1. EVALUATION OF THE AIRWAY

Risk prediction (for difficult airway or aspiration) obtained from history/medical records: Demographic and Clinical Conditions (e.g., age, sex, BMI, previous difficult airway, diabetes, obesity)

Observational studies, case reports, or non-pertinent comparison groups

(Observational data)

50. Shah PJ, Dubey KP, Yadav JP: Predictive value of upper lip bite test and ratio of height to thyromental distance compared to other multivariate airway assessment tests for difficult


52. Srinivasan C, Kuppuswamy B: Comparison of validity of airway assessment tests for predicting difficult intubation. Indian Anaesth Forum 2017; 18:63-8


(Case reports)


**Diagnostic test findings from medical records (e.g., radiography, computed tomography, magnetic resonance imaging, bedside endoscopy findings)**

**Observational studies, case reports, or non-pertinent comparison groups**

(Observational data)


(Case reports)


**Patient interview/questionnaires**

**Observational studies, case reports, or non-pertinent comparison groups**

(Observational data)


**Airway assessment/exam (bedside and advanced) when a difficult airway is known or suspected**

**Assessment of facial features (e.g., mouth opening, nose slope, neck slope, ratio of brow to nose to chin, full beard)**

**Observational studies, case reports, or non-pertinent comparison groups**
(Observational data)


**Upper lip bite test**

*Observational studies, case reports, or non-pertinent comparison groups*

*(Observational data)*

thyromental distance ratio, the ratio of height to thyromental distance, upper lip bite test and Mallampati test. Adv Biomed Res 2015; 4:122


Anatomical measurements and landmarks (e.g., Mallampati/modified Mallampati, Wilson risk sum score, SARI scores, neck circumference, neck mobility (neck radiation changes), prognathism, ruler or finger measurements of thyromental, sternomental, or temporomandibular distance)

Observational studies, case reports, or non-pertinent comparison groups
(Observational data)
1. Abdelhady BS, Elrabiey MA, Abd Elrahman AH, Mohamed EE: Ultrasonography versus conventional methods (Mallampati score and thyromental distance) for prediction of difficult airway in adult patients. Egypt J Anaesth 2020; 36:83-9
51. Khan ZH, Arbabi S: Diagnostic value of the upper lip bite test in predicting difficulty in intubation with head and neck landmarks obtained from lateral neck X-ray. Indian J Anaesth 2013; 57:381-6


**Imaging (ultrasound)**

*Observational studies, case reports, or non-pertinent comparison groups (measurements obtained by ultrasound)*

(Observational data)

1. Abdelhady BS, Elrabiey MA, Abd Elrahman AH, Mohamed EE: Ultrasonography versus conventional methods (Mallampati score and thyromental distance) for prediction of difficult airway in adult patients. Egypt J Anaesth 2020; 36:83-9


**Virtual laryngoscopy/bronchoscopy (MRI/CT reconstruction)**

*Observational studies, case reports, or non-pertinent comparison groups*

NO ENTRIES

**Bedside endoscopy (direct laryngoscopy, bronchoscopy, nasopharyngoscopy)**

*Observational studies, case reports, or non-pertinent comparison groups*

*(Observational data)*


2. Rosenblatt W, Ianus AI, Sukhupragarn W, Fickenscher A, Sasaki C: Preoperative endoscopic airway examination (PEAE) provides superior airway information and may reduce the use of unnecessary awake intubation. Anesth Analg 2011; 112:602-7

*(Case report)*


**2. PREPARATION FOR DIFFICULT AIRWAY MANAGEMENT**

**Patient positioning (e.g., sniffing, sitting, head/neck extension, head-elevated laryngoscopy [HELP], ramped)**

*(Observational data)*


**3. ANTICIPATED DIFFICULT AIRWAY MANAGEMENT**

**Awake tracheal intubation (any device)**

**Awake/sedated intubation versus intubation after induction (direct laryngoscopy or blind intubation)**

*Observational studies, case reports, or non-pertinent comparison groups*

*(Case reports)*


Both awake and anesthetized intubation

*Airway maneuvers (e.g., jaw thrust chin lift, external laryngeal manipulation, backwards/upwards/rightwards pressure)*

*Observational studies, case reports, or non-pertinent comparison groups*

(Case reports)


*Rigid laryngoscopic blades of alternative design and size, with adequate face mask ventilation after induction (alternatives to standard blades such as Macintosh, Miller)*

*Randomized controlled trials: modified blades versus standard blades*


*Observational studies, case reports, or non-pertinent comparison groups*

(Observational data)


*Adjuncts – introducers, bougies, stylets, alternative endotracheal tubes*

*Observational studies, case reports, or non-pertinent comparison groups*

(Observational data)


