

# One Lung Ventilation: Indications

## Anesthetic Pearls: Anesthetic Implications and Management of One Lung Ventilation

A double lumen tube is placed to achieve One Lung Ventilation (OLV). There are absolute and relative contraindications that dictate the urgency and necessity of providing lung separation.

### Absolute Indications for OLV:

Separation of the lungs to prevent spillage of blood or pus from a bleeding or infected source is a definite indication for OLV. Bronchopleural and bronchocutaneous fistula represent low resistance pathways to airflow delivered by positive pressure ventilation. These fistulae will prevent effective positive pressure ventilation and are therefore absolute indications for OLV. Giant cysts or unilateral bullae that may rupture under positive pressure also represent a definite need for OLV. During bronchopulmonary lavage, an effective separation of the lungs is mandatory to avoid accidental spillage of fluid from the lavaged lung to the nondependent ventilated lung.

### Relative Indications for OLV:

Improved surgical exposure (via the insertion of a double lumen tube) represents a relative indication for OLV. In certain surgeries, OLV is a high priority and in others, OLV is helpful, but of relatively low priority. At times it is much easier for a surgeon to carry out lung / esophageal surgery if the lung is collapsed. Ventilating the patient with smaller tidal volumes and the surgeon using a retractor may help achieve adequate surgical access for most lung resections and esophago-gastrectomies without collapsing the lung. However, if the surgeon is not used to operating with the lung inflated, or if the tumor is technically difficult to resect, OLV will be required. It is important to discuss with the surgeon any difficulties or specific requirements that they might anticipate. Also be appraised of what they intend to do intra-operatively, as both surgeon and anesthetist are influencing the organ that is oxygenating the body. **Lack of communication can be disastrous.**

### Techniques for OLV:

There are 3 devices that can be inserted to achieve OLV: 1) double lumen tube, 2) bronchial blocker, or 3) single lumen tube inserted beyond the carina.

#### Absolute indications

- Risk of lung soilage
- Control of ventilation
- Bronchopulmonary lavage

#### Relative indications

- Surgical exposure (high priority)
- Thoracoabdominal aneurysm repair
- Pneumonectomy
- Upper lobectomy

#### Surgical exposure (low priority)

- Middle & lower lobe resection
- Esophageal resection
- Thoracoscopy
- Thoracic spine surgery

