

Original Research Article

Trans-anastomotic tube in esophageal atresia with trachea-esophageal fistula repair: how beneficial are they?

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ABSTRACT

Background: Congenital esophageal atresia with tracheo-esophageal fistula is a common congenital anomaly facing at our centre. There is various proposed anastomotic technique to avoid post-operative complications. In our center, feeding has been conventionally initiated after a contrast esophagogram done at the seventh day post repair. The current study tried to assess the benefits and risks of initiation of early feeding in these patients by placement of a Tran's anastomotic feeding tube during the repair.

Methods: Twenty-five patients had a trans anastomotic feeding tube inserted during trachea esophageal fistula repair and were followed up for different outcomes.

Results: Twenty-five patients were operated out of which were sixteen males and nine were females. Early complications of esophageal atresia surgery such as anastomotic leak, surgical site infection, pneumonia and sepsis occur in eight patients. All the complications were managed successfully conservatively, however, one patient died due to anastomotic leak and subsequent septicemia.

Conclusions: We conclude that early tube feeding is safe and does not increase risks of anastomotic leaks. It also reduces the need of total parenteral nutrition bringing down the costs of procedure in developing nations.

Keywords: Tracheoesophageal fistula, Esophageal atresia, Transanastomotic feeding tube

INTRODUCTION

Esophageal atresia, with or without tracheoesophageal fistula, is a common congenital disease that should be considered in the differential diagnosis of a neonate who develops feeding difficulties and respiratory distress in the first few days of life.^{1,2} Esophageal atresia is often associated with other congenital anomalies, most commonly cardiac abnormalities such as ventricular septal defect, patent ductus arteriosus or tetralogy of Fallot.^{3,4} Proper surgical care with advances in neonatal intensive care support has largely improved the survival of neonates with esophageal atresia and trachea esophageal fistula. The surgery has evolved from staged gastrostomy to the

present day single stage primary repair. The type of fistula also mandates the nature of repair to be performed. In type C fistula, the procedure involves ligation of fistula with identification of both the pouches. This is followed by a non-tension primary anastomosis. We have performed the same procedure in twenty-five patients with addition of transanastomotic tube.

METHODS

This study was carried out prospectively in Department of Pediatric Surgery SMS Medical College Jaipur, from 2017 to 2018. Twenty-five patients diagnosed with esophageal atresia and tracheo-esophageal fistula (EA with TEF) on

clinical and radiological basis were included. All patients were more than 2 kg in weight. After optimization, all patients operated within first two days of life by same surgical team. Right posterolateral thoracotomy with ligation of the fistula and primary esophageal anastomosis was done. 6 Fr infant feeding tube was passed into the esophagus during performance of the anastomosis. The trans anastomotic tube was kept in place by a suture fixation to the nares. Feed with expressed breast milk started on the third day post- surgery. The post-operative complications of surgical site infection (SSI), sepsis, anastomotic leak, pneumonia, central line infection and duration of total parenteral nutrition were studied.

RESULTS

Twenty-five patients were operated out of which sixteen were males and nine were females. Six patients were operated on the first day of life and 19 patients were operated on second post natal day. The mean gestational age was 37 weeks mean birth weight was 2.6 kilograms (Table 1).

Table 1: Distribution of patients according to weight.

Weight range (in kg) of patients	No. of patients (%)
2-2.5 kg	13 (52%)
2.5-3 kg	10 (40%)
>3 kg	2 (8 %)

Table 2: Post-operative complications in the study group.

Complication	No. of patients
Surgical site infection	2
Pneumonia	3
Minor leak	2
Major leak	1

Table 3: Hospital stay in patients.

Hospital stay	No. of patients (%)
7-8 days	18 (62)
8-10 days	5 (20)
10-15 days	2 (8)

The mean operating time was 60 minutes. The post-operative complications of surgical site infection (SSI), sepsis, anastomotic leak, pneumonia and central line infection were studied (Table 2). Out of twenty-five cases, 24 patients survived and only one baby died secondary to anastomotic leak and sepsis. 18 patients were discharged on post-operative day 8. Two patients was on ventilator for 4-5 days and discharged on postoperative day 15. All the complications were managed successfully conservatively, however, 1 patient died due to anastomotic leak and subsequent septicemia.

All patients are on regular follow up and no recurrence of the fistula or reflux was observed on follow up.

DISCUSSION

Esophageal atresia with trachea esophageal fistula repair is a commonly performed neonatal surgery in our center. The patients are generally brought in the very first day of life. However, the morbidities following the surgery has acted as a deterrent in the long-term follow up of these patients. The complication rates vary from 18 to 50% in various studies.^{5,6} There are so many proposed classifications of esophageal atresia with tracheo-esophageal fistula like Vogt classification, gross classification and ladd classification. We deal most common variety like, proximal esophageal atresia with distal tracheo-esophageal fistula. Mortality in Tracheoesophageal fistula patients has been mostly related to the post operative care.⁷ The conventional delayed onset of enteral feed with enhanced disposition to wound infection leads to sepsis and mortality.⁸ In our tertiary level pediatric surgery center, it is traditional to start oral feed only after a proper contrast esophagogram is obtained. The patients are kept on total parenteral nutrition via central venous catheters till seventh postoperative day. In the present study, we have attempted to introduce enteral feeding via trans anastomotic feeding tube and assess the outcomes in terms of complications. The duration of TPN use has also been noted which is indirectly related to the cost of surgery. Trans anastomotic tubes have been used in European countries with moderate success.^{9,10} Its goal has been to introduce early feed, reduce TPN and central line sepsis.^{11,12} Ghosh et al also support that trans anastomotic feeding tubes stand as a favorable option during primary repair of tracheo esophageal fistula with no significant rise in complication rates.¹³

We used the conventional anastomotic technique along with transanastomotic tube, is safe and effective and better for reducing complications and thereby morbidities in operated Esophageal atresia with tracheo esophageal fistula patients.

The limitation of this study was both small sample size and absence of control group.

CONCLUSION

The cost of the surgery was higher with increased TPN use. We conclude that trans anastomotic feeding tubes stand as a favorable option during primary repair of tracheo esophageal fistula with no significant rise in complication rates. It also offers better cost effectiveness in developing nations reducing use of total parenteral nutrition.

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