

Monitoring endotracheal tube cuff pressure using a blood pressure manometer

Dear Editor,

Endotracheal tube (ETT) hyperinflation can cause ischemia of tracheal mucosa, postoperative sore throat and many other complications.^[1,2] The recommended ETT cuff pressure is between 30 and 40 cm of water.^[3] Most of the times, ETT cuff is measured intermittently using cuff manometers. Many authors have suggested the continuous measurement of ETT cuff pressure.^[4] However, the cuff manometers and other devices for continuous measurement of ETT cuff pressure are not available at all places. Subjective measures of cuff pressure like palpation of pilot balloon have been proven to be ineffective. We describe a method we use to rule out over-inflation of ETT cuff using a blood administration set and a blood pressure manometer, devices which are easily available in all operation theater settings.

The rubber injection port and male fitting connector of a blood administration set (Umaflow; Royal Surgicare, Gujarat, India) are removed from the blood administration set and connected to a blood pressure manometer at the site of BP tubing connection. At the other end of the male fitting connector, a 3-way connector (BD Connecta™, Becton Dickinson Infusion Therapy Systems, Mexico) is attached [Figure 1].

The one way valve of pilot balloon of ETT can be connected to the other end of the 3 way and ETT cuff determined. However, we must remember that the BP manometer shows readings in mm of Mercury (Hg) and they need to be converted to cm of water using the formula, 1 mmHg = 1.35 cm of water. Hence, if we want an ETT cuff pressure of 35 cm of water, we need to have a cuff reading of around 25 mm of Hg. Using the third port of the 3 way, a 10 cc syringe can be used to inflate the ETT cuff while simultaneously measuring the ETT cuff pressure [Figure 2].

This may be used as a rough guide to prevent both hyperinflation and hypoinflation of ETT cuff. Goyal *et al.* in a study had used a very similar modification and suggested that improvised monitors to measure endotracheal tube cuff pressure worked as well as commercially available cuff monitors.^[5] In addition, this method can be used for continuous measurement of endotracheal tube cuff pressure both in operation theaters and ICUs.

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Figure 1: Connecting injection port of IV set to the BP manometer

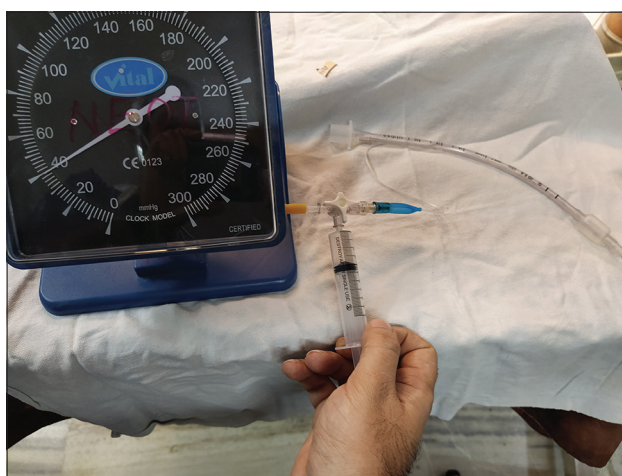


Figure 2: ETT cuff being inflated using a 10 cc syringe while measuring cuff pressure using BP manometer

Conflicts of interest

There are no conflicts of interest.

**Summit Bloria, Rajeev Chauhan, Ankur Luthra,
Pallavi Bloria¹, Ketan Kataria**

Department of Anaesthesia, Post Graduate Institute of Medical Education and Research, Chandigarh, ¹Department of anaesthesia, Government Medical College, Jammu, Jammu and Kashmir, India

Address for correspondence: Dr. Pallavi Bloria,
326/c Sainik Colony, Jammu, Jammu and Kashmir, India.
E-mail: pallavibloria@gmail.com

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