

## ***Leading Article***

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### **Too Late Diagnosis of Foreign Body Aspiration in Children can Lead to Damaged Lungs**

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Foreign body aspiration (FBA) is not uncommon in our country<sup>1,2</sup>. Ninety percent of children who aspirate foreign bodies (FBs) are younger than 3 years and two thirds are boys<sup>3</sup>. There are several reasons for this: toddlers lack discretion concerning objects ingested, exploring the environment by oral tactile sensation; they lack molar teeth and thus chew foods poorly; and they often engage in play while eating. Foods and toys account for approximately 90% of FB aspiration in children<sup>4</sup>.

The manifestations of aspiration depend on the size of the FB, its composition, its location, the degree of blockage, and the duration of obstruction. History is of paramount importance in the diagnosis of FB aspiration because, the physical examination and radiographic study can be unremarkable as time passes after the acute event. The characteristic history of a choking crisis or gagging episode, followed by a coughing spell, should be carefully considered from the care takers<sup>5</sup>.

Most inhaled FBs travel distally into the tracheobronchial tree, but laryngeal impaction occasionally occurs and accounts for the highest rate of mortality in the aerodigestive tract (45%)<sup>6</sup>. Fortunately, most smaller, non-obstructing objects bypass the supraglottis, glottis, and trachea and lodge most commonly in the right main stem bronchus. Depending on the size, location, and nature of the FB, local irritation produces complaints that include cough, inspiratory stridor, hoarseness, wheezing, shortness of breath, and fever, symptoms that mimic the more common diseases of the respiratory tract, including asthma, bronchiolitis, laryngitis, pharyngitis, and croup. The absence of obvious symptoms after a witnessed choking episode does not exclude the presence of a retained FB. Following the initial episode of paroxysmal coughing, an asymptomatic lag period

occurs as the surface sensory receptors of the respiratory tract undergo physiologic adaptation. This situation may falsely reassure the parent and the physician that the child has cleared the airway.

Only two thirds of patients seek treatment within one week following aspiration<sup>7</sup>. Thus, the first symptoms prompting medical attention may represent a complication of FB impaction, such as chronic cough and fever due to recurrent or persistent pneumonia, bronchitis, or even bronchiectasis<sup>8</sup>. Atypical asthma is a common misdiagnosis assigned to unsuspected airway FBs<sup>9</sup>. Physician-related factors still account, for the largest portion of delay in diagnosis, with reliance on a negative radiographic report being one of the most important factors<sup>10</sup>. If the initial attack is not inquired or ignored, the child may develop recurrent respiratory symptoms with ultimate development of recurrent pneumonia followed by bronchiectasis and damaged lungs.

It is believed that delay could have been avoided with a more meticulous history taking, thorough physical examination, necessary investigations and appropriate referral. The delay in the diagnosis is due to lack of awareness of FBA in children, not inquiring about the episode of aspiration, and the ignorance about the consequences of FBA in children and further course of management. Sometimes, the attending doctor does not pay any heed to the complaints of mother about the episode of choking crisis following aspiration, rather reassure the mother of natural passage of the aspirated foreign body with stool. It occurs particularly in the situation where there is apparent improvement as the aspirated foreign body shifts from the common airway to any of the principal bronchus. Sometimes, diminished breath sound or localized wheeze may be heard on auscultation. Doctors confuse the clinical problem of the child as 'asthma'.

The complaints of the parents should be given crucial importance, the child is to be subjected to necessary

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investigations like chest x-ray and invasive procedures like fiberoptic bronchoscopy and if needed, rigid bronchoscopy to take out the aspirated foreign body. We have very limited facility for endoscopic examination of the airway by fiberoptic bronchoscopy, particularly in children below 10 years of age. The endoscopic airway examination in children was initiated in our country<sup>10</sup> but could not be sustained and no paediatrician is so far found to have developed interest in this sort of very useful and much needed investigation. This results in sufferings of the parents of the affected children with repeated hospitalization in different hospitals with the expectation of better treatment without fruitful results. This leads to the wastage of much time allowing the lungs to be damaged progressively.

The diagnosis of FBA can be delayed in terms of days to weeks<sup>11,12</sup>. But the length of much delay to the extent of years is not usually reported in the literature as the author experienced. The cause of such delay results from unawareness of the seriousness of FBA, ignorance about the symptoms and physical features of FBA and lack of readily available definite treatment, in terms of skilled manpower and facility for airway endoscopic examination in the country.

To prevent the delayed diagnosis of FBA: witnessed aspiration, coughing and choking crisis, unilateral decreased breath sounds and abnormal chest radiology need to be given utmost importance along with pediatric fiberoptic and rigid bronchoscopy services should be readily available.

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