Ujuzi
(Practical Pearl/Perle Pratique)

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Ujuzi means skills in Swahili and is intended to be a regular feature for colleagues to share practical interventions, innovations and novelties that have proved useful in the management of patients in the prehospital environment or Emergency Centre. You can let Ujuzi know about your practical ideas by emailing practicalpearl@afjem.com.

Endotracheal tube placement confirmation using a urinary bladder syringe

Introduction: Airway management is the single most important skill of the emergency physician and emergency airway management is one of the defining domains of the specialty of emergency medicine.1 Unrecognized oesophageal intubation occurs sometimes with lethal results and as such it is imperative to confirm the location of the endotracheal tube (ETT) following intubation.2,3

The objective means of confirming ETT location include:
- Visualization of tracheal rings and/or carina using a flexible intubating bronchoscope or a semi malleable fibreoptic stylet and
- Oesophageal detector devices.4

The principle behind an oesophageal detector device relates to the anatomical differences between the trachea and the oesophagus.1 The anteriorly positioned cartilaginous rings of the trachea prevent collapse of the airway into the ETT whilst the circumferentially muscular structure of the oesophagus collapses when a negative pressure is applied to its lumen using a 60 ml catheter-tipped syringe (Toomey or bladder syringe).2 Using a urinary bladder syringe as an oesophageal detector device is a novel technique applicable to any resource constrained setting.

Procedure (Fig. 1):
1. Remove universal connector from ETT
2. Connect a 60 ml urinary bladder tip to ETT
3. Pull on the piston of syringe to aspirate
4. Syringe does not easily aspirate for an oesophageal intubation and vice versa.

Pitfalls: False-negative results (i.e. tube is in trachea, syringe does not easily aspirate) may occur with a tube obstructed with mucous or secretions, with severe bronchospasm, in the morbidly obese patients and in other conditions such as pulmonary oedema that cause markedly decreased dead space. Whilst this technique is still accurate in detecting oesophageal intubation after intentional moderate gastric insufflation; it may fail after massive gastric insufflation.
References


Fig. 1  Use of a 60 ml catheter-tipped syringe as an oesophageal detector device, clockwise from top left.