Sawa University

تقنيات اجهزة تخدير الكورس الاول

DOUBLE LUMEN TUBE (DLT)

Sawa University

College of health and medical techniques

Department of Anesthesia

Stage 3

جامعة ساوة الاهلية

كلية التقنيات الصحية والطبية

قسم تقنيات التخدير

المرحلة الثالثة

الجانب النظري

محاضرة رقم5

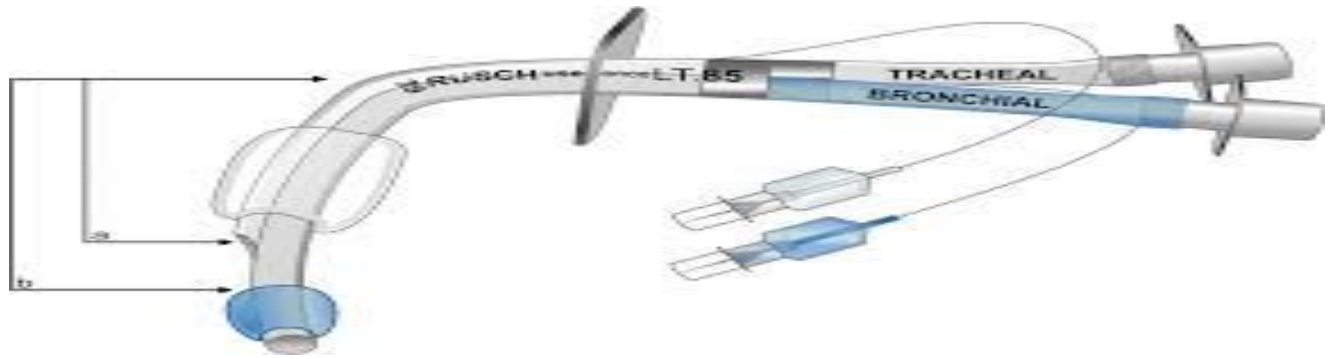
Theoretical

Lecture No 5

استاذ المادة :م.د سامي رحيم حسن

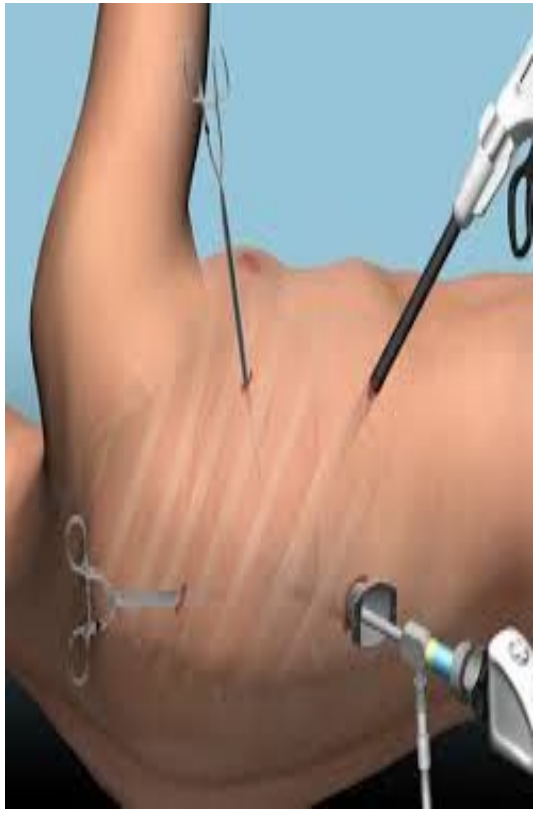
Introduction

- A Double Lumen Tube (DLT) is a specialized endotracheal tube used for lung isolation.
- It allows independent ventilation of each lung.
- Commonly used in thoracic surgeries.



Purpose / Indications

1. Used when one-lung ventilation (OLV) is required:
2. Thoracotomy
3. Lobectomy / Pneumonectomy
4. VATS (Video-Assisted Thoracoscopic Surgery)
5. Bronchopleural fistula
6. Pulmonary hemorrhage



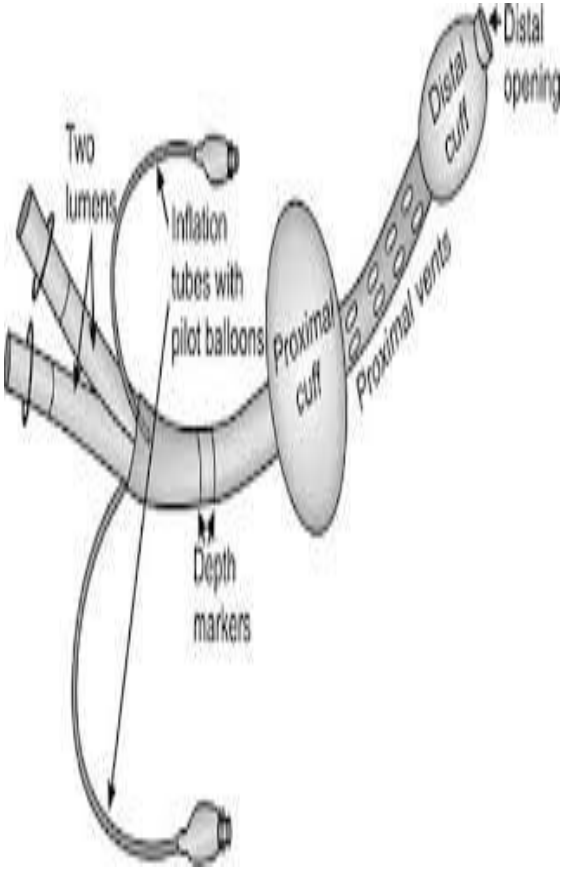
Types of Double Lumen Tubes

1. Left-sided DLT (most common)
2. Right-sided DLT

- Common brands: Robertshaw, Carlens, White, Brobronchial types.

