Lesson of the Week

Precipitation of laryngeal obstruction in acute epiglottitis

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Acute epiglottitis is a life threatening infection that is nearly always caused by *Haemophilus influenzae* type B. It occurs predominantly in children aged 2-7 years.¹ Most require endotracheal intubation and some need tracheostomy to prevent incipient obstruction of the larynx by the swollen epiglottis. Most textbooks emphasise the need to summon skilled help from anaesthetists and ear, nose, and throat staff; to defer examination of the throat until this help is available; and to give prompt parenteral antibiotic treatment. Few textbooks specifically recommend that injections or venepuncture be delayed until intubation or tracheostomy has been performed. We describe a case that shows the potential consequences of any routine procedure that may cause crying in a child with epiglottitis who is not intubated.

Case report

An 18 month old boy was brought to Sydenham Children's Hospital with a six hour history of increasingly difficult and noisy breathing, fever, and irritability. On examination he had coarse inspiratory stridor with intercostal and suprasternal recession. He was distressed, cyanosed, and drooling. The axillary temperature was 38°C. Direct examination of the throat was not attempted, but a lateral x ray film of the neck confirmed the diagnosis of epiglottitis. The boy was nursed in his mother's arms to minimise his distress while senior paediatric, anaesthetic, and ear, nose, and throat staff were summoned.

In accordance with departmental policy an intravenous infusion was set up so that immediate treatment with antibiotics and steroids could begin. The procedure was carried out with extreme care but caused the child to cry, leading immediately to respiratory arrest. Emergency endotracheal intubation was unsuccessful so a 16 gauge Medicut cannula was inserted through the cricothyroid membrane. Treatment with 100% oxygen and external cardiac massage was begun. Spontaneous respiration was re-established within two minutes, coinciding with the arrival of the team of consultants. When the consultant anaesthetist intubated the child with a 3.0 mm orotracheal Portex tube (subsequently replaced by a 3.5 mm nasotracheal Portex tube) a grossly enlarged epiglottis was visualised. The child was given intravenous chloramphenicol, ampicillin, and hydrocortisone; sedated with chloral hydrate; and nursed in 27% humidified oxygen. Eighteen hours after intubation his fever had resolved. He was extubated under halothane anaesthesia and direct laryngoscopy. He made an uneventful recovery.

Discussion

This child's respiratory arrest was most probably precipitated by laryngeal obstruction due to crying while an intravenous infusion

Crying can precipitate laryngeal obstruction in acute epiglottitis

was established. Although emergency laryngotomy was effective, studies suggest that needles of even wider bore than that used here may not always relieve obstruction.²

The recommended timing of potentially distressing procedures like venepuncture and parenteral injections in the management of acute epiglottitis varies widely. Of 22 textbooks consulted, only six clearly stated that these procedures should be undertaken after the establishment of a stable airway,³⁻⁸ whereas six implied that they should be done before skilled assessment of the airway.⁹⁻¹⁴ Acute epiglottitis is a medical emergency that demands a multi-disciplinary approach agreed within each department. As a result of this case our departmental policy now clearly recommends deferring setting up intravenous lines until the child has been assessed by senior staff and intubated if necessary.

We emphasise that procedures that can cause crying—for example, taking blood, giving injections, undressing a child, restraining a child while an x ray film is taken, separation from the parents, and especially examination of the throat—should wait until a stable airway has been established under general anaesthesia if epiglottitis is suspected. The child should be monitored constantly by medical and nursing staff and at all times nursed in the upright position. He should never be forced to lie down. The risk of respiratory arrest should be reduced by taking these precautions.

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