

BLA TRACHEOSTOMY GUIDELINE

Applies to all adult (>18 y.o.) tracheostomies undertaken (whether known Covid-19 or not due to high-risk nature of the procedure and increasing prevalence in the community)

This guideline refers mainly to open surgical tracheostomy, although in some units percutaneous procedures may be preferred. When choosing a technique, it is critical that the operator is highly experienced in whichever route is chosen to reduce time and potential complications.

Experience from the first wave suggests early use of non-invasive ventilation (NIV) techniques may help prevent the need for intubation and / or tracheostomy. Where endotracheal intubation is necessary, use of smaller diameter ET tubes may reduce the incidence of airway complications seen in Covid-19 patients.

PRECONDITIONS & PREPARATION

- One tracheostomy per theatre session (to be kept under review)
- Two ITU consultants to make a decision after discussion with the surgical team and senior anaesthetist. The patient should have a good expectation of achieving full recovery and an independent lifestyle.
- Tracheostomy should be considered after 7-10 days of intubation, as longer periods of of intubation and ventilation (particularly >14 days of ventilation) have been associated with a greater incidence of airway complications. Any requirement for prone positioning must have passed, as turning a tracheostomy patient into this position runs a significant risk of tube displacement.
- Consider trial of extubation (supported by NIV if necessary) – i.e. high threshold to perform tracheostomy
- The patient should be afebrile with falling inflammatory markers (a surgical procedure undertaken during viraemia risks precipitating a clinical deterioration)
- Two Negative viral swabs (48 hrs apart) preferred, but it is accepted this may not always be possible
- The patient should be requiring PEEP ≤ 10 cmH₂O and FiO₂ ≤ 0.4 (to promote tolerance to periods of apnoea and potential derecruitment)
- Haemodynamically stable with minimal pressor requirement
- Review CXR to ascertain starting distance of ETT tip above carina
- Patient fasted for 6 hours
- Consent form 4 completed by ITU

SKILLED TEAM

- Consultant surgeon (ENT or OMFS)
- Skilled Assistant (ENT / OMFS middle grade)
- Scrub nurse
- Consultant anaesthetist skilled in anaesthesia for surgical tracheostomy
- ODP
- Second theatre nurse as runner in theatre
- CLEAN runner in anaesthetic room with silver trolley to supply additional equipment required by anaesthetic and surgical teams
- Staff should be drawn from an agreed list. Full PPE for all theatre staff (including FFP3 mask and visor), consider powered hoods (PAPR) for operating surgeons.

LOCATION & THEATRE PREPARATION

- Book case with emergency theatres and liaise with theatres day prior to and on the morning of planned procedure to plan logistics –ideally schedule for afternoons using second emergency theatre team.
- Negative pressure side room on ITU (staffed by the emergency theatre team) may be used for Covid-19 patients, but requires careful planning by the emergency theatre team. Consider human factors and logistics of operating in an unfamiliar environment and having to transfer all equipment. Operating outside of a theatre environment poses many technical challenges.
- A negative pressure operating theatre is preferable but few hospitals have such a facility, so most procedures will be carried out in a positive pressure environment.
- Extended team brief: The whole theatre team should be introduced to one another and meet in a quiet area to discuss the case, taking into consideration the views and ideas of all team members. The plan should be agreed and then clearly repeated, with steps in case of possible complications also agreed. This meeting should include consideration of all possible equipment needs

ITU PREPARATION

- Bring tracheostomy specific in-line suction set (different to ETT set)
- Enquire if any additional procedure required whilst in theatre –e.g.NG tube insertion/change, line changes
- ICU to prepare patient on transport ventilator 30 minutes before transfer.

TRANSFER

- Transfer to and from theatre in accordance with local Covid-19 Transfer Policy
- Transfer directly into operating theatre
- Bring ETT clamp with you.
- Transfer with ETT inline suction in circuit. Consider taping connections, which easily loosen.

