CASE REPORT

An unusual mechanism of foreign body aspiration: a vignette from the emergency department

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SUMMARY

A 49-year-old male patient with asthma presented with what appeared to be an acute exacerbation of his condition. On closer questioning, he was admitted to 'inhaling something' that may have been caught in the mouthpiece of his inhaler and wondered whether there might be something in his chest. On examination, he had a monophonic high-pitched wheeze in his right mid-zone; chest X-ray confirmed the presence of a foreign body in his right main bronchus. As it was after normal working hours, he was referred for bronchoscopy under the cardiothoracic surgeons at St George's. He made a full recovery, and now keeps a used 5 pence coin in a jar on his mantelpiece.

BACKGROUND

It is such a simple message: keep the cap on your inhaler! This man failed to do so, as he frequently operated his inhaler single handed when on the move in his taxi. His wife, present, was quick to remind him how foolish he was!

CASE PRESENTATION

A 49-year-old male taxi driver presented to the emergency department (ED) with a 9 h history of worsening shortness of breath and right-sided pleuritic chest pain. His symptoms had been worsening since taking his salbutamol inhaler earlier that morning. This was unusual for him as his disease was very mild; he was on step II of the British thoracic society (BTS) guidelines for asthma, and he had never been hospitalised with his condition. On closer questioning, he stated that he thought he had felt something in his throat when using his inhaler earlier, and had had a coughing fit thereafter for a couple of minutes. Putting the sensation in his throat to one side, he assumed the coughing fit was down to poor inhaler use and got back to work. However, throughout the day, his shortness of breath and wheeze got worse and remained refractory to further salbutamol use. When he started developing sharp right-sided chest pain that got worse on inspiration that evening, he and his wife became concerned and attended the ED.

At the time of the assessment he was saturating at 98% on air and seemed comfortable. However, his respiratory rate was 28/min and there was a high pitched wheeze audible, even without a stethoscope.

On examination, I found a high pitched monophonic wheeze to his right mid-zone. The rest of his physical examination was unremarkable.

Evidently aware that this was not the normal examination finding for an acute asthma exacerbation, I questioned him further about the story of the 'sensation' in the back of his throat. He stated that he never kept the cap on his inhaler, as he operated it single handed while driving his taxi. Furthermore, he kept it in the same bag or pocket as his loose change. I realised that a chest X-ray was appropriate to hopefully exclude the possibility of an aspirated foreign body.

The chest X-ray revealed a 5 pence coin (I compared the size on the X-ray to one in my pocket!) lying longitudinally in his right main bronchus (figures 1 and 2). His right lung field was unaffected, I suspect largely because of the position of the coin within the lumen.

Pleased with the concise diagnosis, I informed the patient, with whom I had developed a good rapport during the consultation. Our joint working diagnosis was therefore that a coin had lodged in the unguarded mouthpiece of his inhaler when in his bag, and had been aspirated at the time of his shortness of breath that morning.

He could only hang his head with a rueful grin, as his wife chastised him thoroughly for his failure to keep the cap on his inhaler!

INVESTIGATIONS

Chest X-ray.

DIFFERENTIAL DIAGNOSIS

- ▶ Acute asthma exacerbation
- ▶ Aspirated foreign body

Figure 1 Anteroposterior chest X-ray showing foreign body.

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Figure 2 Lateral chest X-ray confirming position of foreign body.

TREATMENT

In the short term, his management consisted simply of continuous monitoring, especially his oxygen saturations which may have indicated a change in position of the coin if they had dropped. Other than that he had no analgesia requirements and his wheeze was mild only.

He was transferred later that evening to the cardiothoracic surgeons at St George's for further observation and bronchoscopy the following morning.

OUTCOME AND FOLLOW-UP

The coin was removed without any difficulty the following morning and the man left hospital the same day.

DISCUSSION

The only other case report that I could find which pertains to foreign body inhalation secondary to inhaler use, was published by Campisi *et al.*¹ The case describes a 27-year-old man inhaling a 22 mm plastic disc from his turbohaler after tampering with it.

I was unable to find a case report that related specifically to foreign body inhalation after failing to replace the cap on an inhaler.

However, I did perform a literature search of tracheobronchial foreign body aspiration, regardless of mechanism. Limper *et al.*² published a report of 60 cases of aspiration which focused on the treatment rather than the mechanism. Of the 60 cases that were evaluated retrospectively, 25 had impairment of protective airway mechanisms, ie, sedative or alcohol use, loss of consciousness through trauma, or primary neurological disease.

Fifty-seven of these patients were successfully managed with either rigid or flexible bronchoscopy. The remaining three patients were referred for thoracotomy.

They concluded that foreign body aspiration was rare and could occur in a variety of clinical settings. A high degree of clinical suspicion is required for diagnosis, and removal can usually be achieved with bronchoscopy. This obviously correlates closely with my own clinical scenario.

Soysal *et al.*³ retrospectively evaluated 140 cases of foreign body aspiration. Of each patient they recorded 'age, sex, symptoms, duration of symptoms, findings on physical examination and chest X-ray, location and type of foreign body, complications related to aspiration itself or to extraction, and outcome'.

In their study, 78 patients presented within 24 h of aspiration. The symptoms or signs most commonly found were cough, dyspnoea, stridor and decreased breath sounds on auscultation. All 140 patients underwent rigid bronchoscopy, but only 110 had the foreign material removed by these means.

In 25 cases, no foreign body was detected via bronchoscopy. In the remaining five cases, the material was visualised but could not be removed via the scope, and three of these patients required thoracotomy for the removal. Eleven patients developed morbidity after bronchoscopy.

They went on to conclude that a history suggestive of foreign body aspiration is a definite indication for bronchoscopy, and bronchoscopic extraction should only be performed by experts.

Learning points

- ▶ Always replace the cap on an inhaler after use!
- ▶ This is especially pertinent if the inhaler is kept unguarded in a man's pocket full of other debris, and is operated during a busy taxi driver's shift when his attention was surely on the traffic ahead of him.
- ▶ Maintain a high degree of suspicion towards alternative diagnoses, even when a man with a 50-year long asthma history attends the emergency department with an apparent asthma exacerbation.

Competing interests None.

Patient consent Obtained.

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