

Outcome of Tracheoesophageal Fistula Surgery in a Pediatric Surgery Institution: A Retrospective Study

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Abstract

Aim: To find out the outcome of TEF surgery in our hospital. **Material and methods:** A retrospective study for 5 years was done from the records in our institution. Chi-Square test and Fisher's exact test were used to find out the statistical significance and the P-Value <0.05 considered as significant. **Results:** Total 118 cases were included into the study. Only 26 (22%) cases survived postoperatively and discharged. Babies entering into our institution during first day of life survive more compared to others (29.4% Vs 8.7% & 14.3%). Primary TEF repair babies survive more compared to EG babies (24% Vs 11.1%). **Conclusion:** Babies entering first day of life into our care and primary TEF repair seems to survive more compared to others.

Keywords: New Born; Outcome; Surgery; Tracheoesophageal Fistula (TEF).

Introduction

In pediatric surgery tracheoesophageal fistula (TEF) and Esophageal atresia (EA) are the common congenital anomalies experienced by their surgeons. Incidence of TEF/EF is 1:3500 live births [1]. Treatment of TEF/EA can be conventional open repair or thoracoscopic minimally invasive repair to establish or to maintain the continuity of the esophagus [2,3]. We have done an analysis of the TEF/EA surgical patients records.

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Materials and Methods

A retrospective study was done in the department of pediatric surgery of our hospital. The study was done with the patient records for a period of five years from January 2013 to December 2017. Data was analyzed, if needed Chi-square analysis was done along with Two-tailed Fisher's exact test for P value with different variables. All the cases operated for TEF/EA were included in the study. P-value of <0.05 is considered as significant. Babies who are all discharged were considered Live after surgery, except discharged at request or Against medical advice or dead.

Results

Total operated cases were 118. Male and Female babies were each 59 (50%). Babies entered in to our institution for care in Less than one day old was 51 (43.2%), 2 to 3 days old were 46 (39%) and the remaining 21 (17.8%) were belongs to 4 days and above.

Weight of the babies during admission was as follows, less than 2 kgs were 29 (24.6%) and more than 2 kgs were 89 (75.4%). Mean weight of the babies was 2.34 kgs.

Primary TEF Repair was done in 100 cases and Esophagostomy/ Gastrostomy (EG) was done in 18 cases. Among the primary TEF repair case 51 were males and 49 Females. In EG group 8 were Males and 10 Females [Figure 1].

Total number of cases survived postoperatively and discharged were 26 (22%) and the remaining 92 (78%) cases were died postoperatively or discharged against medical advice.

Analysis was done for association between sex of the baby, weight of the baby, day entered in to care

and postoperative outcome. There is no association between sex of the baby or weight of the baby and postoperative outcome [Table 1 & 2].

Babies entered into our institution on the first day of life appears survive more (15/51=29.4%) compared to 2&3 days (8/46=8.7%) and 4 days & above (3/21=14.3%), but this association was not statistically significant (p=0.23) [Table 3].

Among the primary repair 24/100 (24%) survived but in EG cases only 2/18 (11.1%). But there is no significant statistical association (P=0.36). There was no association between type of surgery and outcome wise in male or female babies (p=0.65) [Figure 2 & Table 4].

Among the TEF cases 6 cases were having Atrial Septal Defect (ASD), 4 cases had Ventricular Septal Defect (VSD) and 2 cases had both ASD and VSD. Among the 12 cases of these cardiac anomalies only 2 (16.7%) survived.

Anorectal Malformation with TEF was found in 3 cases, where colostomy was combined with TEF repair. Among the three cases 2 cases survived.

One case of duodenal atresia with TEF was treated with TEF repair and duodeno-duodenostomy that was survived.

Table 1: Association between Sex of the baby and outcome

Sex & Outcome	Dead	Live	Total	P Value as per Fisher's exact Test
Male	45	14	59	Two tailed P value equals 0.82
Female	47	12	59	
Total	92	26	118	

Table 2: Association between weight of the baby and outcome

Weight & Outcome	Dead	Live	Total	P Value as per Fisher's exact Test
< 2 Kg	23	6	29	Two tailed P value equals 1.00
> 2 Kg	69	20	89	
Total	92	26	118	

Table 3: Association between Age of admission and outcome

Age at Admission & Outcome	Dead	Live	Total	P Value as per Chi-Square Test
1 day or Less	36	15	51	The p-value is 0.23
2 nd & 3 rd day	38	8	46	
4 th day & above	18	3	21	
Total	92	26	118	

Table 4: Association between Type of surgery and outcome

Surgery category and outcome	Died	Live	Total	P Value as per Chi-Square Test
Primary Repair Male	38	13	51	The p-value is 0.65
Primary Repair Female	38	11	49	
EG Male	7	1	8	
EG Female	9	1	10	
Total	92	26	118	

