

# Late diagnosis of Foreign Body Aspiration in a Libyan Infant with Chronic Respiratory Problems: A Challenging Diagnosis

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**Abstract:-Foreign body aspiration (FBA) is one of the leading causes of death in children, especially among those younger than 3 years of age<sup>1</sup>. Inhalation of foreign bodies may cause a variety of symptoms, and early diagnosis is highly associated with the successful removal of the inhaled foreign material. Despite the great advances in endoscopic procedures and anesthesia, difficulties and complications still result from foreign body aspiration. In some cases, the ingested foreign body cannot be found or maybe misdiagnosed. Mismanagement of patients with FBA increases the length of symptomatic period, the rate of complications and also the cost before the correct diagnosis is reached. This report describes the case of an infant with foreign body inhalation, caused by ingestion of a metal object (TV Cable Converter) that was given to him by his sister. The foreign body could not be discovered by some pediatricians and was misdiagnosed with other causes of wheezy chest. We describe one case of serious acute complications following aspiration of foreign bodies that became lodged in the tracheobronchial tree including atelectasis, vocal cord laceration, and tracheal laceration and subglottic edema. These were all situations that could have been prevented with early recognition and prompt therapeutic intervention.**

## I. INTRODUCTION

Foreign body aspiration commonly occurs in children especially among those younger than 3 years of age (79%)<sup>2</sup>, with higher incidence in boys (63%)<sup>3</sup>. Sometimes FBA can be life threatening, acting as a significant cause of fatal home accidents in children younger than 6 years and leads to more than 300 deaths per year in the United States<sup>1</sup>. This higher occurrence in children has also been confirmed in retrospective studies in Brazil<sup>1</sup>.

Usually there is a suggestive history of choking<sup>5,6</sup>, although the classic clinical presentation with coughing, wheezing and diminished air inflow, is seen in less than 40% of the patients<sup>2, 7,8</sup>. Other symptoms include cyanosis, fever and strider. In other cases FBA can be completely asymptomatic. Despite the importance of early diagnosis, a significant delay usually occurs until the diagnosis is made<sup>5, 9,10</sup>. In one series the diagnosis of foreign body aspiration took over three days in more than 30% of children<sup>5</sup>. The evolution of FBA can lead to variable degrees of respiratory

distress, atelectasis, chronic cough, recurrent pneumonia and even death<sup>6,7</sup>.

Most frequently, aspirated objects are food particles, which are involved in 75% of the cases. Other organic materials, such as bones, teeth, and plants (7%), while non-organic materials such as metals and plastics (13%), rocks (1%), and toys or parts of toys are less common (1%)<sup>11</sup>. Aspiration of foreign bodies that become lodged in the tracheobronchial tree comprises a small subset of FBA cases. The location of lodging of the foreign bodies has been shown to be 48% in the right lung, 39% to 44% in the left lung and only 4% to 13% between the larynx and trachea<sup>12</sup>. In isolated cases foreign bodies has been shown to migrate and change location.

Diagnosis of FBA begins with patient's history and clinical exploration and can be strengthened by radiographic findings. The most common indicators are air trapping, signs of infection, atelectasis and radio opaque findings on chest x-ray<sup>8</sup>. However, these finding can also occur in a patient without FBA. In addition, 24% of the patients with an endoscopically confirmed foreign body don't present with any abnormalities radiographically. Thus, although it may help, thorax radiography is not sufficiently sensitive or specific for the diagnosis of FBA<sup>8</sup>.

## II. CASE PRESENTATION

His parents with severe respiratory distress, choking, strider, hyper salivation and a wheezy chest for about 10 days, brought a three month old male Libyan infant previously healthy to our hospital. Delivery was uneventful. The baby was born at term with a birth weight of 3kg. There was no previous hospital admissions and no history of asthma. Before the baby came to us, his parents sought medical advice in several other centers in which it was admitted in one of them for 4 days and was given normal saline nebulizer. An X-ray at that time was taken which was considered normal, but retrospectively was found to clearly show a foreign body (images 1 and 2).



