ORIGINAL ARTICLE

Tracheoesophageal Fistual and Esophageal Atresia - experience at Children Hospital, Lahore

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ABSTRACT

Aims and Objective: To see the surgical outcome and follow up of patients of Esophageal Atresia, with Tracheoesophageal Fistula.
Design: Prospective.
Period: 1st December, 2006 to 31st March, 2008.
Setting: Department of Paediatric Surgery, Children's Hospital / Institute of Child Health, Lahore.
Material and methods: During one and quarter year period 53 patients of esophageal atresia with tracheoesophageal fistula were admitted.
Results: Out of these 53 patients 30 were males and 23 were females. 18(33.9%) were below three days of age and 35(66.03%) presented between three days to more than 10 days of age. Respiratory distress, excessive salivation, cyanosis and choking were major mode of presentation 42(79.2%) were operated and 13(24.5%) were not operated. Out of 42 operated patients 28(66.67%) survived and 14(33.33%) expired. Pneumonia, septicemia, minor leak and major leak were the main post operative complication. 18 patients are on regular follow up. Redo procedures have been done in 6 patients (Stricturoplasty in 4 patients and dilatation in 2 patients).
Conclusion: We conclude that awareness should be created among doctor, LHV's, Birth attendance and dai's about diagnosis and early refer of such patients to tertiary care centers to improve the prognosis in our country.
Key words: Tracheoesophageal Fistula, prognosis, follow up

INTRODUCTION

In 1970 Thomas Gibbsonsin is credited for the first clinical and pathological description of tracheoesophageal fistula and esophageal atresia First successful primary repair was performed by Haight 50 years ago. In past four decades survival of these neonates has improved due to four factors, early diagnosis, prompt intensive preoperative and postoperative care.

Surgery of esophageal atresia and tracheoesophageal fistula is still a challenge to the paediatric surgeon even after may advances to this field. Associated congenital anomalies are the main cause of death in developed countries, while in developing countries like Pakistan may other factors including sepsis are responsible for the higher mortality. We are presenting one and quarter experience in the management of 53 such neonates. Factors effecting the prognosis and follow up has been analyzed.

EXCLUSION CRITERIA

Patients operated outside in other hospitals and with isolated esophageal atresia were excluded from study.

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PATIENTS AND METHODS

During one and quarter year period 53 patients of esophageal atresia and tracheoesophageal fistula were admitted. These were reviewed for age, weight, chest infections, congenital anomalies, postoperative complications, hospital stay, mortality and follow up. After resuscitation with, suction, antibiotics and chest physiotherapy. Thoracotomy was performed through 4th intercostals space, fistuala ligated and an end to end esophageal anastomosis was made. Four patients underwent esophagostomy and gastrostomy after ligation of fistula due to long gap.

RESULTS

53 neonates were admitted with esophageal atresia and tracheoesophageal fistula. Ages at the time of admission are shown in table1.

Table 1

Age	n=	% age
<24 hours	5	9.43
24-48 hours	3	5.66
48-72 hours	10	18.87
>72 hours	35	66.03
Total	53	100%

Associated anomalies were discovered in 18(33.96%) neonates, 8(15.09%) had high anorectal

malformation, 4 neonates (7.45%) had high cardiac anomalies malformation, 3 neonates (5.66%) had limbs and 3(5.66%) had down syndrome as shown in table 2.

Table 2

Associated anomalies	No.	%age
Anorectal anomalies	8	15.09
Cardiac anomalies	4	7.45
Down Syndrome	3	5.66
Limb anomalies	3	5.66
Total	18	33.9

Respiratory distress, excessive salivation, cyanosis and choking were the major mode of presentation. Weight at presentation is shown in table 3.

Table 3

Weight	No	% age
<2000G	5	9.43
2000-25000G	11	20.75
2500-3000G	23	43.39
>3000G	14	26.41
Total	53	

42 neonates were operated and primary repair using extrapleural approach through Right 4th intercostal space was done. Pre-operatively all these neonates were vigorously resuscitated using antibiotics, chest physiotherapy and intermittent oropharyngeal suction. 28 patients out of 42 survived and 14 neonates died as shown in table 4.

