

Anesthesia for Tracheal Splints



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Disclosures

- I have none



Anesthetic Management

- Pre-procedural
- Procedural
- Post procedural



Pre-procedural

- CT chest
- MRI
- Direct Laryngoscopy and Bronchoscopy



CT Chest

- **CT is extremely important for surgical design**
 - Precise anatomy for 3D reconstruction
 - Demonstrating area of airway collapse



CT Chest

- **Avoid Atelectasis**
- **Recruit after induction**
 - Ten to twelve 3 second breath holds with a PIP of 30 cm H₂O
- **10 cc/kg TV**
- **PEEP of 4 (minimum)**
- **Breath hold during inspiration 40 cm H₂O**
- **Breath hold during expiration**

Chest CT in Children: anesthesia and atelectasis; Newman B; Krane EJ; Gawande R; Holmes TH; Robinson TE. Pediatric Radiology. 44(2):164-72, 2014 Feb



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DL Bronch

- **Spontaneous breathing**
- **Propofol infusion**
 - +/- Ketamine
 - +/- Remifentanyl



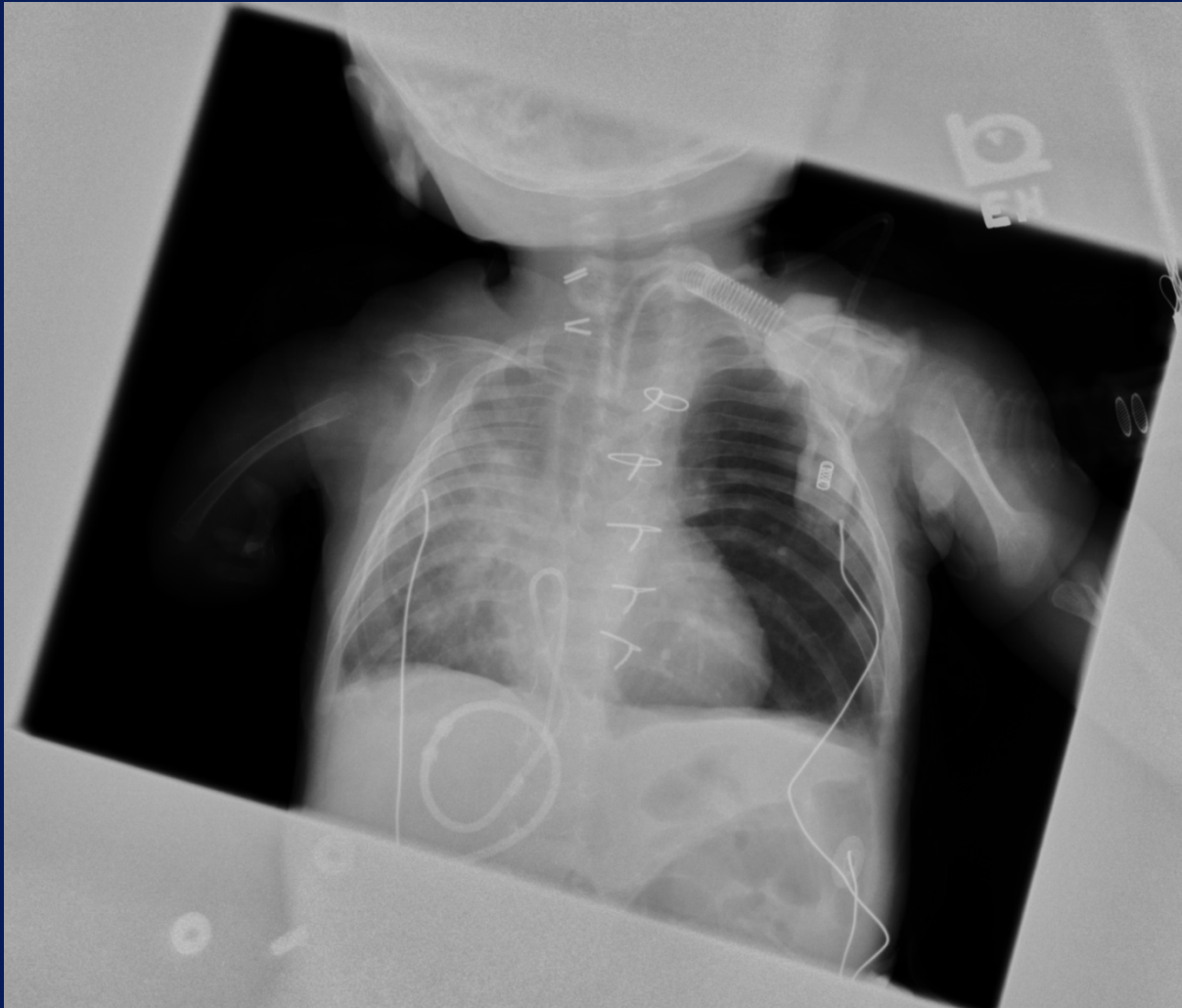
Procedural

- Usually DL/bronch to start procedure
- Change trach tube to ET tube
 - Intubate from above or through trach site
- Tracheal splint placed
- Flexible bronchoscopy performed

