NON OPAQUE FOREIGN BODY ASPIRATION IN CHILDREN: SHOULD WE BE MORE VIGILANT AND PROACTIVE?

Naseer Ahmad[1], Mohammad Ashfaq[2], Mohammad Javed[3], Qaisar Khan[4]

ABSTRACT

Objective: *To study the frequency of symptoms, composition and complications of clinically suspected non radio-opaque foreign body aspiration; which is a difficult diagnostic challenge resulting in delayed referral for bronchoscopy.*

Methodology: *This descriptive analysis of 400 cases of foreign body aspiration was done in the department of ENT & Head and Neck surgery, Lady Reading Hospital Peshawar from 2003-2006. One hundred cases were selected with presumptive diagnosis of foreign bodies in tracheobronchial tree. The inclusion criteria were non witness and non radio-opaque foreign bodies. We reviewed their hospital record to ascertain history diagnosis and treatment. Age, sex, location in tracheobronchial tree, witnessed or un-witnessed events, symptoms, radio graphic findings, anatomical abnormalities noted at endoscopy and complications were recorded. Radio opaque foreign bodies were excluded from the study.*

Results: *A total of hundred cases were included. Age range was from 2-5 years. Males were 70 % and females were 30%. Delay in presentation was from 10 days to 4 years. Common symptoms at presentation were cough 55% and asthma 20%. Radiological findings were abnormal in 90% of cases. Upon bronchoscopy 70% were positive for foreign body and 30% were negative. Peanuts (30%) and whistles (28%) were the commonest foreign bodies No death occurred in this study and minor complications of the procedure were only 15%.*

Conclusion: *Aspiration of foreign bodies in children can lead to serious morbidity if not recognized and treated in time; hence early referral is essential.*

Keywords*: Suspected foreign bodies, tracheobronchial tree, bronchoscopy.*

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INTRODUCTION

Foreign body is an extremely serious problem in children with varied clinical presentation demanding high degree of suspicions on the part of clinician[1]. Timely diagnosis and appropriate treatment is important to prevent long term serious pulmonary complications, like un-resolving pneumonia, lung abscess, recurrent haemoptysis, lung fibrosis, obstructive emphysema and bronchiactasis[2]. The accurate diagnosis may elude physicians because often the initial chocking incidence is not witnessed and the delayed residual symptoms may mimic other common conditions[3]. Sign and symptoms of foreign body inhalation depend upon many factors like type, size, shape, duration, of its presence in the airway and site of lodgment[4]. Fifty percent patients with foreign body inhalation do not have contributing history[5]. Out come and complications depends mainly on the nature and duration of foreign body in the tracheo-branchial tree. Therefore early broncho-scopy is paramount in any case of suspected foreign body aspiration[6]. The aim of the study is to establish diagnostic importance of bronchoscopy and the need for early referral in suspected cases of foreign body in tracheo-branchial tree.

[1-4]Department of ENT and Head & Neck surgery, Lady Reading Hospital Peshawar - Pakistan

Address for Correspondence:
Dr. Naseer Ahmad,
Senior Registrar,
Khyber Teaching Hospital, Peshawar - Pakistan
E-mail: naseerent@yahoo.com

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METHODOLOGY

This descriptive analysis of around four hundred cases of foreign body aspiration was done in the department of ENT and Head & Neck Surgery, Lady Reading Hospital from September, 2003 to December, 2006. The reason for excluding

300 cases from study was that they have definite history of foreign body inhalation and their X-rays were positive for foreign bodies. About 100 cases were selected with presumptive diagnosis of foreign body aspiration we reviewed their hospital record to ascertain history, diagnosis and treatment. Data was collected on a pre designed proforma and data collection was based on our emergency room record, admission history, physical examination, anaesthetic examination and operative and post operative notes.

The following information was recorded, age, sex, location of foreign body in the tracheobronchial tree, witnessed or unwittnessed events, symptoms, radiographic findings, anatomical abnormalities, noted at endoscopy and complications. We did not include those cases who had definite history of foreign body inhalation (witness) and those with radio-opaque foreign bodies' shadows on X-ray.

RESULTS

Among the 100 cases; age range was from 2 to 5 years. Males were 70 and females were 30. Delay in presentation was from 10 days to 4 years. Referral to our emergency room was from paediatric unit 60 cases, chest unit 30 cases while 10 cases were admitted through ENT OPD. Presentation was: unexplained cough (55%), Asthma (20%), atelactatic lung (13%), emphysema (10%), bronchiactasis (2%) as shown in Table 1.

Physical finding included unilateral decreased breath sound (70%), wheezing (30%), fever (15%), stridor (5%), and cyanosis (2%).