(Case reports)


Video/video-assisted laryngoscopy

Randomized controlled trials: video/video-assisted laryngoscopy versus direct laryngoscopy


Nonrandomized comparative studies: video/video-assisted laryngoscopy versus direct laryngoscopy


Randomized controlled trials: video/video-assisted laryngoscopy versus flexible intubation scopes


**Randomized controlled trials: channel-guided (e.g., Airtraq, Kingvision, Pentax) versus non-channel-guided (e.g., Glidescope, C-MAC, McGrath)**


**Randomized controlled trials: hyperangulated devices versus nonangulated devices**


**Observational studies, case reports, or non-pertinent comparison groups: video/video-assisted laryngoscopy**

(Observational data)


(Case reports)

Optical laryngoscopes

**Randomized controlled trials: video/video-assisted laryngoscopy versus direct laryngoscopy**


**Observational studies, case reports, or non-pertinent comparison groups: optical laryngoscopes**

(Observational data)


(Case reports)

Flexible intubation scopes

Flexible fiberoptic-guided intubation vs laryngoscopic intubation

Nonrandomized comparative studies


Observational studies, case reports, or non-pertinent comparison groups; fiberoptic intubation

(Observational data)

1. Alvis BD, King AB, Hester D, Hughes CG, Higgins MS: Randomized controlled pilot trial of the rigid and flexing laryngoscope versus the fiberoptic bronchoscope for intubation of potentially difficult airway. Minerva Anestesiolog 2015; 81:946-50


(Case reports)


34. Ikram M, Mahboob S: Anesthetic challenges in a large multinodular thyroidectomy at a peripheral hospital. Anaesth Pain Intens Care 2019; 23:311-3
Supraglottic airway

Standard supraglottic airway (SGA, SAD, SGD, EGD, LMA)

Intubation with SGA versus intubation without SGA

Randomized controlled trials

3. Langeron O, Semjen F, Bourgain JL, Marsac A, Cros AM: Comparison of the intubating laryngeal mask airway with the fiberoptic intubation in anticipated difficult airway management. Anesthesiology 2001; 94:968-72

Intubating techniques with SGA (i.e., direct laryngoscopy, fiberoptic intubation, optical/image-guided intubation)

Observational studies, case reports, or non-pertinent comparison groups: SGA insertion, ventilation and intubation

(Observational data)


(Case reports)


47. Roodneshin F: Sevoflurane as the single anesthetic agent for management of anticipated pediatric difficult airway. Tanaffos 2012; 11:69-72
52. Sohn L, Sawardekar A, Jagannathan N: Airway management options in a prone achondroplastic dwarf with a difficult airway after unintentional tracheal extubation during a wake-up test for spinal fusion: to flip or not to flip? Can J Anaesth 2014; 61:741-4

Second versus first generation SGA: Second generation = ProSeal LMA, Supreme LMA, i-gel, SLIPA, and Laryngeal Tube Suction-D); First generation = LMA Classic, ILMA Classic, LMA Classic (Teleflex), ILMA Classic (Teleflex)

Randomized controlled trials

Lighted stylet, light wand, or optical stylet

**Lighted stylet, light wand, or optical stylet vs blind intubation**

*Randomized controlled trials*


**Lighted stylet, light wand, or optical stylet vs laryngoscopic intubation**

*Randomized controlled trials*  
*(Versus direct laryngoscopy)*


*(Versus Flexible bronchoscope)*


*Observational studies, case reports, or non-pertinent comparison groups: lighted stylet, light wand, or optical stylet*

*(Observational data)*


*(Case reports)*


Combination techniques

*Randomized controlled trials: device combination versus single device*


*Observational studies, case reports, or non-pertinent comparison groups: combination techniques* 

(*Observational data*)


(Case reports)
11. Kim SM, Kim HJ: Successful advancement of endotracheal tube with combined fiberoptic bronchoscopy and videolaryngoscopy in a patient with a huge goiter. SAGE Open Med Case Rep 2020; 8


Retrograde wire-guided intubation

Observational studies, case reports, or non-pertinent comparison groups

(Case reports)


Front of neck access (FONA) - cricothyrotomy (percutaneous), cricothyrotomy (surgical), tracheostomy, scalpel bougie technique or scalpel bougie tube technique versus needle cannula technique
Observational studies, case reports, or non-pertinent comparison groups

(Case report)

4. UNANTICIPATED AND EMERGENCY DIFFICULT AIRWAY MANAGEMENT

Optimize oxygenation: Expiratory Ventilatory Assistance

Observational studies, case reports, or non-pertinent comparison groups

(Case reports)

