



T.I.G.E.R.

#3 Emergency Surgical Airway

Upper airway obstruction in trauma may result in a can't intubate – can't ventilate scenario, this is an airways emergency and must be dealt with as a life-saving intervention.

It is better if impending upper airway obstruction can be identified early and managed by a senior, experienced team to provide intubation or surgical airway in a more controlled way.

In all cases, please ensure that the consultant in charge of the department has been informed of any patients requiring emergency intubation following traumatic injury. It is expected that local, consultant led advice has been sought prior to referral to The Royal London Major Trauma Centre. Ensure this is documented in the clinical notes accordingly (date, time and colleagues name and grade).

Situation

- Trauma patient with airway obstruction - **can't intubate, can't ventilate**
- In the ED Resuscitation Area
- Clinician trained in the recognition of can't intubate, can't ventilate situations
- Senior Anaesthetic support available
- This is an Airway Emergency: immediately escalate for trained senior support

Patient

Patient features for can't intubate can't ventilate include:

- Severe lower facial injuries obscuring the upper airway
- Severe facial / upper airways burns
- Pre-existing laryngeal airway
- Haematoma/Surgical emphysema obscuring the upper airway
- Foreign body obstruction of the upper airway

PROCEDURE

Preparation



Assessment

- Rationale: some surgical airways may be avoided by early intubation
- Stridor or alteration of vocal quality suggests increased risk of problems
- Must be done by an airway trained clinician
- Where endotracheal intubation is to be attempted, surgical airway equipment should be immediately available
- Anticipated upper airway obstruction must be explicitly stated prior to any intubation attempt

Equipment

- Scalpel (20 blade – curved or 11 blade – straight)
- Tracheal dilator
- 6.0 tracheostomy tube (or cuffed endotracheal tube)
- 10ml syringe
- Tube tie
- 15 Ch bougie
- Water-based lubricant
- Tracheal hooks

PROCEDURE

Delivery of Intervention



Anatomy

Identify the Cricothyroid membrane (fig 1)

- Thin bridge of soft tissue
- Palpable between the lower border of the thyroid cartilage and the upper border of the cricoid ring

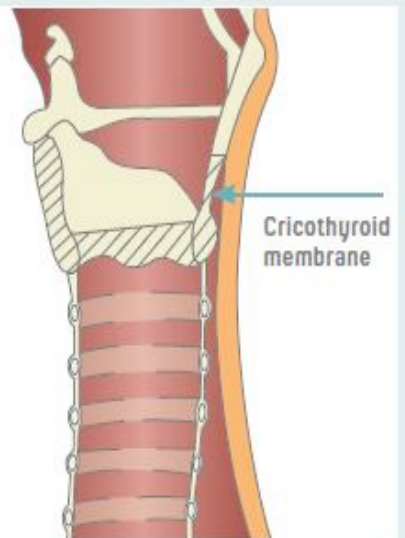


Fig 1. Cricothyroid membrane

Technique

- Aseptic technique
- Local anaesthesia or sedation if conscious
- Transverse incision through the skin and membrane (fig 2)
- Insert dilator (fig 3)
- Consider keeping blade in place and sliding the open dilator down the sides of the blade
- Insert lubricated bougie
- Pass tracheostomy tube / ETT with bougie remaining in place, directing down towards lungs
- Remove bougie
- Inflate cuff and confirm position
- Secure in place



Fig 2. Incision

In cases of difficult or failed placement:

- Consider anchoring trachea with tracheal hooks and lifting anteriorly

In all cases, confirm position by assessing ETCO₂, chest movement and auscultation

This describes 'One Safe Way' – other methods exist, including DAS – referenced in Appendix.



