College of Health and Medical Techniques Anesthesia Techniques Department Al_Mustaqbal University
Babylon, Iraq

By:
Osamah Azeez
B.M.TCH
ANAESTHESIA
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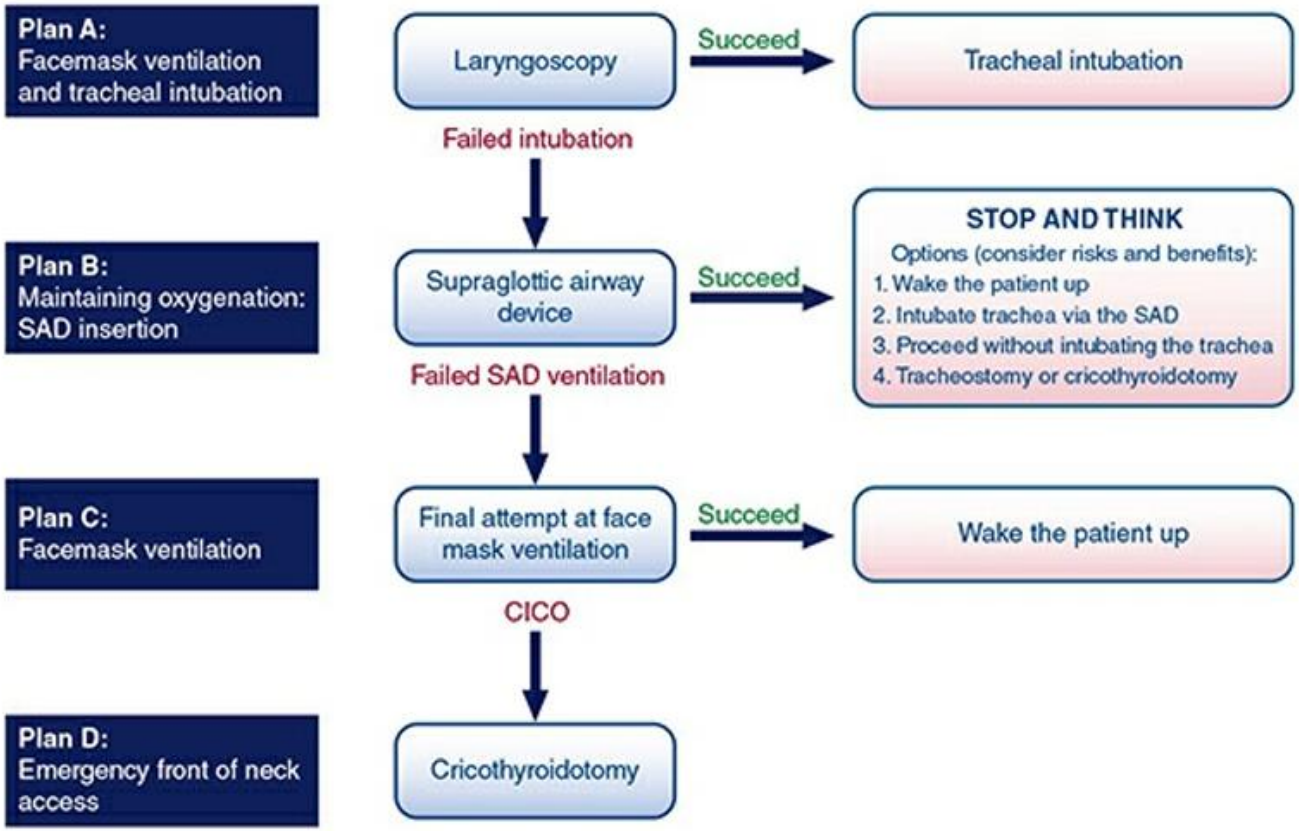
Difficult intubation – fiberoptic intubation

DAS Difficult intubation guidelines – overview

2015



This flowchart forms part of the DAS Guidlines for unanticipated difficult intubation in adults 2015 and should be used in conjunction with the text.

