

Norfloxacin Tablet Aspiration by an Infant - A Case Report

A.M. Shivakumar¹, J. Jeyashanth Riju², B.K. Venkatesha³, K. Rohit⁴

¹Professor and HOD, ^{2,4}Post graduate, ³Associate professor,
Department of Otorhinolaryngology, S.S.I.M.S & RC, Davangere-577005.

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Abstract :

Tracheobronchial foreign body (TFB) aspiration remains a frequent and serious problem in children with significant morbidity and sometimes associated with fatal sequel. The diagnosis is often delayed or overlooked. We report an infant who was admitted in intensive care unit with chest X ray showing right lung collapse. Bronchoscopy was done and norfloxacin tablet was extracted.

Key words: Norfloxacin, Aspiration, Foreign bodies, Bronchoscopy

Introduction

Tracheobronchial foreign body aspiration is a common cause for a paediatric respiratory emergency, especially in children whose parents do not recall a history of acute choking, coughing or witnessed aspiration episode, the diagnosis of a FB might be missed and delayed. Undiagnosed, retained TFBs may cause serious complications such as pneumonia, airway obstruction or atelectasis or can secondarily dislodge and cause fatal airway obstruction even if signs of tracheobronchial aspiration have disappeared. In those cases where clinical diagnosis of TFB is inconclusive, bronchoscopy is indicated, though it bears some risks.⁽¹⁾

Here is a case of norfloxacin aspiration in an 8 months old child, which was extracted by bronchoscopy.

Case Report

Eight month old baby was admitted to intensive care unit with complaints of acute onset of cough and fever. History revealed that baby had vomiting and diarrhea since one day, for which medication was prescribed with physician.

On examination baby was conscious, irritable, febrile with signs of dyspnea and tachypnea. Pulse rate: 150bpm, SpO₂ was 99% with oxygen and >88% at room air. Patient had reduced chest movement and reduced breath sound in right side.

Investigation revealed haemoglobin- 9.4g/dl, total count- 8,400 cells/cumm with differential count showing neutrophilia (78%), ESR-10mm/hr. Chest roentogram showed right lung collapse, right pneumothorax with mediastinal shift to right side and left side hyperinflated lung field (figure 1).

On detailed history mother revealed history of giving oral norfloxacin tablet to the baby. Rigid bronchoscopy was done after 36hours of aspiration and foreign body (i.e,tablet pieces) was removed using forceps and suctioning. Bronchial wash was done. After removal of foreign body, tracheobronchial tree was inspected, there were no signs of local inflammation or any reaction. (Figure 2)

Discussion

Despite several reports in the literature and emphasis on the dangers of foreign body aspiration, it remains a persistent problem for young children all over the world. Foreign body aspiration is responsible for approximately 2,000 deaths a year in children under 6 years of age in USA, and there is no evidence that the incidence is declining. Foreign body aspirations can be seen at any age, however, it has been reported to be observed under the age of 3 (73%) and particularly in children aged 1-3. Gürses et al. reported that 84% percent of the patients were under the age of three. The incidence is high in this age group because the teeth cannot chew effectively and consequently the food kept in mouth longer than normal may lead to the aspiration of solid material. Another significant reason is that the children under the age of two try to recognize almost every object by mouthing. Children also have tendency to have frequent, vigorous, uninhibited inspirations when startled, laughing or

Address Correspondence to :

Dr. Shivakumar A.M.

Prof & HOD, Dept. of Otorhinolaryngology
S.S.I.M.S. & R.C., Davangere-577 005.
Mob. : 9448277727

Email : amshivakumar1@gmail.com





Figure 1 : Preoperative chest X-ray of the case.

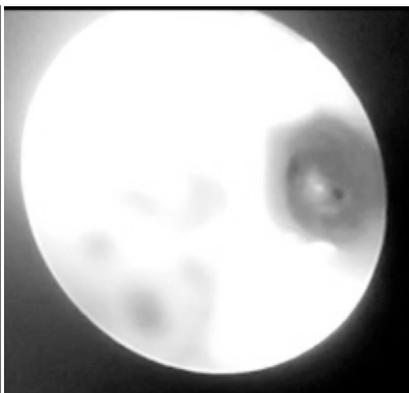


Figure 2 : Right main bronchus after bronchial wash.