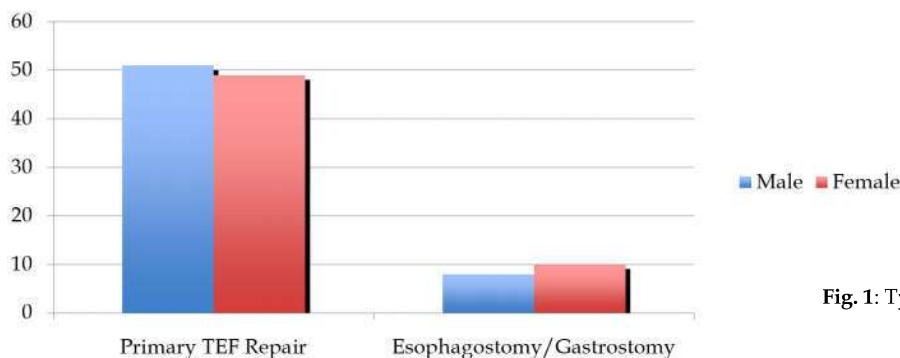


Fig. 1: Type of surgery in the babies

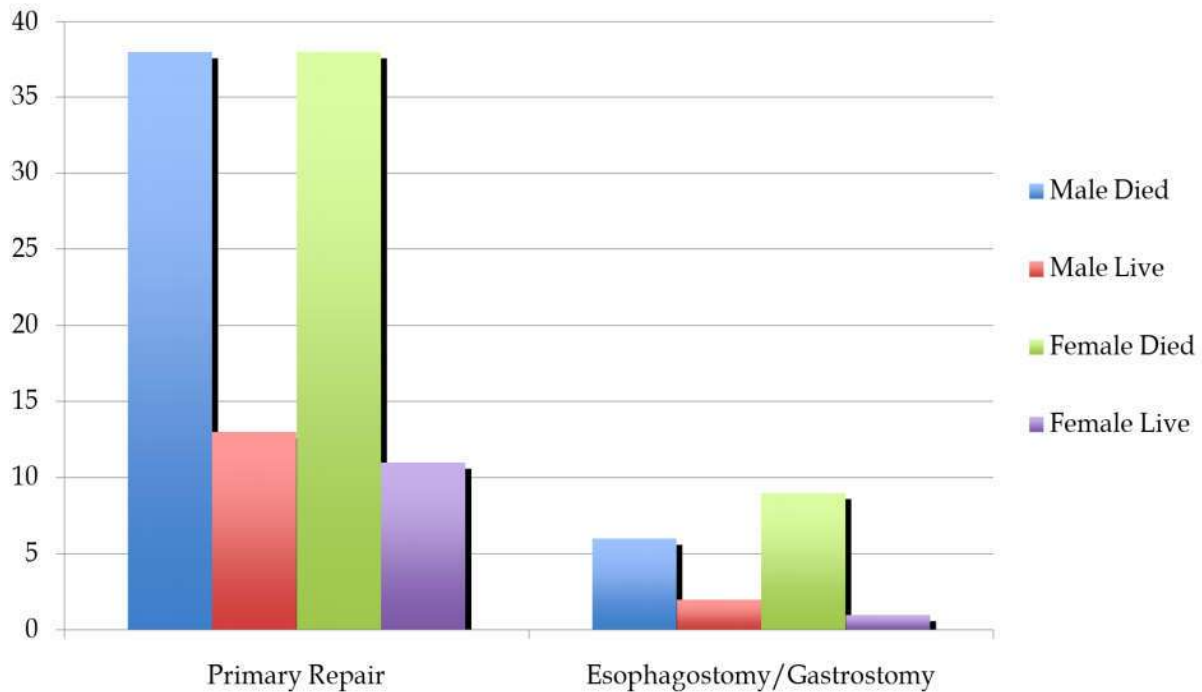


Fig. 2: Type of surgery and outcome

Discussion

There is equal incidence of TEF/EA in both sex babies among our study population. Mortality is very high (78%) compared to the studies done in developed countries and our country [4,5].

Mean weight of 2.34 kgs which is comparable with the study done by Kumar et al. One out of four babies born below 2 kgs, but there is no association between the weight of the babies and death/live as per our results and their study [5].

Day of entry after birth into the institution seems to be improving the survival rate, which is comparable with other studies [5].

As per the study done by Seo et al primary TEF repair was done in 90% of their cases which is comparable to our study with 85%. But with less mortality (24%) in their study [6].

As per the study done by Tandon et al severe respiratory distress patients survive only 23%. Which also implies delay in diagnosis and treatment reduces the survival rate [7].

Although there is no statistical significance, primary TEF repair cases survive more compared to EG cases.

Among the congenital anomalies cardiac anomalies had the highest death rate compared to other anomalies.

Drawback of the study is its retrospective nature and there is no follow-up outcome after discharge.

Conclusion

High mortality was noted among the TEF cases in our institution. Primary TEF repair cases and first day entered into care in our institution seems to have better survival rate. Further prospective study is warranted to find out the association properly.

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