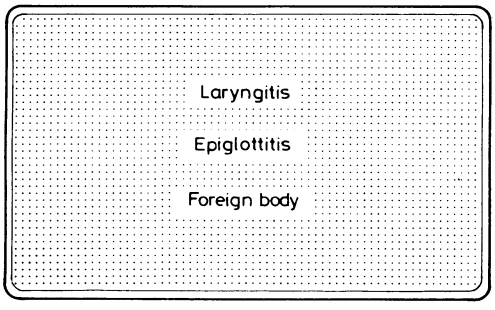
ABC of 1 to 7

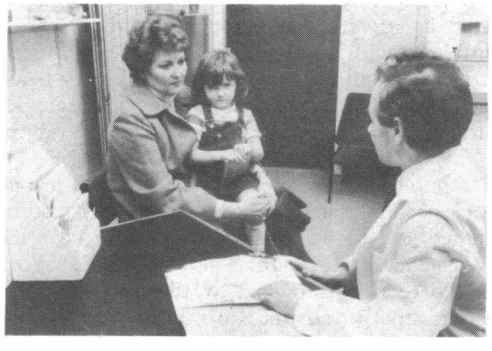
H B VALMAN

STRIDOR



Stridor is noisy breathing caused by obstruction in the pharynx, larynx, or trachea. It may be distinguished from partial obstruction of the bronchi by the absence of rhonchi. Although most cases are due to acute laryngitis and may resolve with the minimum of care, similar features are found in acute epiglottitis and may cause sudden death. Stridor is recognised as one of the most ominous signs in childhood. Any doctor should be able to recognise the sound over the telephone and arrange to see the child immediately. Examination of the throat may precipitate total obstruction of the airway and should be attempted only in the presence of an anaesthetist and facilities for intubation.

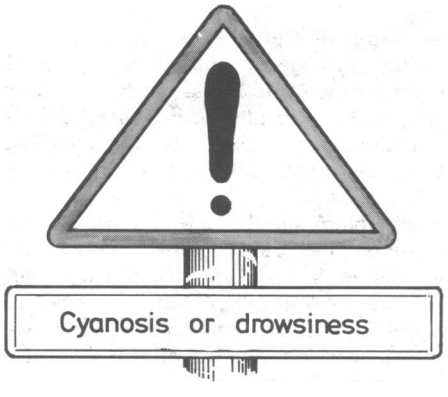
History and management



A glance at the child will show whether urgent treatment is needed or whether there is time for a detailed history to be taken. The doctor needs to know when the symptoms started and whether there is nasal discharge or cough. Choking over food, especially peanuts, or the abrupt onset of symptoms after playing alone with small objects suggests that a foreign body is present.

During the taking of the history and the examination the mother should remain near her child and be encouraged to hold him and talk to him. This reduces the possibility of struggling, which may precipitate complete airway obstruction. Agitation and struggling raise the peak flow rate and move secretions, which results in increased hypoxia and the production of more secretions.

Acute laryngotracheitis



Acute laryngitis causes partial obstruction of the larynx and is the commonest cause of croup. It is characterised by inspiratory and expiratory stridor (noisy breathing), cough, and hoarseness. The laryngeal obstruction is due to oedema, spasm, and secretions. Affected infants are usually aged 6 months to 3 years, and the symptoms are most severe in the early hours of the morning. Recession of the intercostal spaces indicates significant obstruction, and cyanosis or drowsiness shows that total obstruction of the airway is imminent.

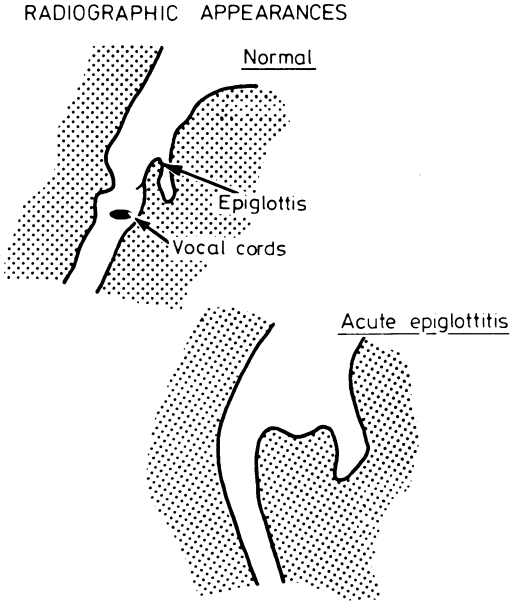
Complete airway obstruction may occur during examination of the throat of an infant with stridor. The examination should be attempted only in the presence of an anaesthetist and facilities for intubation, preferably in the anaesthetic room of the operating theatre.

