiology⁶. In one study only 6 out of 52 blood cultures were positive for *haemophilus influenzae* type b⁶.

Adult epiglottitis seems to be a disease of middle age affecting males more than females in the ratio 2.5: 1 in the age group 42-47years⁵. Frequent co-morbidities and associations with the disease are diabetes mellitus, hypertension, alcohol and drug abuse, chronic obstructive pulmonary disease and cigarette smoking^{5,6,10}.

Historically perceived to be relatively uncommon in adults acute epiglottitis is frequently misdiagnosed for a range of other conditions. In one case series a 40-year-old male developed coma six hours post admission. Initially suspected as an infective exacerbation of asthma, the diagnosis of epiglottitis was made on conventional orotracheal

intubation at the bedside. Intubation sadly failed and the patient died⁶.

Disease progression in adults is usually of a slower onset with severe odynophagia and extremely sore throat the most common symptoms. There is inflammation extending to more supraglottic structures and often misdiagnosed as pharyngitis, peritonsillitis or upper respiratory tract infection⁵.

The condition reportedly carries less risk of airway obstruction in adults leading some authors to conduct a conservative management approach with intravenous antibiotics and close monitoring⁷. Examination of the oropharynx can be normal in up to 44% of patients in one study⁶. This emphasizes the importance of routine examination with fiberoptic nasal endoscopy.

According to current consensus there is no optimal time to intervene and secure the airway. Many propose early prophylactic airway management⁸. The disease process can have an unpredictable component. There is a potentially rapid course to airway obstruction with disastrous outcomes in clinical areas not prepared.

Fiberoptic nasal endoscopy should be performed early to assess the extent and severity of swelling. It can classify adult epiglottitis into three stages depending on epiglottic swelling and proportion of vocal cords visualized⁹.

Stages are divided into status A or B. Status A - without swelling to the arytenoids and ary-epiglottic folds, with status B involving swelling⁹.

There is a convincing association with stage B and the need for artificial airway intervention⁹. Other associations in the literature are rapid deterioration in the previous 8-12 hours, tachypnea, tachycardia, severe odynophagia, drooling and diabetes mellitus^{5,6,9,10}.

Our patient tailored the disease demographic closely and showed signs indicating the need for early airway intervention. An inhalational

induction has been advocated traditionally to manage the airway in this group of patients^{11,12}. We decided an awake technique with local anaesthesia and minimal sedative analgesia the most appropriate option in this case aiming to avoid the possibility of airway obstruction during the excitation phase of inhalational anaesthesia.

Conclusions

Communication between General Practitioners, hospital ENT and Anaesthesia teams is paramount in the successful management of this patient group. Early fiberoptic nasal endoscopy is easy and safe to perform leading to rapid diagnosis and intervention in a timely manner, especially when the condition can so easily mimic others. We suggest that an awake technique is useful to secure the airway and intervention early if there is any uncertainty.

References

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