Image 1: First x-ray showing the foreign body



Image 2: X-ray showing the foreign body clearly in the oropharynx

a)



b)

The child came to us with stridor, cough and choking. The mother said that the milk comes out from its nostrils and mouth during feeding. The baby was severely distressed but not cyanotic and the oxygen saturation was normal. On physical examination there were marked subcostal and intercostal retractions, no clubbing, decreased breath sounds with inspiratory and expiratory rhonchi and coarse crepitation all over the chest in both lungs. no weight loss was observed. Chest radiograph revealed a radio opaque shadow in the oropharynx (image 3).



Image 3: Chest x-ray taken at the children's' hospital

He was sent to the ENT department, where an urgent call for the anesthesia department was made. The infant was given dexamethasone and anesthetized using inhalational induction (Sevoflurane).

After the infant was fully anesthetized, direct laryngoscopy showed that the foreign body to be in the oropharyngeal region, which was edematous. The foreign body was removed by the anesthesiologist using a magil under direct visualization (image 4).



Image 4: foreign body removed, which was a TV Cable Converter

Following the removal of the FB, which was a TV Cable Converter, the baby was given 100% oxygen with the saturation ranging between 93-95% and rapid drops if oxygen was reduced.

The infant was returned back to our hospital to complete his medication, which was normal saline nebulizer, antibiotics and chest physiotherapy. The condition improved but still had problems during feeding with small amounts of milk coming out from his nostrils.

The baby was then returned back to the ENT department where an injury in the uvula was detected. The baby was admitted, uvulotomy under general anesthesia was performed, and discharged after one week in a good general condition with regular follow-ups at the ENT and pediatrics departments for 3 months.

### III. DISCUSSION

Foreign body aspiration is a frequently occurring problem in pediatric practice; however, it is not always immediately diagnosed, partly because it may be missed, but also because FBA does not have a specific clinical manifestation. FBA can result in a great variety of symptoms of varying severity, or it even can be completely asymptomatic. In our case report, the diagnosis was delayed for 10 days. The family was partially responsible for the late diagnosis, because they did not give exact details while the baby was admitted the first time at the other hospital. The patient had been evaluated by a pediatrician and was given either antibiotics or beta 2-adrenergic agonists before the correct diagnosis was reached.

The type of object aspirated in this case involved a rarely aspirated foreign body, TV Cable Converter. While the most common foreign bodies are ingested in infants and children can include coins, toy parts, jewelry, batteries, sharp materials such as needles and pins, fish and chicken bones.

The severity of complications of FBA is commonly underestimated. Although some studies have reported a low percentage of complications, they are in fact more common than it is normally reported and are more severe in those patients who have the foreign body located in the tracheobronchial tree for a prolonged time<sup>2, 6</sup>.

Even bronchoscopy, considered a safe technique, carries a number of complications<sup>10</sup>. These potential complications are significant and may occur even in experienced hands, primarily when the foreign body is located in distal areas.

Furthermore, although most cases have a benign evolution/outcome, complications may be severe and life threatening as we saw in the present case .

The importance of the involvement of a skilled pediatrician was highlighted by this case. Diagnosis of FBA begins with patient history, clinical exploration and can be strengthened by radiographic findings.

This case also highlights the importance to radiograph from the oropharynx to the level of pylorus.

#### IV. CONCLUSION

Foreign body aspiration by children is a serious and life-threatening situation that requires special attention of parents and health –care providers. The symptoms are nonspecific, and the chest radiograph is frequently normal or display abnormalities uncharacteristic for FBA. Hence, children with suspicious history or symptoms should undergo prompt bronchoscopy regardless of the radiologic findings To reduce morbidity and avoid more serious complications, attention must be given to early recognition of FBA, as well as to prompt identification of complications caused by the bronchoscopy.

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