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**Title:** Comment on - bronchus perforation by EZ-Blocker™ endobronchial blocker during esophageal resection after neoadjuvant chemoradiation

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**Conflict of interest:** Nil
Sir,

I read, with the great interest, the case report – 'bronchus perforation by EZ-Blocker™ endobronchial blocker during esophageal resection after neoadjuvant chemoradiation' [1]. I congratulate the authors for reporting the first incidence of bronchus perforation by EZ-Blocker™ and more importantly, for the successful management of this rare complication. In this regards, I wish to make few comments.

In this patient, airway control was secured with single lumen tube (SLT) insertion followed by insertion of EZ-Blocker™ under bronchoscopic guidance. Patient was planned to undergo laparoscopic part of surgery followed by thoracoscopic part. Hence, there was no need for lung isolation during first half of the surgery. Many studies in laparoscopic procedures have reported cephalad movement of the carina due to creation of pneumoperitoneum and Trendelenburg position during laparoscopic surgery [2]. Creation of pneumoperitoneum, by its own virtue, leads to cephalad movement of carina [3]. Such movement, in presence of an EZ-Blocker™ hinging against carina, could result in dislodgement of blocker followed by bronchial perforation. In this case, the risk was further potentiated by old age, possibility of microangiopathy (patient was a known case of coronary artery disease) and irradiation, leading to mucosal fragility. Also, EZ-Blocker™, as compared to other bronchial blockers, does have pointed tips of the bronchial segments. Since all lung isolation devices potentially carry risk of damage to airway mucosa (double lumen tubes-DLTs carry higher risk than blockers), their use should be restricted only to that part of surgery when lung isolation is required. In this case, authors could have planned insertion of bronchial blocker after completion of laparoscopic part of the surgery.

Secondly, authors mention that bronchoscopic inspection of the position of EZ-Blocker™ was difficult in prone position due to collapse of central airway below the level of SLT. This could have resulted in missing the dislodgement of the blocker. This is common finding when the bronchoscopy
is performed in the prone position. In such cases, keeping the bronchoscope at the tip of the SLT, one can push the endotracheal tube towards carina under vision. While making this movement, the blocker should not be fixed to the SLT at its proximal end, to prevent excessive pressure on the carina or on the bronchial mucosa. This maneuver helps to open the collapsed lower airway, without distal movement of the blocker. Once the position of the blocker is confirmed, SLT can be withdrawn slightly so that the tip of the SLT lies away from the carina. It is also important to note that bronchial cuff should be inflated after changing the position of the patient. Blockers with inflated cuffs tend to get displaced during changing the position of the patient. Keeping the tip of the SLT close to carina can prevent retrograde displacement of the endobronchial blocker, as described by AM Ho et.al. [4] This technique carries a potential risk of injury to the carina, hence this technique should not be used when carinal movement is expected due to Trendelenburg position or creation of capnothorax. Also, frequent bronchoscopic inspection of the position of the SLT can help to prevent injury to the carina. In any case, it should be mandatory to inspect the position of bronchial blocker after changing the position of the patient, howsoever difficult it may get. Another option is to prefer DLT over bronchial blockers when prone position is required during the surgery. DLTs are less likely to get dislodged and bronchoscopic inspection is easier through DLTs in prone position.

In summary, dislodgement of lung isolation device can present with serious intraoperative complications. Basic principles regarding lung isolation devices (i.e. careful selection of the device, use of the device only when needed, and always confirm position of device prior to start of one lung ventilation), remain to be gold standard for safe thoracic anaesthesia practice.
References


4. Ho AM, Karmakar MK, Critchley LA, Ng SK, Wat CY. Placing the tip of the endotracheal tube at the carina and passing the endobronchial blocker through the Murphy eye may reduce the risk of blocker retrograde dislodgement during one-lung anaesthesia in small children. Br J Anaesth. 2008; 101: 690-3.