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Surgical Causes in Lower Respiratory Tract Infection in Children

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ABSTRACT

Introduction: To evaluate the surgical causes in pulmonary infection in children.

Materials and Methods: In this cross sectional study 203 patients aged between one month and 12 years old were studied in pediatric wards at Ghaem hospital in Mashhad, Iran.

Results: Most of patients were male and younger than one year old. Fever and cough were among the most common presentations. Foreign body aspiration, hydatid cyst, empyema and lung abscess were the most common causes that required surgical intervention.

Conclusion: Foreign body aspiration and hydatid cyst, empyema and lung abscess are the most common causes of surgical intervention in children with pneumonia.

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Introduction

Pneumonia is one of the most common infections in childhood that involved approximately 150 million pediatric populations (1, 2).

In children under five years old, it causes two million death each year (3, 4).

Most cases are treated successfully with supportive cares and appropriate antibiotics, but sometimes surgical intervention may be required consisting of complicating pneumonia with lung abscess, empyema, bronchiectasis and pneumatoceles. In some other cases, foreign body aspiration, hydatid cyst, pulmonary sequestration or other congenital pulmonary abnormality may need surgical treatment.

In a study from January 1993 to December 2011 that was performed on 648 children aged younger than 16 years old, some causes of surgical intervention were: pleural effusion or empyema, foreign body aspiration, malformations and lung abscess (5).

In another study from Tunis which was performed on 54 cases of lung hydatid cyst between January 1983 and December 2001, it was revealed that mean age of patients was seven years and three months. Hemoptysis was detected in (37%) of patients. Most of patients (61%) had homogeneous density in chest x-ray. Most of cases (74%) were treated surgically without any complication (6).

In other study (7) which was performed on 100 patients under 16 years old between 1993 and 2010 in Denmark, it was concluded that parapneumonic effusion and empyema incidence were increasing and surgical treatment other than chest tube drainage was required in half of the patients.

Materials and Methods

This study was approved by ethical committee of Mashhad University of Medical Sciences. Descriptive study which was performed on 203 patients aged one month to 12 years old at Ghaem hospital in Mashhad, Iran. All records of patients who admitted with fever, respiratory distress, cough, cyanosis, hemoptysis, or had a diagnosis of pneumonia, pleurisy, hydatid cyst, respiratory foreign body, lung abscess, hydropneumothorax or bronchiectasis were entered the study.

Exclusion criteria were patients aged under one month or above 12 years old, extra pulmonary hydatid cyst, fever with extra respiratory origin, foreign body in upper air way and incomplete record.

Data was analyzed with SPSS Version 16 P-value lower than (0.05) was considered as significant level.

Results

Among our patients, (69%) (141) were male and 62 (31%) were female (P-value: 0.69). (51%) of patients was under one year old.

The most common complains of patients at admission was fever (83%), cough (62%), respiratory distress (56%) other symptoms consisted of chest pain

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(7.3%), cyanosis (2.9%) and hemoptysis (1.9%).

In table 1 causes of admission and surgical intervention of patients are shown.

Table1: Causes of admission and surgical intervention of cases

Cause	No	%
Pneumonia	166	82
Foreign body	11	5.4
Pulmonary hydatid cyst	11	5.4
Pleurisy	6	3
Lung abscess	5	2.4
Bronchiectasis	3	1.4
Hydropneumothorax	1	0.4

Among five patients with lung abscess, two cases needed surgical procedure.

Aspiration of nuts was very common in our cases.

Most of hydatid cysts were intact but few number of them were perforated.

Patients with hydatid cyst underwent excision of cyst and decortications.

Discussion

It in our study the main causes of surgical intervention in patients who had admitted with lower respiratory infection were foreign body aspiration, pulmonary hydatid cyst, pleurisy, lung abscess, bronchiectasis and hydropneuomothorax.

In a study from Tunis which was performed on 54 cases of hydatid cyst of lung, it was revealed that hemoptysis was seen in (37%) of patients. Most of patients (61%) had homogeneous density in chest x-ray. Most of cases (74%) were treated surgically without any complication (6).

In other study (7) which was performed on 100 patients under 16 years old, it was revealed that parapneumonic effusion and empyema incidence were increasing and surgical treatment other than chest tube drainage was required in half of the patients.

In another study that was performed on 648 patients under 16 years old, with pulmonary infection who had surgical intervention, it was shown that 201 patients had foreign body aspiration, 95 cases had mal formation, 46 cases had neoplasia, 33 cases pleurisy or empyema, 63 cases had trauma (5).

Similar to our study, foreign body aspiration was the most common causes of surgical intervention.

In compare with our study in hydatid cyst of lung also was as a common cause of surgical treatment in lower respiratory infection, in that study it was not common cause of surgical treatment.

It may be occurred due to the high prevalence of hydatid cyst disease in our country.

In a study from China (8) it was revealed that the most common type of foreign body aspiration was peanuts. Similar to that study, we found that, nuts are the main type of foreign body aspiration in our children.

Our limitation in this work was probably the small sample size of patients. So we suggested further studies with more cases involved.

Conclusion

Foreign body aspiration and hydatid cyst, empyema and lung abscess are the most common causes which need surgical intervention in children with pneumonia.

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