Structure / Parts

1. Two lumens: tracheal and bronchial
2. Two cuffs: tracheal (clear) and bronchial (blue)
3. Carinal hook (in older models)
4. Each lumen has its own connector for the anesthesia circuit.



Sizes

1. Adult sizes (French gauge):

- Female: 35–37 Fr
- Male: 39–41 Fr

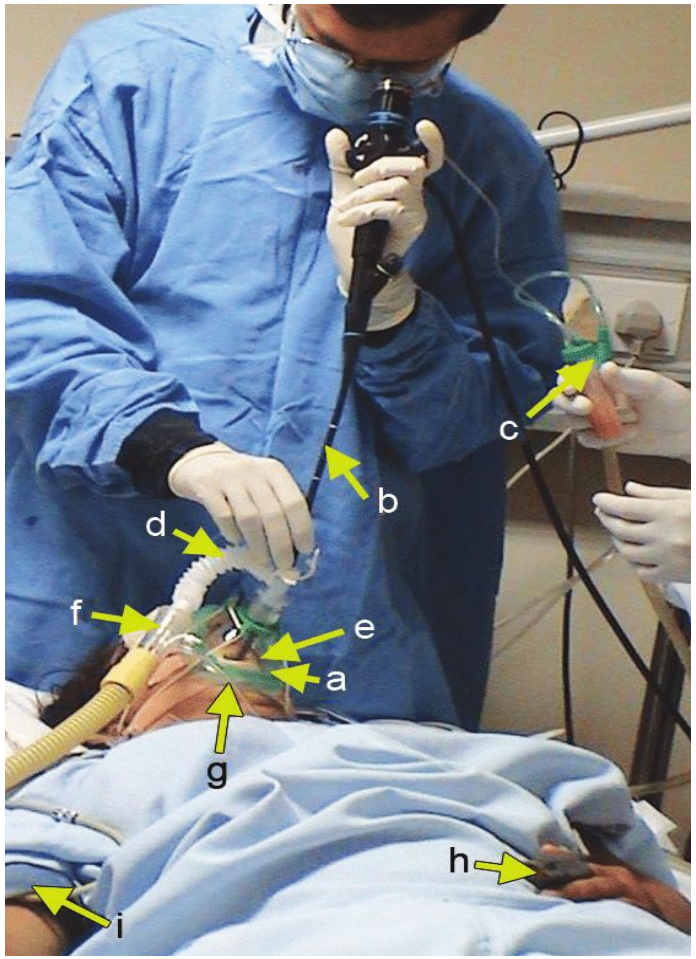
2. Pediatric DLTs are rare — usually single-lumen + bronchial blocker used instead.

Insertion Technique

1. Pre-oxygenate and induce anesthesia.
2. Perform laryngoscopy.
3. Insert DLT like a standard ETT.
4. Rotate 90° toward the side of the bronchus.
5. Advance until resistance is felt.
6. Confirm placement by bronchoscopy or auscultation.

Confirmation of Placement

1. Auscultation: inflate bronchial cuff — only one lung ventilated.
2. Fiberoptic bronchoscopy: gold standard.
3. Observe chest rise and capnography.



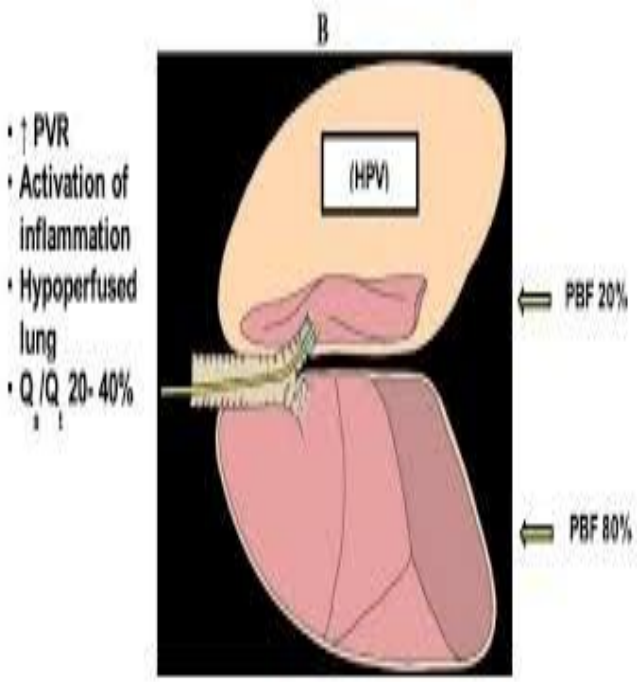
Advantages

1. Allows one-lung ventilation and isolation.
2. Prevents cross-contamination.
3. Facilitates surgical exposure.
4. Allows suctioning of each lung separately.

Disadvantages / Complications

- Difficult insertion compared to single-lumen tube.
- Possible complications:

1. Airway trauma
2. Hypoxemia during OLV
3. Malposition/dislodgement
4. Increased airway resistance.



Clinical Tips

1. Always lubricate before insertion.
2. Use bronchoscope to confirm position.
3. Monitor oxygen saturation closely.
4. Avoid overinflation of cuffs.

References

1. **Miller's Anesthesia, 10th Ed.**
2. **Morgan & Mikhail's Clinical Anesthesiology, 7th Ed.**
3. **Barash: Clinical Anesthesia, 9th Ed.**
4. **PubMed & ResearchGate articles on DLT and OLV.**