



Incidence of malnutrition, esophageal stenosis and respiratory complications among children with repaired esophageal atresia

Incidência de desnutrição, estenose esofágica e complicações respiratórias entre crianças operadas por atresia esofágica

Shahnam **ASKARPOUR**^{1,2}, Mehran **PEYVASTEH**², Mozghan **DASHTYAN**³, Hazhir **JAVAHERIZADEH**^{1,4,5}, Mitra **AHMADI**⁴, Mohsen **ALI-SAMIR**¹

ABSTRACT – Background: Esophageal atresia is congenital anomaly with high mortality. Surgical complications and changes in nutritional status are common problems after surgical correction. **Aim:** To evaluate nutritional status, esophageal stenosis, and respiratory complications among children who had repaired esophageal atresia. **Methods:** Children aged >2 months old with repaired esophageal atresia were included in the current study. Gender, age, weight, and height were recorded for each case. Height for age and weight for age were calculated for each case. **Results:** According to weight for length percentile, 41.02% of the cases were underweight. Esophageal stenosis was seen in 54.76% of the obtained esophagograms. **Conclusion:** Underweight was present in 41.02 of the patients according to weight-for-height percentile.

HEADINGS - Esophageal stenosis. Esophagus. Malnutrition

Percentile	n=39
Percentile <5 (underweight)	16(41/02%)
Percentile >=5 and <85 (healthy weight)	14(35/90%)
Percentile >=85 and <95 (at risk of overweight)	5(12/83%)
Percentile >=95 (overweight)	4(10/25)

Result of weight for height (length) among children with repaired esophageal atresia

Central message

Undernutrition is a frequent complication among children with repaired esophageal atresia

Perspective

Frequency of malnutrition, esophageal stenosis, and respiratory problem among children with repaired esophageal atresia was high. It is important to have multidisciplinary management including nutritional support, pulmonary support and gastrointestinal management for this children to have better future

RESUMO – Racional: Atresia de esôfago é anomalia congênita com mortalidade alta. Complicações cirúrgicas e alterações no estado nutricional são problemas comuns após correção cirúrgica. **Objetivo:** Avaliar o estado nutricional, a estenose esofágica e as complicações respiratórias em crianças que tiveram a reparação de atresia de esôfago. **Métodos:** Crianças com idade > 2 meses de idade com atresia esofágica reparada foram incluídas no estudo atual. Sexo, idade, peso e altura foram registrados para cada caso. A altura por idade e o peso por idade foram calculados para cada caso. **Resultados:** De acordo com o peso para o percentil de comprimento, 41,02% dos casos estavam abaixo do peso. Estenose esofágica foi observada em 54,76% do esofagograma obtido. **Conclusão:** O baixo peso esteve presente em 41,02 dos pacientes, de acordo com o percentil peso/estatura.

DESCRIPTORIOS: Estenose esofágica. Esôfago. Desnutrição



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From the ¹Nursing Care Research Center in Chronic Diseases; ²Department of Pediatric Surgery; ³Student Research Committee; ⁴Department of Pediatric Gastroenterology; ⁵Alimentary Tract Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Khuzestan, Iran

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Correspondence:

Hazhir Javaherizadeh
E-mail: hazhirja@yahoo.com;
hazhirja@gmail.com

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INTRODUCTION

Esophageal atresia is a congenital anomaly with estimate prevalence about 1/2500-3000 live births¹. Mortality on it has decreased from 75% to 58% in our setting². So, complication of repaired esophageal atresia and nutritional status of the living child is the most important problem in our hospital.

There are few published researches with the focus on nutritional status among the children with repaired esophageal atresia. The aim of this study was to evaluate malnutrition rate among children with repaired esophageal atresia.

METHODS

This study was cross sectional and retrospective. It was approved by the institutional Ethics Committee under number IR.AJUMS.REC.1396.57

Hospital charts of the Department of Pediatric Surgery of Imam Khomeini Hospital and outpatient clinic of Abuzar children's hospital of children aged >2 months old with repaired esophageal atresia were reviewed. Gender, age, weight, and height were recorded for each case. Height and weight for age were calculated for each case. Percentile of weight for height for boys and girls were calculated (Table 1). For children under three years recumbent position was used for length measurement. Infant weight for age and child weight for age were also calculated for each case.

TABLE 1 - Classification of malnutrition according to weight for height percentile

Percentile <5	Underweight
Percentile >=5 and <85	Healthy weight
Percentile >=85 and <95	At risk of overweight
Percentile >=95	Overweight

RESULTS

Of 43 children, 25 were male and 18 female. In 39, recorded mean birth body weight was 2914 g (1800-4500). According to weight for length percentile, 41.02% of our cases were underweight (Table 2).