☐ Definition

Flexible Fiberoptic Intubation (FOI) is an advanced airway management technique that uses a flexible fiberoptic bronchoscope (FOB) to visualize the upper airway and facilitate endotracheal intubation.

It can be performed in awake, sedated, or anesthetized patients when difficult airway conditions are anticipated

promote infection.

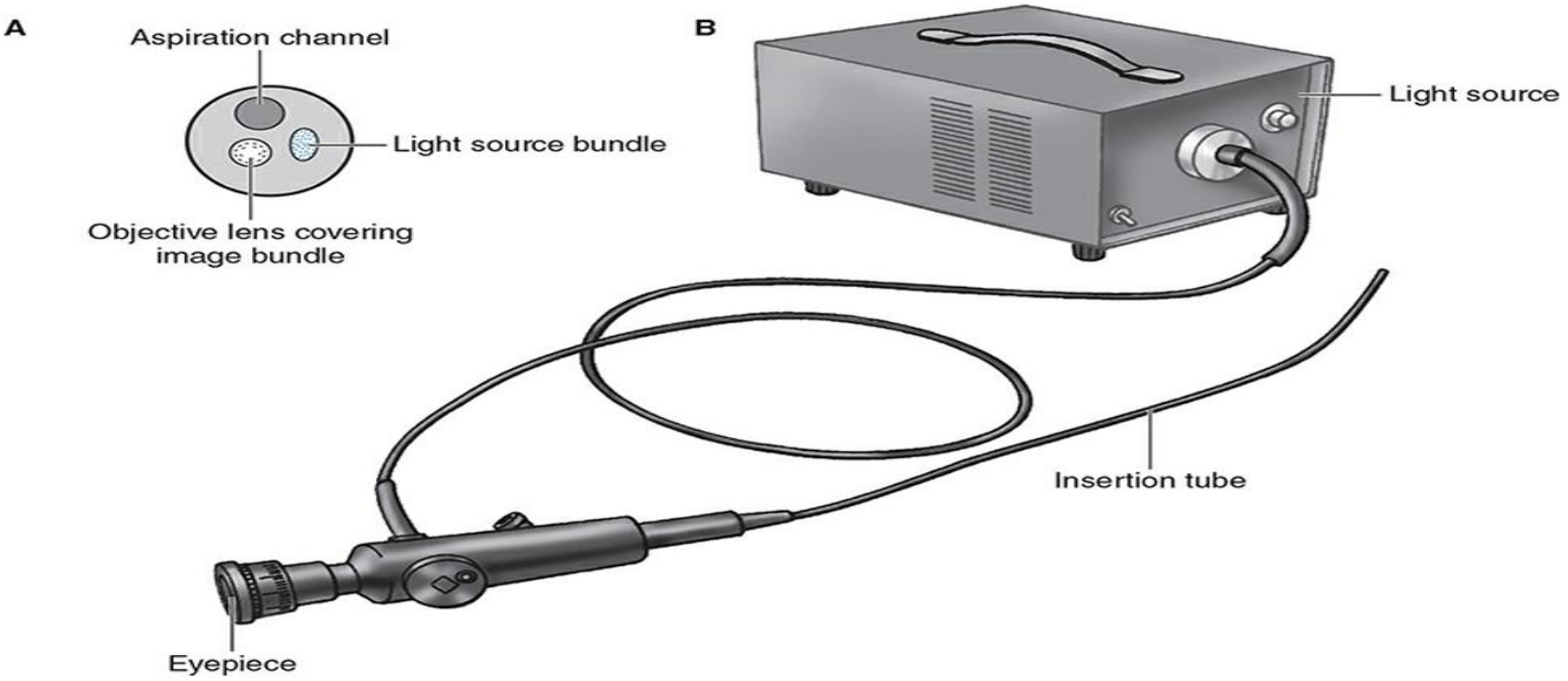
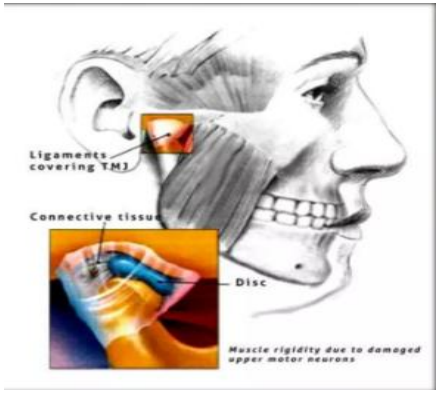


