

Foreign Body Aspiration: A Five-Year Report in a Children's Hospital

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Airway foreign bodies as a preventable event have been a major cause of morbidity and mortality, resulting in 500-3000 deaths annually.^[1] Foreign body aspiration may result either in airway compromise and death or in serious sequels such as recurrent pulmonary infections, atelectasis, or bronchiectasis^[2]. To prevent these complications, prompt diagnosis and removal of the foreign body is mandatory.

We performed a case series study on 44 children diagnosed as having foreign body aspiration, aged 15 years or younger, attending Bahrami Children's Hospital in Tehran from October 2001 to October 2006. On the basis of history, physical examination and imaging findings they all underwent rigid bronchoscopy and foreign body removed from their airways. The authors recorded children's age and sex, the results of physical examination, imagings and bronchoscopic findings (type and site of foreign body, airway injury), primary clinical diagnosis, and the time relapsed between aspiration and removal of the foreign body.

The prevalence of foreign body aspiration was highest in children under 3 years of age (77%) and more common in boys (64%). This

is in concordance with other studies^[3]. The high incidence in young children reflects their tendency to explore their world using their mouths. Furthermore, these children have not yet developed a full posterior dentition, and neuromuscular mechanisms for swallowing and airway protection may not be fully mature.

In most studies, the most common reported symptoms and signs are choking and unilateral decreased breath sounds^[4].

In present review, as indicated in table 1, the most common symptom was coughing (82%), followed by choking (57%). In addition, 9% had normal findings in their physical exam. We conclude that in absence of choking, bronchoscopy should be preformed if there is evidence of foreign body aspiration.

Table 1- Signs and symptoms found in children with foreign body aspiration in Bahrami Children's Hospital 2001-2006

Symptom/sign	Frequency* (%)
Coughing	36 (82)
Choking	25 (57)
Wheeze	15 (34)
Dyspnea	10 (23)
Cyanosis	2 (5)
Wheezing	18 (41)
Fever	13 (30)
Decreased breath sounds	2 (27)
Tachypnea	9 (20)
Crackle	7 (16)
Stridor	2 (5)
Normal exam	4 (9)

* In some patients, more than one finding was found

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In previous studies, 34% [5] to 63% [6] of cases had a delayed bronchoscopy as a result of misdiagnosis, usually pneumonia. In present study, the primary clinical diagnosis in 29 cases (66%) was foreign body aspiration, 13 pneumonia, 1 asthma and 1 laryngitis.

This indicates necessity of awareness of physicians about symptoms and signs of foreign body inhalation and patient follow up to prevent later complications, delayed treatment and cost waste.

The common site of foreign body in patients' bronchoscopy in previous studies often was right main bronchus (34% to 67%) [7,8], which is due to the larger diameter of right main bronchus, the smaller angle of divergence from tracheal axis on the right and the greater airflow through the right lung. In contrast, Cleveland [3] has reported that in children the left main bronchus has quite the same diameter with the right one. In our study, foreign body was lodged in left main bronchus in 45% of patients and in right in 43% of them, which is not considerably different and further studies with more samples are needed to establish whether there's true difference between the two bronchi.

The time lapsed between aspiration to removal of foreign body by bronchoscopy in 2 (4%) cases was less than 24 hours, and in 86% of cases bronchoscopy was performed 24 hours after aspiration, which is, according to many studies, associated with high risk of mortality and morbidity [9].

With respect to the limited number of our cases, we suggest that similar multicenter studies with more cases be preformed. In addition, according to findings of this study, awareness of physicians and pediatricians in approach to patients with foreign body aspiration is of utmost importance. Furthermore, bronchoscopy must be performed in suspected cases even with normal physical examination and imaging findings.

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