Table 4

Operated	survived	Expired
42 (79.2%)	28(66.67%)	14(33.3%)
Non Operated 13 (24.5%)	0.0	13 (100%)

The survivors remained admitted on the average for 8 days post operatively. In 14 cases those died after repair, 5 neonates needed ventilatory support in immediate post operative period. In 4 cases leakage of anastomosis occurred. 7 cases developed sepsis and DIC, revealed by bleeding tendencies and sclerema. Three cases required intervention for pneumothorax postoperative complication has been shown in table 5.

Table 5: Complications

Complications	=n
Leakage of Anastomosis	4 (26.67%)
DIC	7 (40.00%)
Pneumothorax	3 (20.00%)

18 patients are on follow up. Stricturoplasty has been done in four patients and esophageal dilatation in two patients. Long term complications and age at follow up has been shown in table no. 6 and 7.

Table 6: Follow up

Age	No
1 ¼ years	4
1 years	2
10 months	4
8 months	4
6 months	3
3 months	1
Total	18

Table 7: Long term complication

Complication	No
Mild dysphagia	4
Dysphagia	6
Barking Cough	4
Recurrent Chest infection	2
Hydrocephalus	2

Good prognostic factors which we observed in our study were weight >2Kg, operated as soon as possible, early presentation, without infection and congentinal anomalies, less attack of hypoxia and bradycardia during surgery, minimum anesthesia, non requirement of ventilation after surgery, specially cared for hypothermia, upright posture and chest physiotherapy, use of broad spectrum antibiotic covering gram positive, gram negative and anerobic bacteria and follow up by the surgeon himself .

DISCUSSION

We encountered 53 patients of EA/TOF in one and quarter year period. Sinha etal[1] has described 57 cases with EA/TOF in nine year period. 144 patients of EA/TOF had been described by Konkin etal[2] in 17 years.

Table 1 shows 66.03% patients reported to our surgical services after 72 hours of delivery. This delay changes category from 'A' to 'B' by pulmonary involvement and changes prognosis from good to poor. This is a major problem for which our patients need vigorous respiratory assistance.

Associated congenital anomalies in our patients were 33.9% mainly anorectal malformation. A wide range of associated congenital anomalies is documented like ectopic, stenosed or absent right upper bronchus[3] tracheomalacia, atelactasis, upper esophageal duplication[4] vacteral association[5], microophthalmos, hypospadias[6] and cardiac defects[7,8]. Exomphalos major is also reported in one case[9], dextrocardia[10] and hiatal hernia[11].

Method of treatment in our patients had already been described. We performed a single layer anastomosis with 5/0 vicryl interrupted stitches like Sharma[12]. We retain transanastomotic tube and start early feeding. This causes no leak, no stricture, no regurgitation and reduces the cost[13].

Complications are shown in Table 5. Sepsis was our major problem, secondary to chest infections. Delay in proper management due to delayed referral causes low profusion at the cellular level and accompanied by suppressed immunity is responsible for poor prognosis. This fundamental observation that early preservation of pulmonary segments reduces complications in patients with tracheoesophageal fistula is described by many surgeons[7,11].

In follow up we found barking cough, we current chest infections and dysphagia as main long term complication in our series. Kovesi and Robins[14] have described tracheomalacia, recurrence of esophageal stricture and GER as long term complications leading to barking cough, dysphagia and recurrent pneumonia. Mortality of operated patients was (33.3%)

The overall mortality in our operated patients is 50.94% mainly due to sepsis originating from chest infections. In a Italian study mortality was 95% in 1972-76. This dropped to 55% in 1991 due to early surgery and better antibiotics[11.]

From this study we conclude that early diagnosis, prompt transportation to Paediatric Surgical Units and intensive preoperative and postoperative care is required to improve prognosis of tracheoesophageal fistula.

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