CASE REPORT

Managing Tracheoesophageal Fistel in Esophageal Atresia: Lessons from the First Successful Esophageal Atresia Management at secondary Hospital in Yogyakarta

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ABSTRACT

Esophageal atresia (EA) with tracheoesophageal fistula (TEF) remains a challenging neonatal condition, particularly in resource-limited secondary hospitals, where morbidity and mortality continue to be significant despite improving survival. We report the first successful management of EA in a 2-day-old male infant presenting with hypersalivation, choking during feeding, and inability to pass a nasogastric tube. Initial stabilization included gastrostomy decompression and jejunostomy feeding on day 9 of life. Definitive repair was performed two weeks later via thoracotomy, confirming type C EA. The procedure involved distal TEF ligation and primary end-to-end esophageal anastomosis with chest tube placement. Postoperatively, the patient required ventilatory support in the NICU, later transitioned to nasal continuous positive airway pressure (NCPAP) on postoperative day 4. Suspected anastomotic leak occurred following saliva drainage through the chest tube, prompting cessation of NCPAP and conservative management. The patient improved, was weaned to room air by postoperative day 30, and discharged in stable condition. Noninvasive ventilation may increase anastomotic leak risk after EA repair.
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INTRODUCTION

Newborn esophageal atresia (EA) and tracheoesophageal fistulas (TEF) are fairly common congenital conditions, occurring in about 1 in 2,500 and 1 in 4,500 live births or 2.43 cases per 10,000 births, respectively. It can occur on in isolation, but it is not uncommon for it to be associated with other congenital abnormalities, such as in VACTERL syndrome. Advances in neonatal intensive care, anesthesia, and surgical techniques have significantly improved survival rates for EA patients. However, as the frequency of surgeries increases, so does the occurrence of postoperative complications, making them a continued concern. One of the most frequent and serious complications following EA/TEF surgery is esophageal leakage, which occurs in roughly 15-17% of cases. Anastomotic leak is defined as esophageal rupture caused by poor anastomotic healing after esophageal reconstruction surgery, which is the most common com plication after esophageal surgery and the main cause of death. Anastomotic leak is still a serious complication of EA and has an important influence on the prognosis and the quality of life of affected infants. Despite recent progress in pediatric surgery, some patients still require reoperation, which remains a significant surgical challenge due to the relatively high morbidity and mortality rates associated with it. However, the impact of these clinical factors and their role in preventing postoperative complications in patients with EA have not been thoroughly documented.

CASE REPORT

A 2-day-old male neonate was referred from another hospital with hypersalivation, choking during feeding, and inability to pass a nasogastric tube. He was born at 39 weeks of gestation via caesarean section with a birth weight of 2600 g. Clinical findings raised suspicion of esophageal atresia (EA) with tracheoesophageal fistula (TEF), which was confirmed by chest radiography and esophagography, demonstrating type C EA with a distal TEF.

At 9 days of life, the patient underwent gastrostomy decompression and jejunostomy feeding via a limited upper midline laparotomy using a single incision. A Foley catheter (Fr 8) was placed at the anterior gastric

wall for gastrostomy, and a feeding tube (Fr 5) was inserted into the proximal jejunum. Enteral feeding with expressed breast milk was administered continuously using a feeding pump or gravity drip (Figure 1).

Two weeks later, definitive repair was performed through right thoracotomy. Intraoperative findings confirmed type C EA. The distal TEF was ligated using transfixing sutures, followed by primary end-to-end esophageal anastomosis with interrupted sutures, and a chest tube was inserted for postoperative drainage (Figure 2).

