LARYNGOTRACHEAL RECONSTRUCTION - POST OPERATIVE MANAGEMENT IN PICU - CHW

PRACTICE GUIDELINE ©

DOCUMENT SUMMARY/KEY POINTS

- Following a Laryngotracheal Reconstruction (LTR) the patient will have a critical airway. Clear communication within the multidisciplinary team is essential in the post-operative period to ensure patient safety.
- This document provides a guideline to enable safe and effective post-operative management of patients following a laryngotracheal reconstruction.
- Following a slide tracheoplasty, management should be guided by the Congenital Tracheal Stenosis Model of Care and Practice Guideline.
- Slide tracheoplasty and laryngotracheal reconstruction are different surgical procedures with different post-operative management. Management should be guided by the corresponding practice guideline.
- Following a laryngotracheal reconstruction adequate sedation and strict positioning restrictions are required until extubation.
- Extubation should be anticipated on day 5 following an anterior graft and day 7 following a posterior graft.
- A careful sedation regime is required to ensure adequate sedation during the intubation period whilst facilitating successful weaning and extubation when appropriate.

Approved by:	SCHN Policies, Procedures and Guidelines Committee	
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Team Leader:	Clinical Nurse Consultant	**Area/Dept**: Ear, Nose and Throat

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CHANGE SUMMARY

- N/A - New document.

READ ACKNOWLEDGEMENT

- All PICU medical, nursing, and allied health staff caring for children following a laryngotracheal reconstruction should read and acknowledge this document

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Introduction

Laryngotracheal Reconstruction (LTR) is a surgical procedure in which a cartilage graft is used to widen a narrowing of the airway in or just below the larynx.[1]

Indication for procedure

- Subglottic Stenosis
- Glottic Web
- Bilateral Vocal Cord Palsy
- Posterior Glottic Stenosis

Exclusion Criteria

- Age >16 years
- Patients undergoing Double-Stage Laryngotracheal Reconstruction

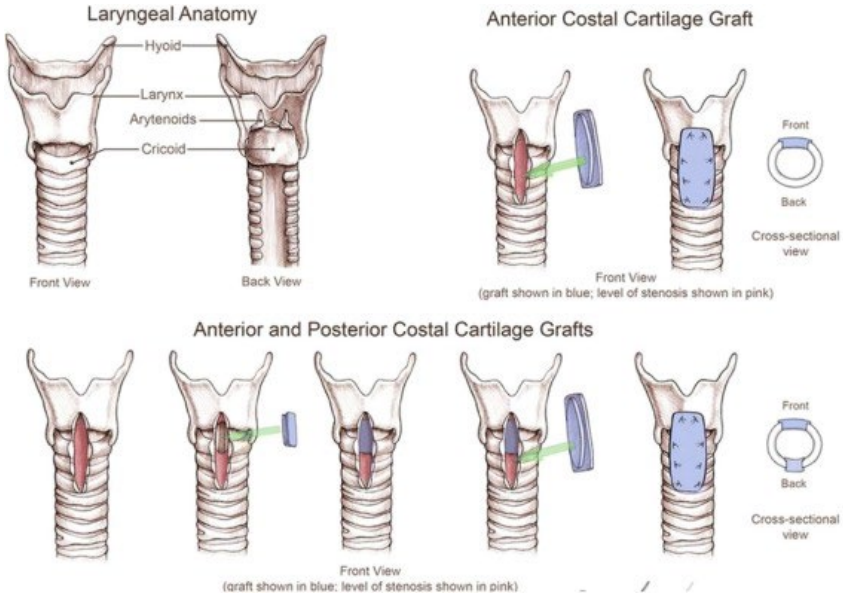
Note – The post operative management following a LTR differs from that of a slide tracheoplasty. Following a slide tracheoplasty please use the Congenital Tracheal Stenosis Model of Care and Practice Guideline.

A LTR involves a more proximal repair compared to that of a slide tracheoplasty. The Endotracheal Tube (ETT) will act to stent the LTR repair. This is in contrast to a slide tracheoplasty where the repair is often at or beyond the end of the ETT. Following an LTR suction depth and ventilation pressures as per routine practice. Strict restrictions as required following a slide tracheoplasty are not required following an LTR. Pre-operative Investigations required:

- Chest X-Ray
- FBC, PT, APTT
- Group and Hold
- EUC, LFT, TFT, Protein, Albumin

Operative Procedure

The reconstruction is performed by making an incision through the front of the neck. An incision is made into either the anterior section of the narrowed airway and/or posterior section of the narrowed airway, followed by placement of a graft from rib, ear or thyroid cartilage.



