

CORRESPONDENCE

AIRWAY MANAGEMENT

Intraoperative endotracheal tube cuff pressure leak

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Surgeries involving head and neck region require great expertise in handling the compromised airway and pose significant challenges to the anesthetist.¹ An abnormality with the already secured airway like leak in the endotracheal tube cuff or its inflation system may be very troublesome. We encountered such a complication during an onco-surgery case and learned an uncommon cause of leak from the endotracheal tube.

A 46-year-old female of ASA I, diagnosed as a case of carcinoma of buccal mucosa, posted for wide local excision with free flap reconstruction from anterolateral thigh. On airway examination the mouth opening was only 2 fingers, and Mallampati score could not be assessed. In the operating room, she was induced and nasotracheal intubation was done with size 7 mm ID flexo-metallic tube using C-Mac video laryngoscope. Before induction endotracheal tube was assessed for any breakage and cuff leakage. There was no cuff handling during intubation. Later, throat pack was inserted, and the surgery proceeded. An hour later, ventilator started showing air leak of around 3 ml/kg. As a first response, we checked the pilot balloon, which was slightly deflated. It was reinflated and leak stopped, but after 5 min it restarted.

The surgery was stopped and the tube was changed over bougie using C-Mac video laryngoscope. Ventilation was resumed with no air leak. To evaluate, we pushed normal saline followed by methylene blue dye through the inflation port and found leak site at the intramural part of inflation line of the endotracheal tube which was not present earlier.^{2,3}

Later we realized that the defect was created on the tube due to the shearing stress of tongue depressor used during inserting the throat pack. As the mouth opening was restricted, adjusting the tongue depressor was difficult. The tongue depressor's posterior edge pressed on the surface of endotracheal tube causing the damage.



Figure 1: ETT showing leak of methylene blue dye from breakage site

Various causes of air leak around an intact and properly functioning cuff and inflation system include initial or delayed underinflation, cephalad migration of endotracheal tube, tracheal misplacement of NG tube, wide discrepancy between endotracheal tube and tracheal diameters, and high peak airway pressure. Other causes of air leaks include defect in structural cuff and inflation system like incompetent inflation valve, punctured pilot balloon, inflation line or intramural part of inflation line, asymmetrical cuff, punctured or torn cuff. They all were ruled out to find the cause of the leak.

It's better to be cautious while handling instruments during throat pack insertion especially when dealing with a difficult airway and the tube is in situ.

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