

## An Unusual Case of Bronchial Stenosis

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### Investigation

Foreign body aspiration is common in children and notorious for an innocuous presentation in adolescents and adults. An 18-year-old girl presented with clinico-radiological presentation suggestive of post-obstructive consolidation with bronchostenosis. On fiberoptic bronchoscopy, a foreign body was visualised in the right lower lobe bronchus to which the patient admitted the accidental swallowing of the tip of a pen cap at the age of 11 years retrospectively. Foreign body aspiration presents with similar symptoms in adults and children, with the exception of the delay in diagnosis is common in adults. Bronchostenosis is a known complication of foreign body, however, our patient presented as masquerading bronchostenosis due to the characteristic lodgment of the pen cap.

### Case Summary

An 18-year-old girl presented with a one-month history of low-grade fever, right sided chest pain, dry cough and breathlessness on exertion. Clinical examination revealed signs of volume loss with decreased breath sounds on the right lower lobe areas, suggesting right lower lobe collapse with obstructed bronchus. Routine blood investigations were within normal limits. Chest radiograph confirmed the right lower lobe collapse (Figure 1). Contrast enhanced computerised tomography of thorax revealed high grade stenosis of distal intermediate bronchus involving the right middle and the lower lobe with a combination of consolidation, volume loss, air and fluid bronchograms (Figure 2). Sputum examination for Gram stain and acid-fast bacilli was negative. Spirometry showed a restrictive abnormality. Patient underwent fiberoptic bronchoscopy to confirm the diagnosis of bronchostenosis. It revealed a hollow greyish blue foreign body in the right lower lobe bronchus. On probing the patient she admitted to accidentally swallowing the tip of a pen cap at the age of 11 years. The foreign body was removed with rigid bronchoscopy (Figure 3). Post-procedure chest radiograph showed resolution of the right lower zone opacity.

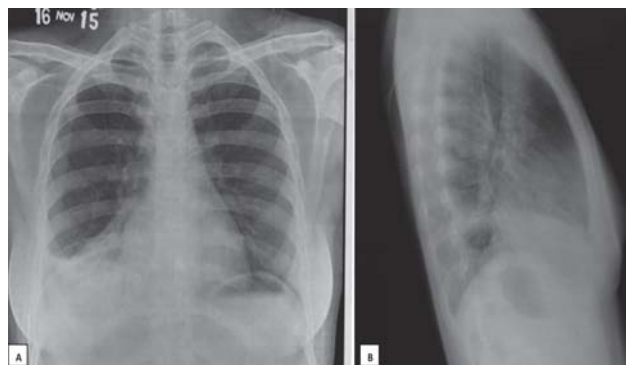


Figure 1 Chest radiograph (A) postero-anterior and (B) lateral view showing right lower lobe collapse.



Figure 2. Computed tomography with axial and reformatted coronal image showing high grade stenosis of distal intermediate bronchus involving the right middle and lower lobe with a combination of consolidation, volume loss and air bronchogram.

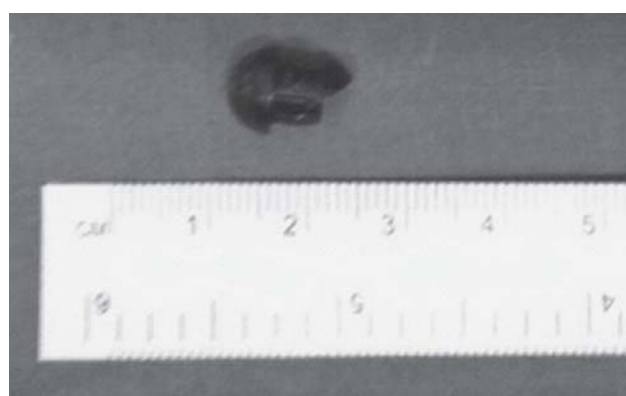


Figure 3. Photograph of the foreign body (cap of a pen) removed by rigid bronchoscopy.

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## Diagnosis

*Foreign body masquerading as bronchostenosis*

## Discussion

Foreign body inhalation and aspiration is common in children, especially those below the age of three years.<sup>1</sup> It presents with a history of an initial episode of choking and coughing, known as penetration syndrome, with subsequent respiratory symptoms, like cough, wheeze, stridor and pneumonia.<sup>1,2</sup> The most common physical sign is decreased or abnormal breath sounds.<sup>1</sup> If it causes airway occlusion, it may lead to asphyxia and death in childhood.<sup>3</sup> Most inhaled foreign bodies in children are food items, with peanuts being the most common.<sup>4</sup> Often a significant delay in diagnosis is known<sup>1,4,5</sup> due to a high rate of initial alternative diagnoses. Foreign body aspiration is misdiagnosed as asthma, upper respiratory tract infection, pneumonia, or croup.<sup>1</sup> The delay in diagnosis is lower among children due to higher vigilance and a more central position of the foreign body.<sup>6</sup> Delay in diagnosis is associated with increased morbidity, especially respiratory infection.<sup>5</sup> The most important feature of aspirated foreign body in children is the initial history of choking with a sensitivity of 96% and a specificity of 76%. However, the episode may be unwitnessed, or recollected only after specific inquiry.<sup>5</sup> Most foreign bodies in children are radiolucent, but these may be associated with hyperinflation, atelectasis, air trapping or consolidation. Management in children involves bronchoscopic extraction, resuscitation and supportive measures. If urgent operative removal is required it should be carried out by the most experienced surgical and anaesthetic personnel available.

Foreign body aspiration in adults/adolescents rarely presents as a serious medical condition and often remains undetected with innocuous presentation. Both adults and children present with similar symptoms, with the exception of the delay in diagnosis in adults.<sup>7</sup> Usually adult patients present with persistent respiratory symptoms and are examined for alternative diagnoses, like asthma, pneumonia, bronchiectasis or malignancy, unless there is a definite history of aspiration.<sup>8,9</sup> Occult foreign body aspiration in adults may be diagnosed due to incidental radiological changes like atelectasis, consolidation, bronchostenosis or air trapping as a

sequelae/ complication of superadded infections.<sup>10</sup> Flexible bronchoscopy may be used for the diagnosis.<sup>11</sup> However, flexible bronchoscopy plays little part in the extraction of foreign body wherein the rigid bronchoscopy is more useful. Bronchostenosis is a known complication of secondary infection with foreign body. In our case there was no true bronchostenosis but the clinical examination and CT misdiagnosed the foreign body as bronchostenosis due to the characteristic lodgment of the hollow pen cap. The history of foreign body aspiration was obtained only on retrospective questioning after the bronchoscopy. Thus, in cases of unexplained collapse/bronchostenosis especially in adolescents/adults, a differential diagnosis of foreign body must be considered.

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