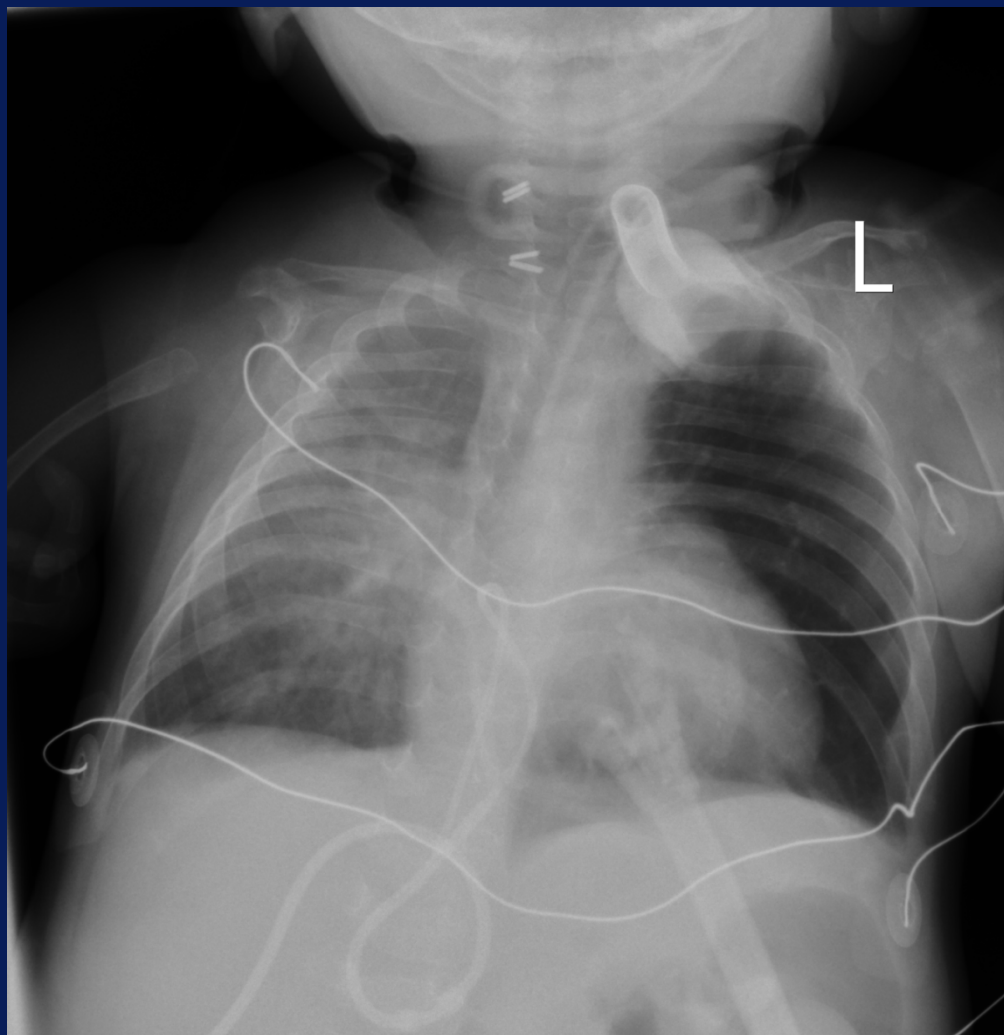


Pt	Age	Diagnosis	CPB	Procedure	Visualization after splint
A	14 yrs	Tracheomalacia with compression	No	Tracheal splint, innominate artery reimplant	Patent Trachea without compression
B	3 mos	Left mainstem stenosis	Yes	Left Bronchial splint augmentation of RPA	Patent Left mainstem bronchus
C	18 mos	Bilateral mainstem bronchomalacia	Yes	Bilateral mainstem splint, RV/PA conduit replacement	Patent Left and Right mainstem bronchus
D	6 mos	Left mainstem bronchomalacia	No	Left mainstem splint	Patent left mainstem





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Post procedural

- Repeat diagnostic studies
- Repeat DL/bronch
- May require as many as 6 anesthetics



Challenges

- **Difficulty ventilating patients prior to splint placement**
- **Transporting patients with tenuous airways to multiple anesthetizing locations**
- **Unstable airway/desaturations with bronchoscopy and diagnostic procedures**
- **Assuring minimal movement of ET tube during splint placement**



Challenges

- **Maintain normal pH post splint placement**
- **Maintain preoperative vent settings**
- **Assuring minimal movement of ET tube post op in ICU**
- **Coordination of care**
- **Prolonged intubation, long hospital stays**
- **High narcotic/benzodiazepine requirements**