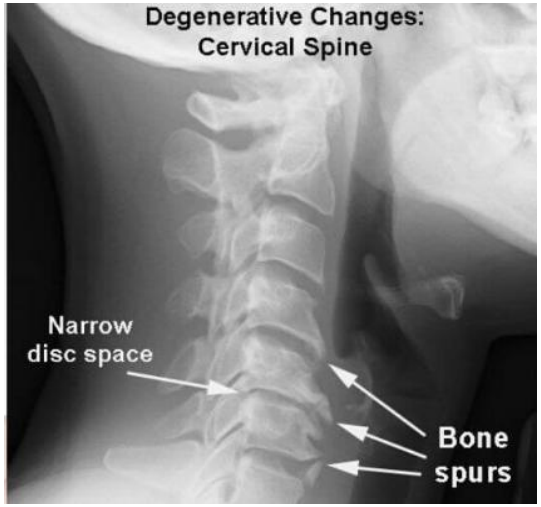
FIGURE 19–24 **A**: Cross-section of a fiberoptic bronchoscope. **B**: A flexible fiberoptic bronchoscope with a fixed light source.

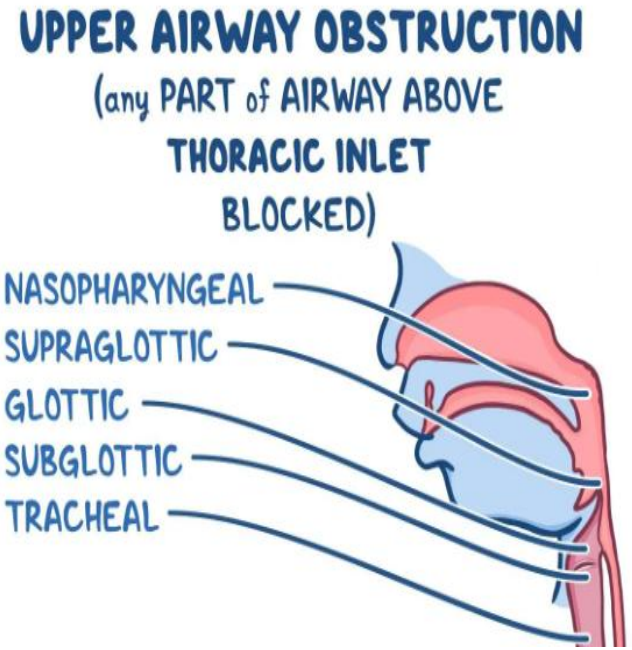
Clinical Indications

FOI is particularly useful in patients with:

- **Limited mouth opening or trismus.**
- **Cervical spine instability or the need to minimize neck movement (e.g., trauma, rheumatoid arthritis).**
- **Upper airway obstruction due to angioedema, tumors, or infection.**
- **Facial trauma or congenital deformities.**







☐ Approaches to FOI

FOI can be performed orally or nasally, with the patient either awake or anesthetized, depending on the clinical scenario.

1. Awake FOI

Indicated in cases of:
- **Anticipated difficulty in ventilation by mask.**
- **Upper airway obstruction.**

2. Asleep FOI

Used when:
- **Conventional intubation has failed.**
- **Minimal cervical spine movement is required.**
- **The patient refuses awake intubation.**

3. Oral FOI

Preferred in patients with facial or cranial injuries.

