or both are preventable by good obstetric management by the health care team.

2. Eclampsia is one of the complications of Pre-eclampsia which is avoidable by good obstetric management. Not every convulsive seizure in pregnancy is due to Eclampsia.
3. The morbid and/or mortality effects of Pre-eclampsia and its complications on the mother and /or baby can be reduced by good obstetric decision-making especially on WHEN and HOW to safely deliver. These are achievable without the need to use imported expensive high technology.

Management of Inhaled Foreign Body and other Paediatric Airway problems.

P Fenton

Adults do get Upper Airway Obstruction from a variety of causes but the most frequently encountered patient with this condition is a baby or child, sometimes with respiratory failure in extremis, who has inhaled a maize seed, bean or peanut. Invariably there is an anxious parent present who has high expectations of a satisfactory outcome but very little idea of how serious the situation is or the difficulties involved in removing foreign bodies from a child's airway.

The airway has a number of features that make exploration a problem: it is very sensitive so general anaesthesia is required, even if you are only looking; it is inaccessible, small and the narrowest part is rigid so it is easily blocked; even momentary interruptions of the to- and fro- passage of air (eg. by looking with a bronchoscope) will cause hypoxia after a few seconds and death after a few minutes; the vocal cords can close and block the airway if they are irritated (laryngospasm); reactive oedema from clumsy instrumentation can easily cause total airway obstruction hours later when the child is unattended.

The airway above the larynx is less sensitive and has soft tissue walls, so obstruction here is easier to deal with.

At QECH we commonly see children with inhaled foreign bodies brought by the mother either from the Blantyre environs or referred from other health facilities, usually after 1 or 2 days but sometimes after more than a week. It is not known how many others there are that inhale foreign bodies and die on the spot or who, for various reasons, never make it to hospital to get effective treatment. When one considers the number of small children (especially those under 2 years) that are left unattended, the predilection that this age group has for putting things in the mouth and the quantity of maize seeds, nuts and other objects that are available for this activity, one must conclude that only the fortunate few are ever seen in hospital.

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For any inhaled foreign body (FB), the situation is urgent. The FB is either at the cricoid ring (the narrowest part of the airway) or else it has gone down the trachea and is stuck at the carina or gone down a bronchus.

It is useful to have an idea before you start as to where the FB is:

FB at the cricoid: the child has marked sub-costal recession and stridor. There is a short history of severe respiratory difficulty after playing with a seed. The child is very distressed.

Management: Induce inhalation anaesthesia with oxygen and halothane 3%. When the child is asleep, do laryngoscopy. With luck, you can quickly remove the object with Magill's paediatric forceps and there is instant improvement in the breathing.

With any FB in the airway, inhalation induction is mandatory and you should AVOID positive pressure ventilation, if possible, as this may push the object further down out of reach. Don't give suxamethonium as this will make IPPV obligatory.

If an i.v. is in place, give 20 mcg/kg atropine. I.M. atropine given on the ward is very useful if there is an opportunity to give it. Do not attempt to put an i.v. in theatre in the awake child in respiratory distress as this may cause more problems than it solves.

If the FB is further down the respiratory tract, presentation is different: the child is less distressed and the history may be longer. Usually there is cough, mild or moderate dyspnoea and, on examination, a wheeze which may be all over the lungs or localized. Cyanosis is quite common and the chest may move asymmetrically. CXR examination is often useful to show an area of collapse or the FB itself if it is radio-opaque, eg. metal or glass. Pulse oximetry reveals desaturation.

The FB may be moving up and down the trachea or be stuck somewhere. Sometimes you can be lucky and catch a bean or a seed as it intermittently appears below the cords. Paediatric Magill's forceps can be life saving in these cases. The Heimlich manoeuvre or something similar (sudden chest compression to increase thoracic pres-

sure and blow out the object) is probably only useful for objects at the larynx.

If the FB is stuck further down, this is not amenable to treatment as above since bronchoscopy is required with a paediatric bronchoscope. A ventilating bronchoscope will allow anaesthetic gases and oxygen to be given at the same time as the surgeon attempts to remove the object. Too large a bronchoscope used with force may traumatise the cricoid cartilage and give oedema and respiratory obstruction later on the ward. Any non-ventilating bronchoscope must be repeatedly inserted and removed as the patient requires oxygen between examinations. A small cystoscope can be used for this but results are usually disappointing. At present in Malawi there is no paediatric ventilating bronchoscope and so it is difficult to do much about foreign bodies that are lodged beyond the carina in one or other of the main bronchi. If they are left alone, they may break up and be coughed out some time later, together with a lot of broncho-pneumonic pus. If not, the affected lung lobe or segment may be destroyed by collapse and infection and the child can survive with a smaller respiratory system. Antibiotics should be given.

Other acute airway problems:

(i) **croup, epiglottitis.** The latter (more serious) is rarely seen in Malawi but croup can give a larynx so swollen that the airway is almost blocked. These babies or children are very unwilling to lie down and they have copious oral secretions that have to run out of the mouth because swallowing is painful. They may also be febrile, distressed, toxic and cyanosed so careful handling is essential. There is often a distressed parent in attendance.

Conservative treatment involves avoiding overstimulation of the child and giving humidified oxygen, antibiotics and steroids. If this fails, the next course of action is to take the child to the operating theatre, prepare every available aid to intubation, and without any delay, take the child on your knee and give inhalation induction (with halothane and as much oxygen as possible) in the sitting position until asleep. Continue for as long as possible (usually the airway will be lost at some stage), then transfer to the table and intubate as quickly as you can. Be prepared for a distorted anatomy. Be prepared also for an emergency laryngotomy or tracheostomy if you cannot intubate and respiratory arrest is about to occur. Further management is to continue intubation for at least 24 hrs in an "ITU" -type location with constant nursing, suction, oxygen and high dose antibiotics. The oral tube can be exchanged for a nasal one later, in theatre. Steroids can be effective.

(ii) **tracheitis.** This may occur at the time of measles outbreaks. Presentation is like croup with a history of dyspnoea for a few days and a febrile illness. However, the chest is very noisy and, at laryngoscopy, the larynx is normal. Fine catheter suction down the trachea should be done which will remove large amounts of frothy secretions after which the child becomes less dyspnoeic and can be extubated. Repeated suctions over the next few days may be necessary.

(iii) **retropharyngeal abscess.** This is quite common. Feel the neck in the child with dyspnoea or examine the oropharynx with a wooden spatula and the presence of retropharyngeal abscess should be very obvious. Confirm the diagnosis with a finger in the mouth palpating a fluctuant mass posteriorly. There are two approaches: (a) inhalation induction with oxygen and halothane, intubation and incision and drainage with a rigid sucker to completely evacuate the cavity, or (b) avoiding any anaesthesia, puncture the abscess with a pair of forceps with the patient awake, then immediately turn the child face-down so the pus runs out. The first method allows better evacuation by suction of the retropharyngeal space.

(iv) **other abscesses and lymph nodes.** These press on the airway and can cause emergency airway obstruction. Management is the same as for croup though they usually are easier to deal with.

(v) **laryngeal polyps or papillomata.** This is a frequent problem in children of all ages, and is usually of viral origin. Acute airway obstruction can occur. Induce deep anaesthesia as above and gently remove as many as you can with Magill's forceps, avoiding damage to the cords from where the papillomata are arising. Have good suction ready and wear a pair of goggles! Have a small endotracheal tube with introducer ready at all times. The polyps recur for years and semi-permanent tracheostomy is sometimes required.