TABLE 2 - Result of weight for height (length) among children with repaired esophageal atresia

Percentile	n=39
Percentile <5 (underweight)	16(41/02%)
Percentile >=5 and <85 (healthy weight)	14(35/90%)
Percentile >=85 and <95 (at risk of overweight)	5(12/83%)
Percentile >=95 (overweight)	4(10/25)

Among 41 records about respiratory problem, 14 (34.14%) children had persistent problem. Among 42 recorded data about contrast esophagograms, 23 children had esophageal stenosis; seven normal esophagus. Contrast esophagogram was not done for 12 due to esophageal stenosis. As a result esophageal stenosis was seen in 54.76% in esophagograms.

DISCUSSION

Male was slightly more affected than female with esophageal atresia³⁻⁵, which is similar to the current study. Our results showed, according to weight for length percentile, undernutrition present among 41.02% of children with repaired esophageal atresia. In another study from China on 10 patients with esophageal atresia, mild malnutrition was seen in five and severe in one⁶. Undernutrition in our study was slightly lower than that study⁷. This high rate of undernutrition may be due to the high frequency of undernutrition in our country^{7,8}.

Respiratory complications which was seen in 34.14% of the cases are multifactorial and may be due anastomotic leaks^{9,10}, recurrence of fistula, and anastomotic stricture. Tracheomalacia was seen in 37.5% to 75% of the children who underwent surgery of esophageal atresia^{11,12}. Another reason for high rate of respiratory problems may be due to gastroesophageal reflux disease¹³. Esophageal stenosis following repair of esophageal atresia and/or trachea-esophageal fistula was seen in 54.76% of the obtained contrast esophagogram.

CONCLUSION

In repaired esophageal atresia malnutrition was seen in 41.02%, esophageal stenosis in 54.7% and respiratory problems in 34.14% of the cases.

REFERENCES

- Spitz L. Esophageal atresia. *Orphanet J Rare Dis* 2007;2:24.
- Peyvasteh M, Askarpour S, Javaherizadeh H, et al. Evaluation of epidemiologic indices of neonate's diseases in the Pediatric Surgery Ward of the Ahvaz Jundishapur University hospitals during the period 1993-1996 and 2002-2005. *Ann Pediatr Surg* 2011;7:7-9.
- Parolini F, Morandi A, Macchini F, et al. Esophageal atresia with proximal tracheoesophageal fistula: a missed diagnosis. *J Pediatr Surg* 2013;48:E13-7.
- Sfeir R, Michaud L, Salleron J, et al. Epidemiology of esophageal atresia. *Dis Esophagus* 2013;26:354-5.
- Pini Prato A, Carlucci M, Bagolan P, et al. A cross-sectional nationwide survey on esophageal atresia and tracheoesophageal fistula. *J Pediatr Surg* 2015;50:1441-56.
- Guan XS, Yu JK, Zhong W, et al. [Treatment strategy and prognosis analysis in children with type I esophageal atresia]. *Zhonghua Wei Chang Wai Ke Za Zhi* 2013;16:860-3.
- Dehghani SM, Javaherizadeh H, Heidary M, et al. Stunting, wasting, and mid upper arm circumference status among children admitted to Nemazee Teaching Hospital. *Nutr Hosp* 2018;35:33-7.
- Jafari S, Fouladgar M, Naeeni MM, et al. Body Mass Index, Weight-for-age, and Stature-for-age Indices in Iranian School Children in Relation to Weight and Growth Disorders: A Population-based Survey. *Int J Prev Med* 2014;5:S133-8.
- Chittmitrapap S, Spitz L, Kiely EM, et al. Anastomotic leakage following surgery for esophageal atresia. *J Pediatr Surg* 1992;27:29-32.
- Askarpour S, Peyvasteh M, Javaherizadeh H, et al. Evaluation of risk factors affecting anastomotic leakage after repair of esophageal atresia. *Arq Bras Cir Dig* 2015;28:161-2.
- Carden KA, Boisselle PM, Waltz DA, et al. Tracheomalacia and tracheobronchomalacia in children and adults: an in-depth review. *Chest* 2005;127:984-1005.
- Hseu A, Recko T, Jennings R, et al. Upper Airway Anomalies in Congenital Tracheoesophageal Fistula and Esophageal Atresia Patients. *Ann Otol Rhinol Laryngol* 2015;124:808-13.
- Hysinger EB, Friedman NL, Padula MA, et al. Tracheobronchomalacia Is Associated with Increased Morbidity in Bronchopulmonary Dysplasia. *Ann Am Thorac Soc* 2017.