Fig 3. Inserting dilators

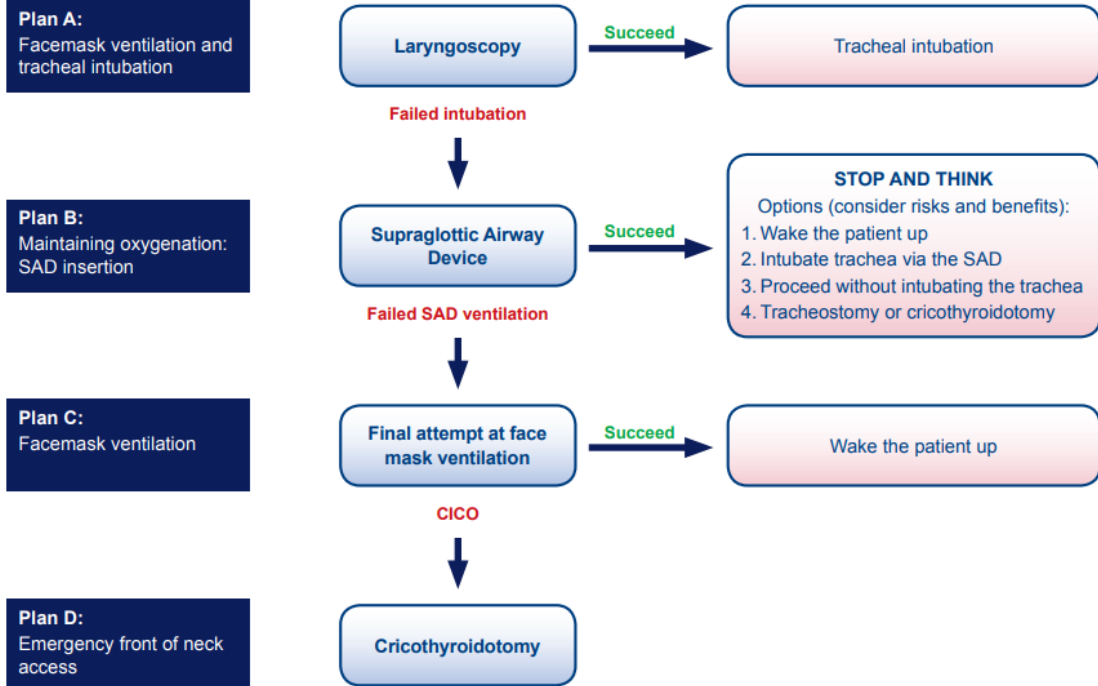
APPENDIX



Difficult Airway Society Guidance

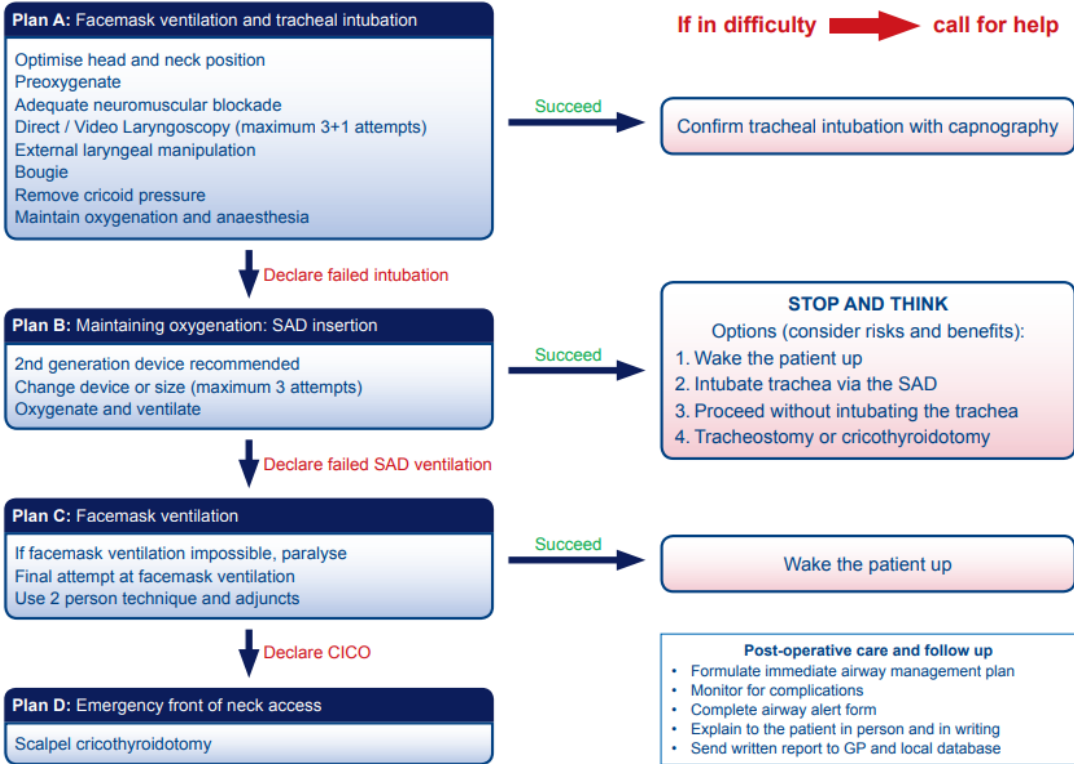


DAS Difficult intubation guidelines – overview



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

Management of unanticipated difficult tracheal intubation in adults



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Reproduced from -

Difficult Airway Society 2015 guidelines for management of unanticipated difficult intubation in adults
 C. Frerk, V. S. Mitchell, A. F. McNarry, C. Mendonca, R. Bhagrath, A. Patel, E. P. O'Sullivan, N. M. Woodall and I. Ahmad, Difficult Airway Society intubation guidelines working group
British Journal of Anaesthesia, 115 (6): 827–848 (2015) doi:10.1093/bja/aev371

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[das2015intubation_guidelines.pdf](#)

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<https://play.google.com/store/apps/details?id=com.subjectiveeffect.das> Android DAS App for Android



Failed intubation, failed oxygenation in the paralysed, anaesthetised patient

CALL FOR HELP



Continue 100% O₂
Declare CICO

Plan D: Emergency front of neck access

Continue to give oxygen via upper airway
Ensure neuromuscular blockade
Position patient to extend neck

Scalpel cricothyroidotomy

Equipment: 1. Scalpel (number 10 blade)
2. Bougie
3. Tube (cuffed 6.0mm ID)

Laryngeal handshake to identify cricothyroid membrane

Palpable cricothyroid membrane

Transverse stab incision through cricothyroid membrane
Turn blade through 90° (sharp edge caudally)
Slide coude tip of bougie along blade into trachea
Railroad lubricated 6.0mm cuffed tracheal tube into trachea
Ventilate, inflate cuff and confirm position with capnography
Secure tube

Impalpable cricothyroid membrane

Make an 8-10cm vertical skin incision, caudad to cephalad
Use blunt dissection with fingers of both hands to separate tissues
Identify and stabilise the larynx
Proceed with technique for palpable cricothyroid membrane as above

Post-operative care and follow up

- Postpone surgery unless immediately life threatening
- Urgent surgical review of cricothyroidotomy site
- Document and follow up as in main flow chart