A child often improves considerably after inhaling steam, which is provided easily by turning on the hot taps in the bathroom. Mild cases may be treated successfully at home using this method but the infant must be visited every few hours to determine whether he is deteriorating and needs to be admitted to hospital. Continuous stridor or recession demands urgent

hospital admission. Oxygen with increased humidity can be given with a special humidifier by nursing the infant in a small tent (croupette), but it is difficult to observe the child and he cannot see his parents. Hypoxaemia or thirst may cause restlessness and should be corrected and sedatives avoided. Rarely the obstruction needs to be relieved by passing an endotracheal tube or performing a tracheostomy.

Acute epiglottitis and acute laryngitis may be indistinguishable clinically since stridor and progressive upper airway obstruction are the main features of both. Some authorities prefer to give ampicillin to all infants with the characteristic symptoms. Some paediatricians give steroids as well. The dose of hydrocortisone is 100 mg intramuscularly or intravenously repeated once after two hours. No effect is seen for at least two hours. Later betamethazone should be given at a dose of 3 mg intravenously every six hours but only until signs of improvement appear. Infants with severe symptoms should be managed in the intensive care unit.

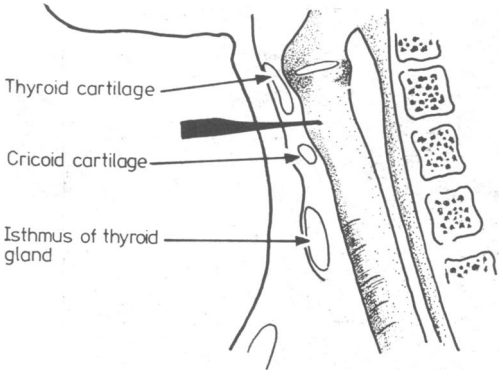
Acute epiglottitis



Infants with epiglottitis are usually aged over 2 years, drooling and dysphagia are common, and the child usually wants to sit upright. When the obstruction is very severe the stridor becomes ominously quieter. There is usually an associated septicaemia with *Haemophilus influenzae*.

If epiglottitis is suspected the infant should be transferred urgently to hospital. Facilities for intubation or tracheostomy must be available when the throat is examined because the examination may cause complete airway obstruction. The epiglottis is red and swollen. Acute epiglottitis has a high mortality. Some units have found a lateral radiograph of the neck helpful in distinguishing between acute laryngitis and acute epiglottitis. The films must be taken in the intensive care unit with the child in the upright position by a skilled radiographer and in the presence of a doctor skilled in intubation. Since it is impossible to distinguish clinically between infection with *H influenzae* and a viral infection intravenous chloramphenicol or ampicillin should be given.

Other causes and emergency management of foreign bodies



Even if the symptoms have settled and there are no abnormal signs, a history of the onset of sudden choking or coughing can never be ignored. A radiograph of the neck and chest should be taken and may show a hypertranslucent lung on the side of a foreign body, a shift of the mediastinum, or, less commonly, collapse of part of the lung or a radio-opaque foreign body. The radiograph may be considered normal. Bronchoscopy may be needed to exclude a foreign body even if the chest radiograph appears to be normal. Stridor in a child who has had scalds or burns or has inhaled steam from a kettle suggests that intubation or tracheostomy may be needed urgently.

If the cause of stridor is likely to be a foreign body below the larynx the object should be removed immediately by a thoracic surgeon in the main or accident and emergency operating theatre. If the object is above the larynx and if an ENT surgeon or anaesthetist is not immediately available and the child is deteriorating the safest treatment is to insert a wide needle, such as Medicut size 14, into the trachea in the midline just below the thyroid cartilage. It may be preferable to insert two needles. No attempt should be made to look at the mouth or throat or remove the object, as the struggling that may follow this attempt may impact the object and prove fatal. The child should be allowed to remain in a position he finds most comfortable, which is usually upright. Forceful attempts to make the child lie flat, for example for a radiograph, may result in complete airway obstruction.

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