Postoperatively, the patient was managed in the neonatal intensive care unit with mechanical ventilation and

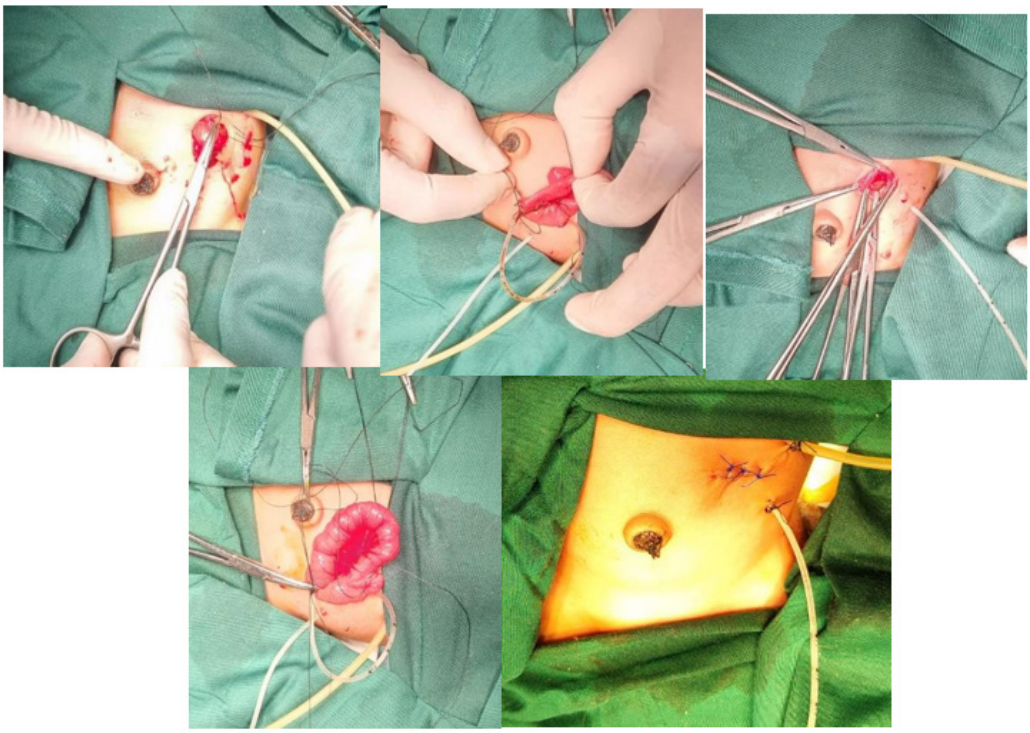

Figure 1: Gastrostomy Decompression and Jejunostomy Feeding tube insertion

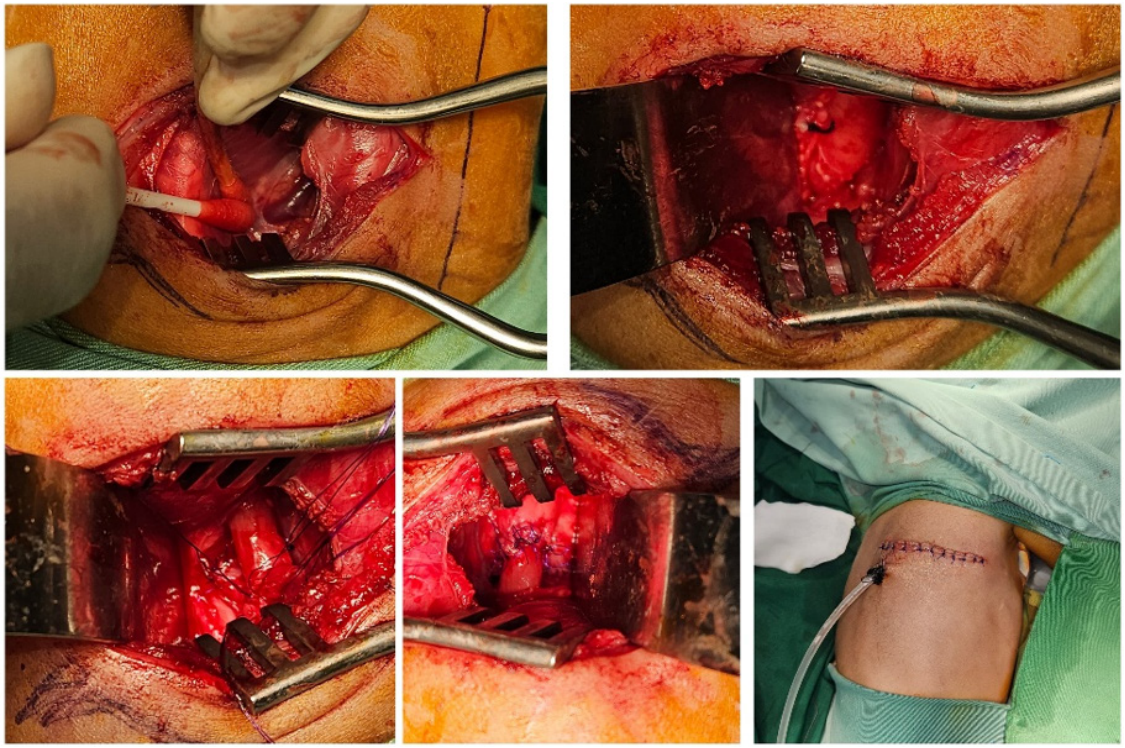

Figure 2: Thoracotomy distal tracheoesophageal fistula excision, Primary esophageal anastomosis, and chest tube insertion. A. Show of distal Tracheoesophageal Fistula, B. Upper pouch of esophageal atresia, C. excision of fistula, D. Esophageal anastomosis using interrupted suture, E. insertion of chest tube

was transitioned to nasal continuous positive airway pressure (NCPAP) on postoperative day (POD) 4. On POD 5, an anastomotic leak was suspected after saliva was observed draining from the chest tube. NCPAP was discontinued, and respiratory support was downgraded to nasal cannula. The leak was managed conservatively with close monitoring, reduction of airway pressure, and gradual weaning of respiratory support.

The patient showed progressive clinical improvement, was successfully weaned to room air by POD 30, and was discharged in stable condition on POD 37 with planned follow-up for growth and feeding evaluation.

DISCUSSION

The successful management of esophageal atresia (EA) with tracheoesophageal fistula (TEF) in our patient highlights the importance of early intervention and vigilant postoperative care in neonatal surgery. Despite the significant challenges posed by these congenital anomalies, the favorable outcome observed underscores the effectiveness of appropriate surgical techniques combined with comprehensive perioperative management (2,4).

