Radiological Quiz

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Two year old daughter of a serving soldier was brought with a history of breathlessness. Her chest radiograph (AP view) is shown here (Fig. 1). What is your diagnosis?

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Fig. 1 : Chest radiograph (AP view)

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ANSWER TO RADIOLOGICAL QUIZ

Chest radiograph (AP view) shows a metallic foreign body in left main bronchus (arrow) with air trapping in the left lung (Fig. 2).

Discussion

A foreign body in the air passage is a common clinical problem in the paediatric age group. Merchant et al [1], have quoted an incidence of 0.53% pertaining to foreign body in the bronchi out of all the ENT admissions. Though foreign body aspiration occurs in all ages, it is common in children less than three years of age [2]. Boys are more commonly affected as compared to girls at a rate of 2:1 [3]. It is hypothesized that in the presence of inadequate swallowing reflex, failure of laryngeal closure reflex predisposes the paediatric patient to foreign body aspiration [4].

Foreign body impaction may manifest as cough, choking and in certain cases sudden wheezing. Approximately 40% of patients may have no clinical manifestation or any findings on physical examination [5]. The presentations like aphonia, massive subcutaneous emphysema, bronchial asthma, hemoptysis and bronchiectasis can be due to an underlying foreign body in the bronchus. A plain chest radiograph is the first procedure to be carried out in the suspicion of foreign body aspiration. The common findings on chest radiograph with foreign body bronchus are ipsilateral atelectasis or hyperinflation. The chest radiograph may

Fig. 2 : Chest radiograph (AP view) shows metallic foreign body (arrow) in the left main bronchous with air trapping in the left lung.

be normal in 6-80% of patients with foreign body aspiration [6]. The rare findings include mediastinal emphysema and pneumothorax. The presence of radio-opaque foreign body in the airway makes the diagnosis simpler in an appropriate clinical setting like in our case. Chest radiographs taken during inspiration and expiration are useful in detecting air trapped in the affected lung but it may be extremely difficult to time the exposure to the phase of respiration due to the lack of cooperation from a small child. Chest fluoroscopy may be useful to show features like obstructive emphysema, decreased diaphragmatic excursion or associated mediastinal shift [3]. Traditionally it is described that the right main bronchus being shorter and straighter anatomically is more often involved. However various studies show that left main bronchus is involved in equal proportion [7].

Once the diagnosis is made the urgency of the procedure depends on the clinical condition of the child. Flexible bronchoscopy should be considered in children who do not have a definitive history of foreign body aspiration. Rigid bronchoscopy is generally used to remove foreign bodies from the respiratory tract. Morbidity and mortality of bronchoscopy varies with the kind of foreign body aspirated and the clinical condition of the child. Rarely when rigid bronchoscopy fails, thoracotomy may be necessary to remove foreign bodies. Various long term complications like bronchiectasis, abscess and bronchial stenosis have been reported in case of retained foreign body for a long time [8].

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