Rigid laryngoscopic blades of alternative design and size, with adequate face mask ventilation after induction (alternatives to standard blades such as Macintosh, Miller)

Observational studies, case reports, or non-pertinent comparison groups

(Case series)

Adjuncts – introducers, bougies, stylets, alternative endotracheal tubes

Observational studies, case reports, or non-pertinent comparison groups

(Observational data)

(Case reports)

**Video/video-assisted laryngoscopy**

**Nonrandomized comparative studies: video/video-assisted laryngoscopy versus direct laryngoscopy**


**Observational studies, case reports, or non-pertinent comparison groups: video/video-assisted laryngoscopy**

(Observational data)


(Case reports)
6. Hariharan U, Shah SB, Naithani BK: Difficult intubation due to outgrowth between the epiglottic fold and the vocal cords: C-MAC™ to our rescue! Sri Lankan J Anaesthesiol 2015; 23

**Flexible intubation scopes**

*Observational studies, case reports, or non-pertinent comparison groups; flexible fiberoptic intubation*

**(Observational data)**


**(Case reports)**

7. Takeshita S, Ueda H, Goto T, Muto D, Kakita H, Oshima K, Tainaka T, Ono T, Kazaoka Y, Yamada Y: Case report of Pierre Robin sequence with severe upper airway obstruction who was rescued by fiberoptic nasotracheal intubation. BMC Anesthesiol 2017; 17
Supraglottic airway (SGA, SAD, SGD, EGD, LMA)

Observational studies, case reports, or non-pertinent comparison groups: SGA insertion, ventilation and intubation

(Observational data)


(Case reports)

2 Cook TM, Brooks TS, Van der Westhuizen J, Clarke M: The Proseal LMA is a useful rescue device during failed rapid sequence intubation: two additional cases. Can J Anaesth 2005; 52:630-3

3 Fabregat-Lopez J: Successful pre-emptive emergency management of a compromised airway with a Proseal Laryngeal Mask Airway followed by tracheostomy. Minerva Anestesiol 2012; 78:619-21


10 Palmer JH, Ball DR: Awake tracheal intubation with the intubating laryngeal mask in a patient with diffuse idiopathic skeletal hyperostosis. Anaesthesia 2000; 55:70-4


Lighted stylet, light wand, or optical stylet

Observational studies, case reports, or non-pertinent comparison groups: lighted stylet, light wand, or optical stylet

(Observational data)

(Case reports)

Rigid bronchoscope

(Case report)

Combination techniques

Observational studies, case reports, or non-pertinent comparison groups: combination techniques

(Observational data)

(Case reports)
7 Pradhan D, Bhattacharyya P: Difficult airway management from Emergency Department till Intensive Care Unit. Indian J Crit Care Med 2015; 19:557-9
9 Richa F: Intubating laryngeal mask airway combined to fibreoptic intubation in subglottic stenosis. BMJ Case Rep 2013

**Retrograde wire-guided intubation**

*Observational studies, case reports, or non-pertinent comparison groups*

*(Case report)*


**Emergency invasive airway - cricothyrotomy (percutaneous), cricothyrotomy (surgical), tracheostomy, scalpel bougie technique or scalpel bougie tube technique versus needle cannula technique**

*Observational studies, case reports, or non-pertinent comparison groups*

*(Observational data)*


*(Case reports)*

4 Kwon YS, Lee CA, Park S, Ha SO, Sim YS, Baek MS: Incidence and outcomes of cricothyrotomy in the "cannot intubate, cannot oxygenate" situation. Medicine 2019; 98:e17713

Jet Ventilation (emergency cases only)

(Observational data)
(Case reports)
2 Liang H, Hou Y, Wei H, Feng Y: Supraglottic jet oxygenation and ventilation assisted fiberoptic intubation in a paralyzed patient with morbid obesity and obstructive sleep apnea: A case report. BMC Anesthesiol 2019; 19

Extracorporeal membrane oxygenation (ECMO)

(Observational studies, case reports, or non-pertinent comparison groups)
(Case reports)

5. CONFIRMATION OF SUCCESSFUL INTUBATION

Capnography or end-tidal CO₂ detection

(Observational studies, case reports, or non-pertinent comparison groups)
(Observational data)
(Case reports)
6. EXTUBATION

Assess readiness for extubation

Nonrandomized comparative studies


Tracheal tube exchange (staged extubation and reintubation)

Tracheal tube exchanged (replaced) with an airway exchange catheter

Observational studies, case reports, or non-pertinent comparison groups: awake extubation

(Observational data)


(Case reports)


7. FOLLOW-UP CARE

Documentation of difficult airway and management in the medical record and to the patient

Observational studies, case reports, or non-pertinent comparison groups: awake extubation

(Case report)