4. Nasal FOI

Indicated in patients with restricted mouth opening.

Pre-Procedure Preparation

Performing FOI requires careful planning, as it may prolong anesthesia time before surgery. The patient should be informed and provide informed consent for awake intubation when appropriate.

Airway Anesthesia and Sedation

- **Airway anesthesia is achieved with topical local anesthetic sprays.**
- **Sedation may be administered as tolerated; Dexmedetomidine is preferred for maintaining spontaneous ventilation while providing adequate sedation.**

☐ Nasal Route Preparation

- **Both nostrils should be prepared with a vasoconstrictor spray to minimize bleeding and facilitate passage.**
- **The nostril with better airflow is selected.**
- **Oxygen may be insufflated through the bronchoscope's suction port to improve oxygenation and clear secretions.**

An alternative technique involves inserting a large nasal airway (e.g., 36 FR) into the opposite nostril and connecting it to the breathing circuit for continuous 100% oxygen delivery during the procedure.

If the patient is unconscious and apneic, the mouth can be closed, and gentle ventilation can be attempted through the nasal airway.
Adequate oxygenation and ventilation should always be confirmed by capnography and pulse oximetry.

☐ Procedure Steps

1. Insert the fiberoptic bronchoscope (FOB) into the endotracheal tube (ETT) lumen.
2. Keep the shaft of the bronchoscope as straight as possible to ensure precise control of tip movement.
3. Advance the FOB until the epiglottis or glottis is visualized.
4. Manipulate the tip gently to pass through the abducted vocal cords.
5. Advance further into the trachea until tracheal rings and the carina are visible, confirming tracheal placement.
6. Slide the ETT smoothly over the FOB and into position.
7. Confirm correct tube placement by visualizing its tip approximately 3 cm above the carina before withdrawing the FOB.

☐ **Tip: Using an armored endotracheal tube can help reduce resistance and facilitate advancement due to its flexibility.**

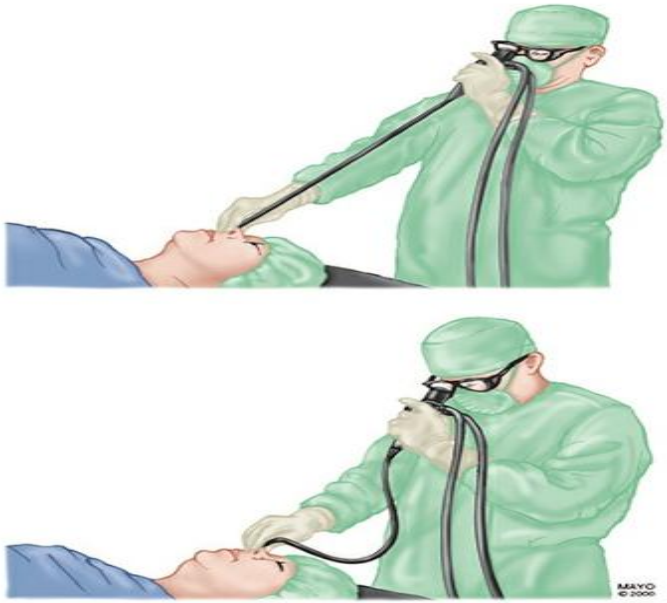


FIGURE 19–33 Correct technique for manipulating a fiberoptic bronchoscope through an endotracheal tube is shown in the top panel; avoid curvature in the bronchoscope, which makes manipulation difficult.

