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Introduction

Management of complications of graft infection and resultant wound breakdown can be difficult after laryngotracheal reconstruction. The main options are conservative wound care or a local muscle based flap. The use of a myocutaneous pectoralis major flap has been reported in the adult literature¹⁻³ for tracheal repair but this method has not been described in the pediatric literature. We aim to present a case in a 5 year old female with a post-operative graft infection, fistula formation, and wound breakdown that persisted despite local wound care and local muscle flap repair.

Case Presentation

A 5 year old female underwent a 2-stage laryngotracheal reconstruction with anterior and posterior costal cartilage grafts and suprastomal stent placement for laryngotracheal stenosis. Prior to surgery she underwent extensive work-up including tracheal cultures. The operation was staged largely because of her developmental delay. She suffered from a postoperative wound infection (*Pseudomonas Aeruginosa* & *E. Coli* positive) and had wound breakdown and was left with an exposed anterior costal cartilage graft. The wound was unsuccessfully managed with local wound care and an attempted fistula closure with a local sternocleidomastoid flap. The graft site was covered and wound was successfully closed with a myocutaneous pectoralis major flap. At the same time suprastomal stent and tracheostomy were removed and patient was converted to a single stage operation.



Figure 3a. Pectoralis flap prior to inset with anterior graft fully exposed. **Figure 3b.** Flap partially inset into wound.

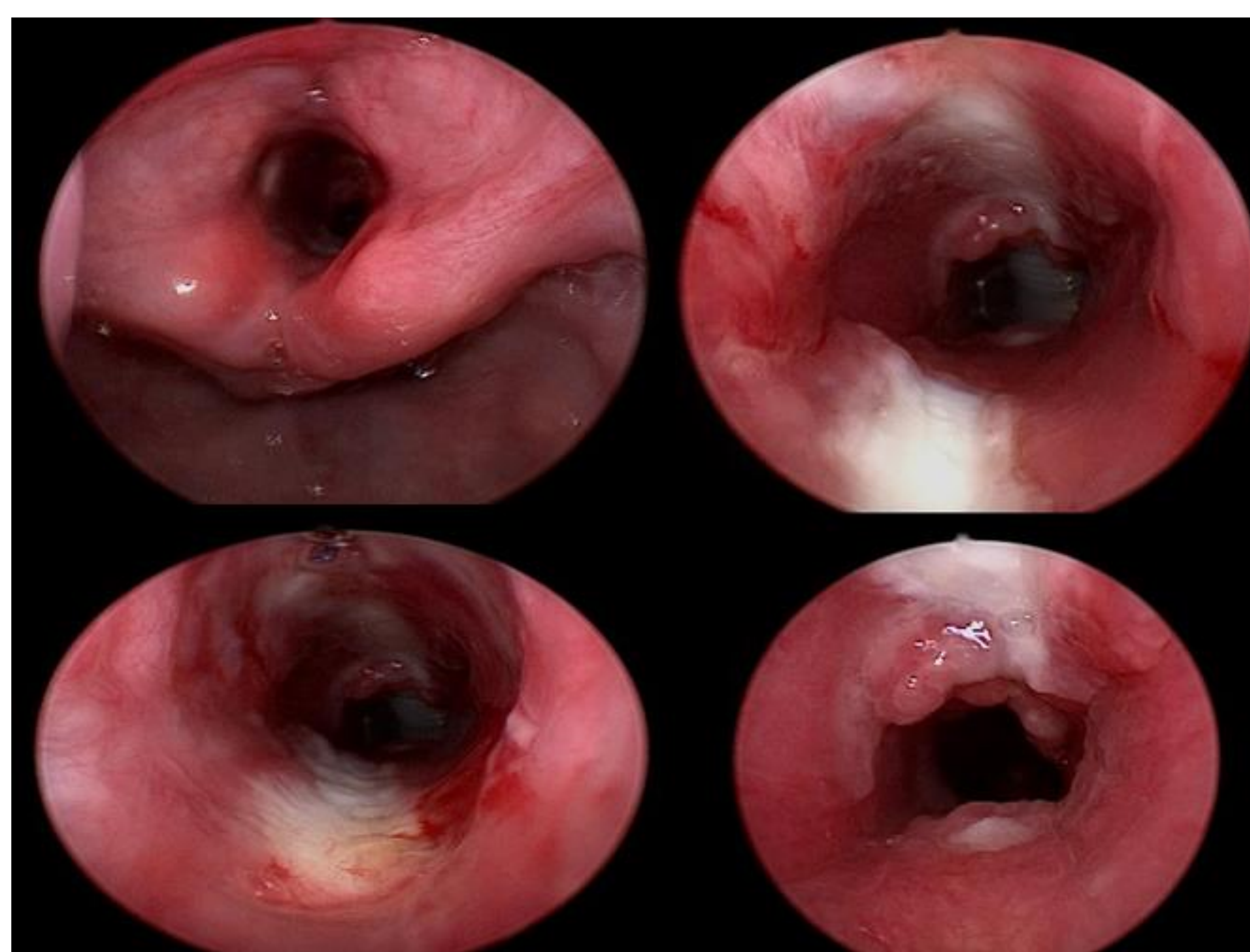


Figure 4. Appearance of infected reconstruction site after suprastomal stent removal at time of pectoralis flap repair.

