



تقنيات اجهزة تخدير الكورس الاول

TRACHEAL TUBE AND CO₂ MONITORING

Sawa University

College of health and medical
techniques

Department of Anesthesia

Four Stage

جامعة ساوة

الاهلية

كلية التقنيات الصحية

والطبية

قسم تقنيات التخدير

المرحلة الرابعة

محاضرة رقم 4

الجانب النظري

Lecture No4.

Theoretical

استاذ المادة :م.د سامي رحيم حسن

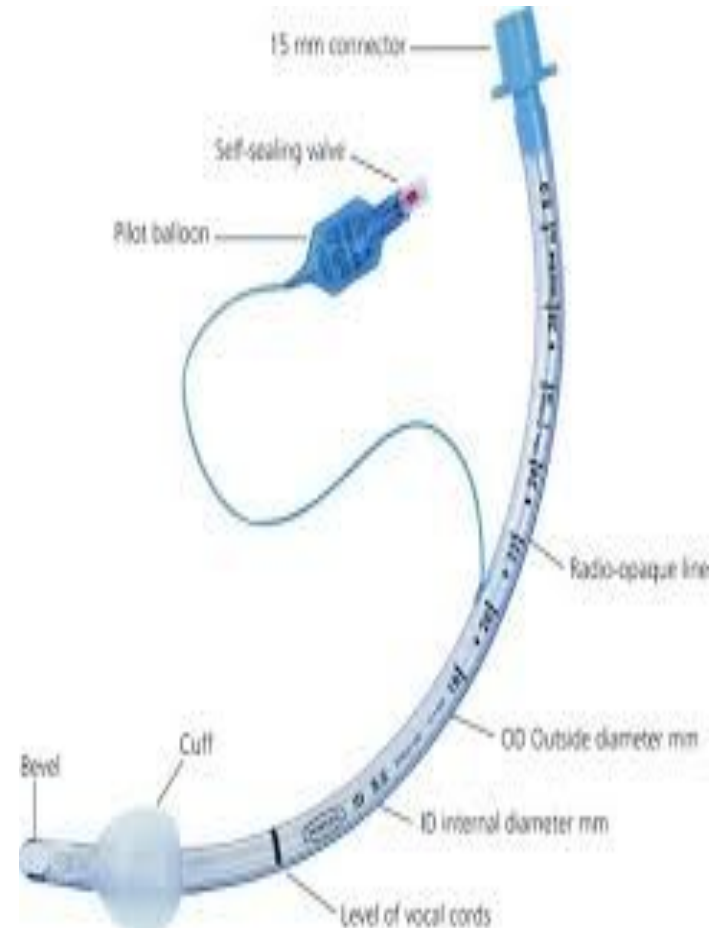
What is a Tracheal Tube?

- - A flexible plastic tube inserted into the trachea to maintain a patent airway.
- - Used during **general anesthesia, critical care, and emergency situations.**
- - Ensures adequate ventilation and oxygenation.