Figure 3 : Postoperative chest X-ray of the case.

coughing. It has been reported that males suffer from foreign body aspiration more for unexplained reasons. The ratio is approximately 2/1. In one study, the male / female ratio was reported as 1.2/1. It has been attributed to rougher and more adventurous play in male children as well as the more curious and inquisitive nature of boys than girls.^(2,3)

Large meta-analysis done by Christina W. Fidkowski, *et al.*, analyzed recent epidemiology of foreign body aspiration, in 12,979 cases. Study showed Most (81%) of the aspirated foreign bodies are organic materials. Nuts (especially peanuts) and seeds (mainly sunflower and watermelon) are the most commonly aspirated foreign bodies reported in almost all studies. As was reported in 24 studies, the majority of foreign bodies (88%) lodge in the bronchial tree, with the remainder catching in the larynx or trachea. Higher incidence of right-sided foreign bodies (52%) in comparison with left-sided foreign bodies (33%) was reported in all of these studies, with the exception being a small series in Israel. Tracheobronchial foreign body aspiration is most often observed in the right bronchial system due to the fact that the right main bronchus is shorter, wider and more vertical, i.e., closer to the trachea than the left^{3,4}

On the other hand, the aspiration of toxic foreign bodies invariably leads to local airway inflammation and pneumonitis. Examples of this are found in case reports of aspiration of ferrous sulfate, aspirin, bismuth subgallate, cholestyramine, phenobarbital, pepper, mercury, barium sulfate, mineral oil, kaopectate and in case tetracycline. The most commonly reported effects have been those of aspiration of iron sulfate. A variety of effects ranging from bronchial necrosis and fatal pneumonia to a

chronic fibrosing granulomatous reaction and bronchial stenosis can occur. Delayed hemoptysis after removal of an iron tablet has also been reported. Aspirin aspiration in children has been reported to be associated with cardiorespiratory arrests, presumably due to laryngeal spasm from the irritant nature of the salicylate. A miliary granulomatous reaction may be seen with the aspiration of medications like cholestyramine, phenobarbital and phenytoin. Plastic or enteric-coated capsules seem to cause fewer complications. This may be due to a lack of proteolytic enzymes in the bronchus to dissolve the capsule.⁵

Yelizkarakan *et al.* reported a case of ciprofloxacin aspiration even in that case, interestingly, there was no bronchoscopic sign of chemical pneumonitis. A possible explanation for the absence of enlargement and chemical pneumonitis in the present case might be related to the pharmacological properties of the drug that not allow enlargement effect in wet conditions. This might apply to norfloxacin also, as seen in this case.⁶

Finding on physical examination may reflect the location of the object within the tracheobronchial tree if obstruction is severe. Chest auscultation is of great importance. The classic diagnostic triad of unilateral wheezing, cough and ipsilateral decreased breath sound is observed in fewer than 50% of cases. In fact, fewer than 60% will have obvious signs that suggest the correct diagnosis. A discrepancy in breath sounds between the sides of the chest is the most significant clinical finding. Stridor, prolonged expiratory phase, fever, nonproductive or purulent cough and haemoptysis have been observed less frequently.⁷

Early detection and removal of foreign body usually results in rapid resolution of symptom. Chest

radiograph should be routinely performed in suspected TFB. Over 90% of the foreign bodies are radiolucent. So a normal X-ray (20%) doesn't rule out foreign body. Other feature of chest X-ray includes hyperinflation, consolidation of involved bronchial segment or collapse, as in our case. Other rare complication reported are bronchiectasis and lung abscess.^{7,8}

In conclusion this is the first case of norfloxacin aspiration reported according to the best of our knowledge. Frequency of aspiration by child under 1 year is low (14.9%)³. Proper history taking is of great significance, including drug history in an infant. Foreign body should always be suspected whenever there is a cough immediately following intake of any solids and it can be supported by auscultatory and radiological finding. TBF aspiration is a highly preventable condition, public and parents should be aware and educated regarding the risk of type of food to be fed, to the child and aspiration.

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