H-TYPE TRACHEOESOPHAGEAL FISTULA CANNULATION FOR RAPID INTRAOPERATIVE LOCALIZATION

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Introduction

Congenital isolated H-type tracheoesophageal fistula (TEF) is a rare malformation of the airway that represents less than 5% of congenital TEF. The most common location of a TEF is at or above the T2 level. A cervical approach is usually undertaken for repair. Intraoperatively, fistula localization aids in decreasing time of surgery and avoiding unnecessary tissue dissection. There have been various reported techniques for fistula cannulation including the use of rigid bronchoscopy and Teflon-coated guidewires for creation of a loop, as well as Fogarty catheter insertion into fistula to prevent ventilation challenges. This case aims to report an easy and reproducible method for intraoperative TEF localization by using a combination of suspension laryngoscopy, tracheoscopy and rigid esophagoscopy for TEF cannulation with a plastic ureteral catheter.

Methods

After confirming the diagnosis, a 16-day-old patient was taken to the OR where suspension laryngoscopy and tracheoscopy were performed to identify the TEF. A blue whistle-tip ureteral catheter (3.0 Fr x 70 cm; Cook Medical) was successfully inserted through the fistula into the esophagus. Using rigid esophagoscopy, the catheter was secured and withdrawn through the mouth to form a loop. Orotracheally intubation was then performed. Through a right cervical approach, our dissection was guided by applying gentle traction to the catheter loop. Fistula was identified, dissected and standard surgical repair was performed.

Imaging

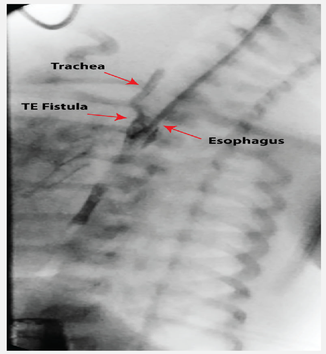


Figure 1: *Contrast esophagram showing H-type tracheoesophageal fistula.*

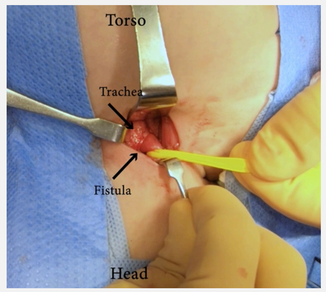


Figure 2: *H-type TEF identified intraoperatively.*

Results

Suspension laryngoscopy and tracheoscopy were successfully used to visualize the fistula. A plastic ureteral catheter was passed through the fistula into the esophagus and retrieved with rigid esophagoscopy creating a loop. By applying gentle traction to the catheter loop, rapid intraoperative localization was achieved and dissection was limited to the exact level of the fistula. TEF was repaired uneventfully and contrast esophagram on postoperative day 7 revealed no leakage or persistence of fistula.

Discussion

Various methods of TEF cannulation have been described. Our technique of creating a loop by cannulating the TEF with a plastic ureteral catheter using a combination of suspension laryngoscopy and tracheoscopy allowed for quick and efficient intraoperative TEF localization without complications. In cases of a cervical approach, applying gentle traction helps elevate the fistula more superiorly into the surgical field. Furthermore this technique, which uses readily available instruments, is easily reproducible and may lead to decreased unnecessary tissue dissection, as well as reduced operative time.

Conclusion

The combination of suspension laryngoscopy, tracheoscopy and rigid esophagoscopy for cannulation of an H-type TEF with a plastic ureteral catheter is a safe and reproducible method for rapid intraoperative fistula localization.

References

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