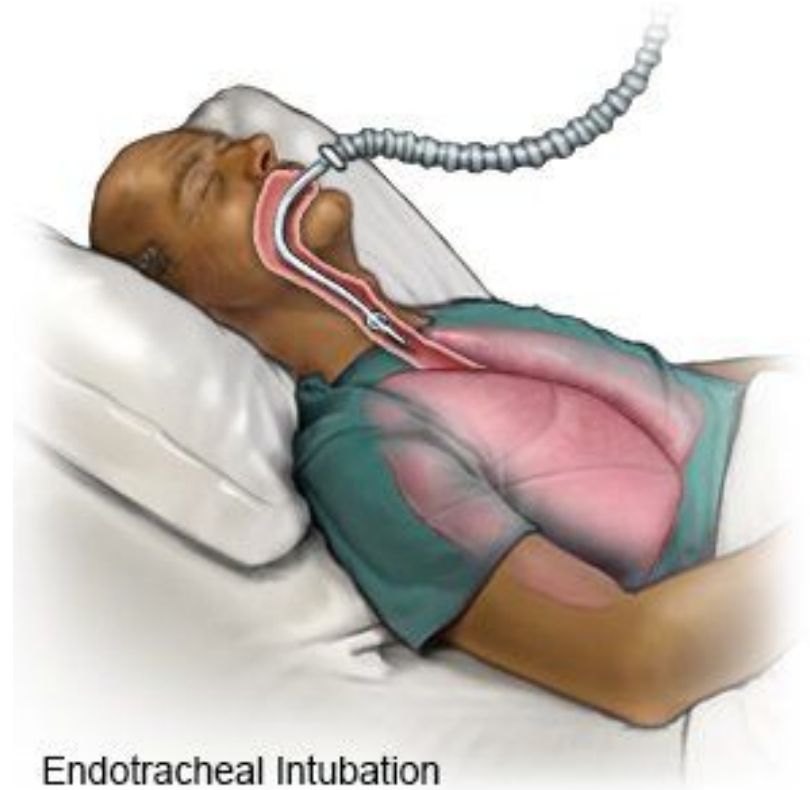
Components of a Tracheal Tube

1. Tube body (PVC or silicone)
2. - 15 mm connector
3. Murphy eye
4. Inflatable cuff and pilot balloon
5. Markings for depth
6. Radiopaque line



Indications for Endotracheal Intubation

1. To secure the airway during anesthesia
2. For mechanical ventilation
3. To protect from aspiration
4. During airway surgeries



Importance of CO₂ Monitoring

1. End-tidal CO₂ (EtCO₂) reflects ventilation and metabolism.
2. Confirms correct tube placement in the trachea (not the esophagus).
3. Provides continuous monitoring of breathing and circulation.



Methods of CO₂ Detection

1. Colorimetric CO₂ Detectors:

- Disposable, change color with exhaled CO₂.
- Purple → Yellow = Correct placement.

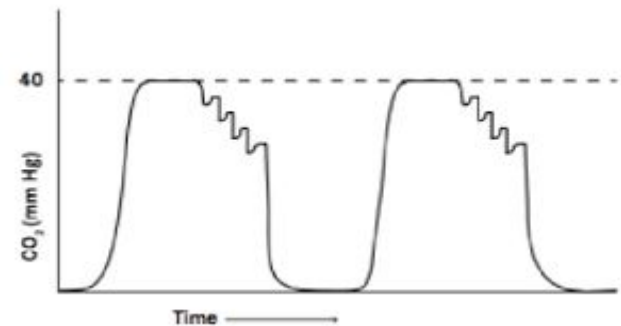
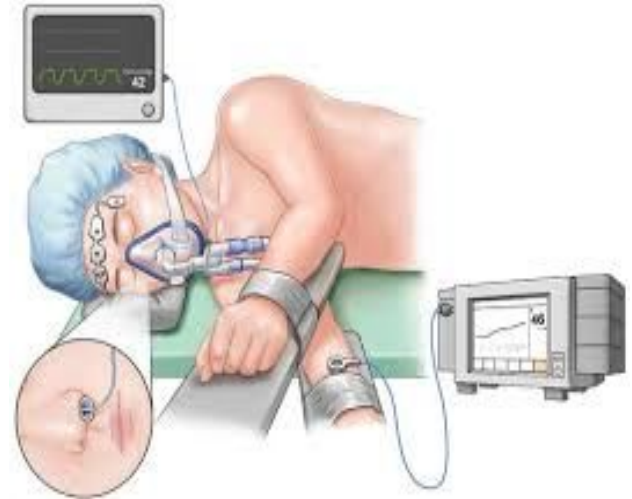
2. Capnography (Waveform Co2):

- Displays CO₂ levels as a waveform.
- Continuous, more accurate method.



Capnography Waveform

- - Normal waveform: Square shape, EtCO₂ around 35–45 mmHg.
- - Abnormal patterns may indicate:
 1. Hypoventilation
 2. Circuit disconnection
 3. Cardiac arrest



CO₂ Monitoring Advantages

1. Confirms airway security
2. Detects apnea or hypoventilation early
3. Monitors effectiveness of CPR
4. Provides real-time feedback during anesthesia



Safety Precautions

1. Always verify placement with CO₂ detector and auscultation.
2. Avoid tube kinking or displacement.
3. Regularly check cuff pressure.



References

- - Miller's Anesthesia, 9th Edition.
- - Morgan & Mikhail's Clinical Anesthesiology.
- - AAGBI Guidelines – Airway Management.



Thank You