A key finding in this case was the occurrence of an anastomotic leak on postoperative day (POD) 5, which is a well-recognized complication following esophageal repair (1,4). The decision to manage the leak conservatively, including discontinuation of nasal continuous positive airway pressure (NCPAP) and transition to nasal cannula, proved to be effective. This supports existing evidence that non-invasive ventilation may increase the risk of anastomotic complications due to increased intrathoracic pressure, and careful modulation of respiratory support is essential (3,4).

The patient's successful weaning from mechanical ventilation by POD 30 and stabilization on room air further emphasize the importance of timely adjustment of respiratory strategies to reduce stress on the anastomosis. Conservative management of anastomotic leaks, when clinically appropriate, has been shown to result in favorable outcomes without the need for reoperation, particularly when combined with close monitoring and supportive care (4,5). This is especially relevant in resource-limited settings, where non-operative approaches remain a valuable strategy. Additionally, the relatively short hospital stay, with discharge by POD 37, may be attributed to early enteral feeding through gastrostomy and careful postoperative respiratory management. Early nutritional support plays a crucial role in promoting healing and growth in neonates undergoing major surgery and is recommended as part of standard postoperative care in EA/TEF management (4).

CONCLUSION

Physical examination, radiological characteristics, and serum markers support the diagnosis of teratoma tumor. Laparatomy complete resection is indication for large masses and suspicious of malignancy. Chemotherapy after surgery is essential and help achieve five-year overall survival. Ultrasound follow-up twice a year is needed to enable early diagnosis in contralateral tumour of ovarian teratoma.

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