At bronchoscopy 70% were positive for a foreign body, while 30 % had only mucus plug and pus. In positive cases material extracted were seeds (peanut, bean, maize) and plastic material (small toys, whistle) as given in Table 2. Radiographic findings were noticed (see table

Table 1: Presentation at arrival

S.No	Presentation	No. of cases	%age
1	Unexplained cough	55	55
2	Asthma	20	20
3	Atelectatic lung	13	13
4	Emphysema	10	10
5	Bronchiactasis	2	2

Table 2: Composition of Foreign Bodies

S.No.	Materials	No. of Cases	%age of cases
1	Peanuts	30	30
2	Maize	5	5
3	Beans	2	2
4	Whistle	28	28
5	Plastic Toys	5	5
6	Mucus+ pus	30	30

Table 3: Radiological abnormalities

S.No	Findings	No. of Cases	Percentage of Cases
1	Emphysema	50	50
2	Atelactasis	20	20
3	Bronchictasis	3	3
4	Normal	10	10
5	Mediastinal Shift	7	7

Table 4: Complications

S.No	Complications	No. of Cases	%age of cases
1	Delayed recovery	10	10
2	Tracheostomy	5	5
3	Death	0	0

Table 5: Location of Foreign Bodies in Tracheobronchial Tree

S.No	Location	No. of Cases	%age of cases
1	Right Lung	44	44
2	Left Lung	23	23
3	Bilateral	3	3
4	Trachea	0	0

No.3) in 90% cases, while 10% cases had normal x-ray chest. One child was treated for 4 years for repeated chest infection while at bronchoscopy a plastic ball point end was found in the right main bronchus which was removed. No mortality occurred in our study. Ten patients (10%) had prolonged postoperative recovery while 5 (5%) patients needed tracheostomy (Table 4).

DISCUSSION

It is difficult to ensure that foreign body aspirations are not missed. Aspirated foreign bodies have historically been difficult to diagnose, which is especially true in infants and small children[7].

No sign and symptoms occur consistently however a history of chocking or coughing spell can usually be obtained from the parent who witnessed the child[8].

Abnormal radiological findings are usual. However, a normal chest X ray does not exclude the possibility of a foreign body. In our study this happened in 10% cases. Without high index of suspicion the diagnosis of foreign body aspiration may be missed, which can cause significant morbidity and mortality especially in children between 1 to 3 years old [9]. Foreign body present for long time can cause serious pulmonary complications like lung abscess, middle lobe syndrome, scar formation and bronchiactasis which require surgical resection. But when foreign bodies are extracted from such cases the complications resolved spontaneously[5]. In children of 2 to 5 years of age with sudden respiratory problem, the possibility of airway foreign body should be suspected. Paroxysmal cough, wheezing and respiratory distress are common associated symptoms. While history of cynosis during an episode of cough is strongly suggestive of airway foreign body, decreased breath sounds on the affected side, ronchi and fine crepitation are common auscultatory finding [4]. We included all 100 cases in our study based on the above doubtful history and examination, none have definite history of foreign body inhalation. We found and extracted radiolucent foreign bodies from 70 patients (70%) while 30 patients (30%) were negative for bronchoscopy. This 70% positive rate is comparable with both National and International studies. The maximum delayed presentation in our study was 4 years. This child was treated for recurrent chest infection, but we were able to remove small plastic piece of a ball point from the right main bronchus. Similarly Khan SH et al[10] reported one case that was treated for 20 years for asthma when actually a foreign body was removed upon bronchoscopy. Cohn[5] has shown in his study that 20% of patients were treated for chest infection and asthma etc, before definite retrieval by bronchoscopy and 4 patients had died due to delayed diagnosis in his series. In the study conducted by Saquib MM et al[11] at King Fahad University Riyadh in 128 suspected cases only 4 patients had no foreign body. Also in the study of Khan MNZ et al[4], 51% cases were positive for foreign bodies but in the study of Saeed M[12] and Qureshi IL et al[13], all the doubtful cases were positive for foreign bodies. The mortality rate of

foreign body inhalation is between 0 to 8% but is higher for undiagnosed and unsuspected cases of foreign bodies[14]. Saima H Khan et al has not seen any complication in their studies where diagnostic bronchoscopy was performed[10]. Similarly we have also not come across serious morbidities and mortalities except tracheostomy and delayed recovery in few patients. There are many reasons for delayed referral of such cases for example lack of health education, poor socio economical condition of people, no proper care giver for children, easy and low cost availability of objects to be inhaled as foreign bodies or inhalational medicines, non availability of experts and instruments in majority of district hospitals.

CONCLUSION

In children of 2-5 years of age with sudden respiratory problem, aspiration of foreign bodies should be suspected. Diagnostic bronchoscopy is a gold standard procedure for children with sudden respiratory distress or with persistent symptoms of cough with or without fever unresponsive to medical treatment. Hence early referral is mandatory to avoid morbidity.

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None Declared

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CONTRIBUTORS

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