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Impact of tracheostomy status on sternal wound infections in children following median sternotomy

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The risk of sternal wound infection following sternotomy is significantly greater in children with a tracheostomy and underlying pulmonary disease.

INTRODUCTION

- Sternal wound infection (SWI) incidence ranges 0.5-7.5% following pediatric cardiac surgery
- Risk factors: young age, prolonged hospitalization, prolonged postoperative ventilatory requirements
- Tracheostomy may be needed in some cases, especially in those with congenital disorders or cardiorespiratory failure.
- Adult literature has conflicting results on risk of SWI in patients with a tracheostomy, and there is limited study in pediatric patients.

METHODS

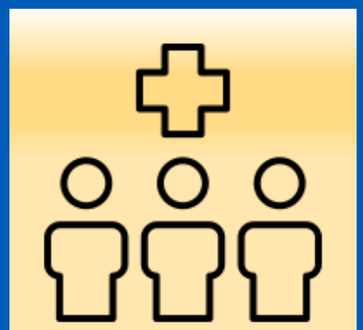
- We performed a review of patients who underwent sternotomy at Children's Mercy Hospital between 01/01/2011 and 10/01/2022.
- Two cohorts were identified and were matched by age, height, weight: Tracheostomy prior to sternotomy (TPS) and Sternotomy alone (SA)
- Data captured: demographics, past medical history, details of sternotomy and tracheostomy surgery, SWI information up to 60 days after sternotomy, and post-sternotomy outcomes.

Sternal wound infections can cause significant morbidity/mortality in children

Rates range from

0.5-7.5%

Chart review of 80 sternotomies



40 with trach prior

40 with no trach

Overall incidence was 12.5%

Group	Incidence
Trach prior	22.5%
No trach	2.5%

Patients with tracheostomy had a greater incidence of neurologic and pulmonary disease and *pseudomonas* infections.

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RESULTS

- There were 80 sternotomies included. There were no differences in patient demographics between the two groups.
- More patients in TPS group with prematurity, congenital disease, and neurologic and pulmonary disease.
- Incidence of SWI was higher in TPS (22.5%) vs SA (2.5%) (P=0.007).
- Tracheostomy status and presence of pulmonary disease were only factors associated with greater SWI incidence (Odds Ratio=11.32 (95% CI: 2.0-214.4); Odds Ratio 9.0 (95% CI:1.6-107.4), respectively).

DISCUSSION

- Suspected factors contributing to greater incidence of SWI in trach patients: contamination of wound from respiratory secretions, airway colonization with pathologic bacteria, respiratory failure, underlying health status and congenital disease
- Limitations: small sample size, inherent differences in patient groups, retrospective study
- Future directions: multi-institutional studies, assessing for confounders, possible infection mitigation strategies

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