AIRWAY EQUIPMENT IN THEATRE:

- Suction equipment with Yankauer and tracheal suction catheters (avoid use if possible). Put tape across Yankauer hole.
- Laryngoscopes: Macintosh and McGrath
- 20 ml syringe
- Tape to re-secure ETT
- Eye tapes and pads
- Drugs
- Clamp for ETT
- Long theatre ventilator tubing

All other airway equipment available in anaesthetic room with clean runner.

PRE-OPERATIVELY

- Consider reducing theatre temperature for staff comfort wearing PPE.
- Transfer onto operating table -patient head at anaesthetic machine end.
- To place on theatre ventilator, clamp ETT then turn off transport ventilator before transferring to theatre ventilator.
- Leave ETT in-line suction in situ. Consider taping connections.
- WHO time out including tracheostomy time out (this check-list)
- Scrub team to assemble tracheostomy inline suction with clean HME filter
- A range of cuffed, non-fenestrated tracheostomy tubes should be available. Consider risks of using large tubes - aim for size 8 for males and size 6 for females.

PATIENT PREPARATION

- Tape and pad eyes
- Surgical positioning - Head ring and shoulder roll (or other as requested by consultant surgeon)
- Drape and proceed

ANAESTHETIC TEAM ADVANCE ETT TO CARINA

- Suction oropharynx with Yankauer and trachea via in-line suction.
- Advance ETT blindly with cuff inflated observing ventilator for signs of right main bronchial intubation (increase in peak airway pressure if volume control mode, fall in tidal volume if pressure control mode)
- Increase cuff pressure and ensure patient is paralysed

SURGICAL PROCEDURE AND AIRWAY MANAGEMENT

- Dissection to trachea: minimise use of diathermy (aerosol generation), use ties where possible
- Prior to making tracheal window
 - Stop ventilation
 - Pre-oxygenate
 - Give additional dose muscle relaxant
 - Stop ventilation in case of inadvertent ETT cuff puncture
 - Ventilation can be resumed after tracheal window formed if cuff intact
- Suction oropharynx
 - Stop ventilation
 - Clamp ET tube in case of accidental disconnection
 - Deflate cuff and withdraw ETT under the direction of the surgeon
- Prior to making tracheal window
- Insert tracheostomy, using tracheal dilator
- If unable to insert tracheostomy, re-advance ETT and re-inflate cuff PRIOR to recommencing IPPV.
- Once tracheostomy in situ, inflate cuff, connect in-line suction (rather than standard catheter mount) HME and ventilator tubing.
- Commence ventilation.
- Confirm placement by observing capnography and bilateral chest movement
- Do not auscultate unless specific concern
- Suction trachea using closed in-line suction
- Suture tracheostomy and secure neck ties

POST-PROCEDURE

- Complete appropriate local documentation including tracheostomy passport
- Exercise care when removing ETT. Possibly do this under head drape.
- Transfer patient back to bed with a single circuit break to reconnect to transport ventilator.
- Tracheostomy cannot be clamped, so care when clamping tracheostomy in-line suction tubing as easily distorted.
- Consider taping in-line suction connections.
- Transfer back to ITU in accordance with transfer policy, in full PPE
- Transfer with tracheostomy dilator and smaller tracheostomy tube or ETT.
- Check cuff pressure
- Transfer to ICU ventilator with single circuit break
- CXR only if indicated (not required for uncomplicated procedure)
- Refer to theatre policy for decontamination of operating theatre and equipment. Aerosol will clear from a negative pressure theatre in 1 hour, but 3 hours for positive pressure. Exercise care if in ICU negative pressure room.
- All staff change their scrubs and shower following the procedure.
- Theatre team should then meet once more for full debrief.
- First tube change should be deferred for up to 4 weeks, unless there are problems with the tube, or the patient is considered suitable for decannulation.

ACKNOWLEDGEMENTS

This guidance is based on documentation produced by the team at the Royal London Hospital, expanded and modified by the council of the British Laryngological Association, drawing on documents produced by ENT-UK and the National Tracheostomy Safety Project.