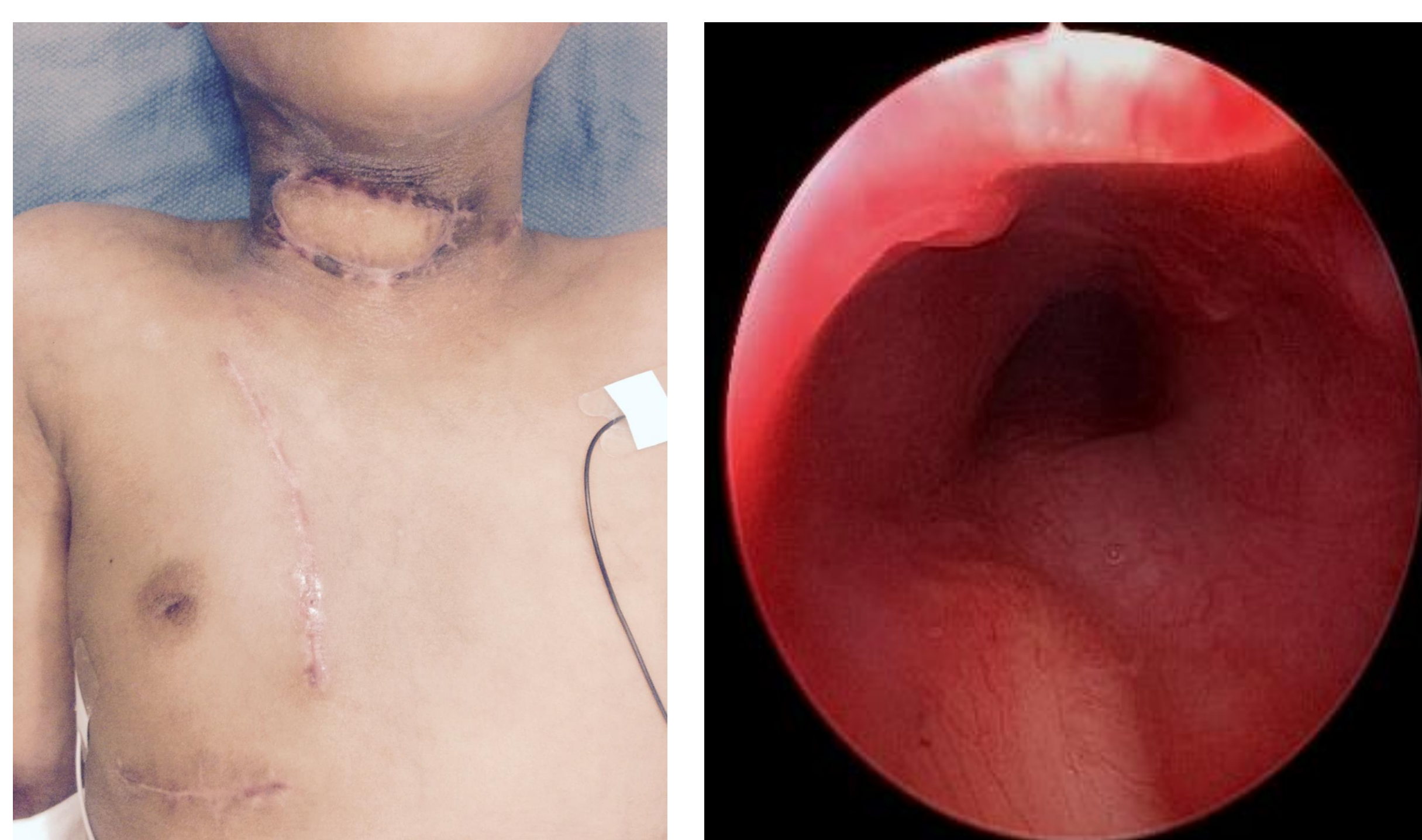


Figure 5. Appearance of the neck and graft site 6 months after repair with the pectoralis flap.

Discussion

Graft infection is a serious complication of laryngotracheal reconstruction. Low powered case series have demonstrated that 2-stage procedures are not an independent risk factor for graft infection vs. single stage procedures.⁴⁻⁵ However, one must consider that unless the tracheostomy site is completely separated from the tracheostomy site this may serve as a nidus for infection. Additionally, the presence of a suprastomal stent has been shown to serve as a carrier for bacteria/biofilms,⁶⁻⁷ with *Pseudomonas Aeruginosa* and *Staph Aureus* being the most common culprits of wound/graft infection.⁴⁻⁵ In this case, the wound infection resulted in external skin breakdown and small fistula formation into the airway. More conservative measures, local wound care, and repair with local sternocleidomastoid flap were not successful in this case and an alternative means was sought out to close the wound. The pectoralis major flap has been shown in the adult literature to be an option in this scenario. We were able to successfully close the wound and heal the fistula by closure with this technique.

Conclusions

The myocutaneous pectoralis major flap is a viable option for repair in rare and challenging wound healing scenarios after pediatric laryngotracheal reconstruction.



Figure 1. Initial wound defect. Exposed anterior cartilage graft can be seen.



Figure 2. Myocutaneous pectoralis flap design

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