Post Operative Care

- Sedation and Analgesia as per Sedation Post Complex ENT Surgery Appendix 3 in Analgesia and Sedation PICU – CHW Practice Guideline

  http://webapps.schn.health.nsw.gov.au/epolicy/policy/5272/download
- Muscle relaxed for 24-48 hours and review
- Medications (also see Meds4Kids):
  - Antibiotic prophylaxis for 48 hours
    - Cefazolin, 30mg/kg, intravenously, 8 hourly,
  - Proton pump inhibitor (PPI)
    - Omeprazole, 1mg/kg, oral/intravenous, 12 hourly
    - Duration to be defined by the ENT consultant
  - Peri-extubation corticosteroid
    - Dexamethasone 0.3mg/kg, intravenous, one dose 2 hours prior to extubation
- Pressure area care as per ICU Braden Q risk assessment

The use of an air mattress can be considered in consultation with nursing staff, Occupational Therapy (OT), and Ear. Nose & Throat (ENT).

- Positioning
  - Use spinal precautions and log rolls for turns to avoid neck movement whilst intubated (5 days for anterior graft, 7 days for posterior graft)
  - Head, neck and rest of body must remain in a neutral midline position – avoid neck extension, flexion or sideways movement
  - The whole body may remain in side lying position (head and neck must remain strictly midline). Consult OT for foam wedges to assist with positioning
  - Positioning restrictions can cease following extubation.
- Nurse head of bed up to 30 degrees
- Neck drain to remain in for 2-3 days
- Extubation will occur in theatre (aim day 5 following anterior graft, day 7 following posterior graft)
- If indicated, chest physiotherapy is safe to commence 48 hours post-op. If intervention is indicated the PICU physiotherapist should be contacted to activate a referral. Hypertonic saline nebulisation (4mL of either 3% or 6%) can be used following consultation with the ENT team.
- Oral feeds can commence 24 hours post-extubation following ENT and speech pathology review. Please ensure speech pathology referral has been made.
- Fever >38°C – Blood cultures, cover with broad spectrum antibiotics, NPA, ETT aspirate for sputum culture
- **Emergency Management**
  - Critical Airway Sign must be visible at bedspace
- **Accidental Extubation** – Contact ENT on-call, DO NOT attempt bedside re-intubation, organise reintubation in theatre
- **NGT Dislodgement** – Contact ENT on-call. DO NOT re-insert NGT without ENT present. NGT may require insertion in OT
- During an airway emergency (blocked or dislodged ETT) avoid giving muscle relaxant until discussion with the multidisciplinary team. The critical airway child may rely on what available spontaneous respiration is present to maintain some ventilation and gas exchange; muscular paralysis may acutely worsen this situation.

Post Operative Management

Post Op Day 0

- Chest X-ray to check ETT position. Clear documentation of ETT position, and external measurement.
- Routine PICU post-operative bloods
- Muscle relaxation as per post-operative orders (usually 24-48 hours)

- Sedation and analgesia as per Sedation Post Complex ENT Surgery Appendix 3 in Analgesia and Sedation PICU – CHW Practice Guideline

  http://webapps.schn.health.nsw.gov.au/epolicy/policy/5272/download
- Nurse with head of bed up to 30 degrees. Attend to Post Acute Care (PAC)
- Commence antibiotic prophylaxis (cefazolin) and PPI (omeprazole)
- Document neck drain output
- Commence NGT feeds after confirmation of NGT placement

Post Op Day 1

- Continue sedation, analgesia, muscle relaxant, antibiotics, PPI
- Document neck drain output
- Document PAC and skin integrity

Post Op Day 2

- Cease muscle relaxant and prophylactic antibiotic
- Wean ventilation
- Bloods – FBC, protein, albumin

Post Op Day 3

- Remove neck drain after ENT consultation
- Bloods as clinically indicated

Post Op day 4

- Sedation wean for extubation as per sedation guideline

Post Op Day 5

- Administer pre-extubation corticosteroid (dexamethasone)
- Extubation in theatre (*except for patients with a posterior graft who should remain intubated until day 7)

Removal of Sutures (Day 5-7) by ENT Team References

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