Structure and Components

- **Optical System:**

Two bundles of glass fibers:

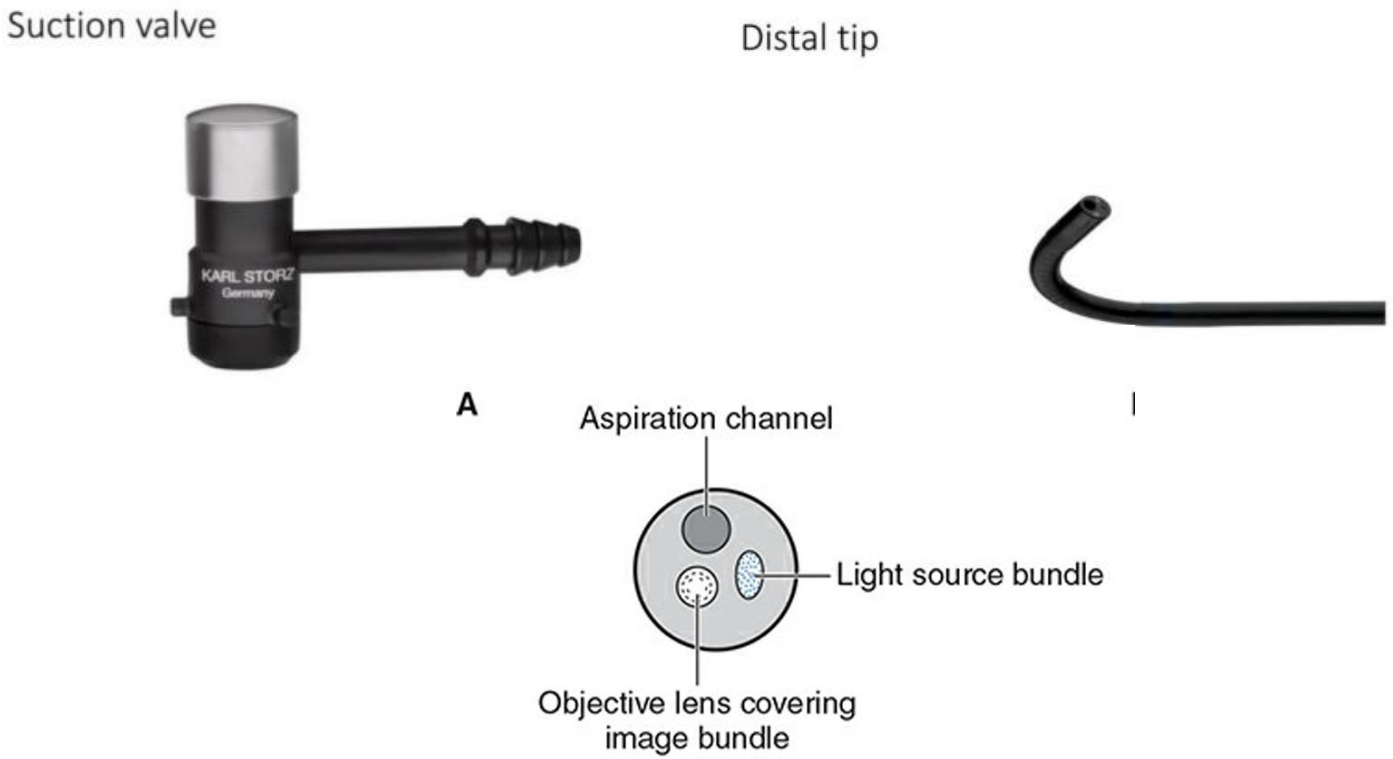
- **Light-transmitting bundle (incoherent) – carries illumination from the light source.**
- **Image-transmitting bundle (coherent) – transmits high-resolution images to the eyepiece or monitor.**
- **Steering System:**

Angulation wires enable precise tip movement and navigation through the airway.

- **Aspiration Channels:**

Allow suctioning of secretions, insufflation of oxygen, or administration of local anesthetics.

☐ **Proper cleaning and sterilization of these channels are crucial to prevent infection transmission.**



Reference

Morgan & Mikhail's Clinical Anesthesiology, 7th Edition – Chapter 19: Airway Management.


ThankYou