

DLT vs Bronchial Blocker

This topic could obviously be quite extensive (see below for a 27 page chapter) so as usual, we will just hit the wave tops. We will also skip discussing endobronchial intubation, sorry peds.

Double lumen tubes (DLTs) are large with an outer diameter size ranging from 26 French up to 41 French which includes two smaller lumens: a tracheal lumen and bronchial lumen which extends further and bends to facilitate proper positioning. Bronchial blockers (BBs) are typically 5-9 French in size and are placed through (typically) or alongside (rare in adults) a standard ETT and a balloon is inflated to block a mainstem bronchus or a specific lobe. The larger sized tube of the DLT (compared to a standard sized ETT), rigid construction/stylet, and bronchial lumen bend requiring rotation of the tube during placement all make **intubation with a DLT challenging**. This is **especially apparent in the patient with a difficult airway** where lung isolation may be more easily achieved by intubation with a standard ETT and then placement of a BB. Given the size and rigidity, there is concern regarding tracheal rupture or other **significant airway trauma from placement of the DLT** but as far as I am aware, these are limited to case reports and the only study comparing DLT to a BB only noted an increase in hoarseness and vocal cord lesions with a DLT with no significant difference in major complications.

Although studies have shown **no difference in the degree of or success of lung isolation between a DLT and BB, lung deflation is more rapid with a DLT**. Additionally, these studies were done with experienced senior thoracic anesthesiologists. **DLTs are classically described as being easier to place for isolation** (assuming an easy airway) while a **BB necessarily requires fiberoptic confirmation**, in reality given ready availability of fiber optics, many confirm DLT placement with a fiberoptic as well. While **sizing a DLT can be difficult**, if appropriately sized, **DLTs tend to stay positioned while BBs are known for their tendency to become dislodged** during the case, frustrating surgeons and anesthesiologists alike.

The large lumens of a **DLT allow suctioning of both lungs** which can be helpful and their nature allows for **rapid conversion between 2 and 1 lung ventilation and which lung is isolated**, making DLTs the preferred modality for lung transplantation. **Many ICUs are unfamiliar with DLTs** such that if a patient is likely to require postoperative ventilation, consideration should be given to using a standard ETT and BB or else a plan for potential end-of-case airway exchange will need to be created.

Referencing back to difficult airways, many patients will **require a BB over a DLT**. I'm not saying you couldn't place a DLT in these patients, but there is substantial risk and difficulty. These include: **limited mouth opening, requiring awake intubation, presence of a tracheostomy, requiring nasal intubation**.

DLTs were classically taught as less expensive than BBs but as companies continue to innovate new devices, and negotiate separate contracts, the cost of the differing lung isolation techniques may be institution specific.

Further reading: Campos, JH: Separation of the Lung: Double-Lumen Endotracheal Tubes and Endobronchial Blockers, Cohen's Comprehensive Thoracic Anesthesia, 1st edition. Edited by Cohen E. Philadelphia, Elsevier, 2022, pp 213-239