

Barium aspiration, not observed during videofluoroscopy but confirmed incidentally on routine chest X-ray

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ABSTRACT The authors present a case of barium aspiration during videofluoroscopy that was not diagnosed at the time of the procedure, but on a chest X-ray five months later.

KEYWORDS Aspiration, barium, videofluoroscopy

LIST OF ABBREVIATIONS Chest X-ray (CXR), forced expiratory volume in one second (FEV1), high-resolution computerized tomography (HRCT), subdural haematoma (SDH), vital capacity (VC), videofluoroscopy (VFS)

DECLARATION OF INTERESTS No conflict of interests declared.

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CASE REPORT

An 81-year-old male non-smoker, with a history of metoclopramide drug-induced parkinsonism, mild asthma and epilepsy following SDH, was referred for swallowing assessment following choking episodes and coughing after food. Videofluoroscopy demonstrated reduced automatic swallow, resulting in the pooling of saliva in the epiglottic vallecula and the hypopharynx. There was no evidence of aspiration during the test.

The patient was referred to the respiratory clinic five months later after a CXR (Figure 1), as part of investigation for recurrent falls, revealed dense bilateral nodular shadowing in both lung fields. He reported chronic mild exertional dyspnoea, which was unchanged over the previous five years. There was no occupational history of exposure to asbestos or other occupational dusts. Current medications were phenytoin, isosorbide mononitrate and inhaled beclomethasone and salbutamol. Chest auscultation revealed normal vesicular breath sounds, and oxygen saturation was 96% on air. Spirometry revealed an FEV1 of 2.3 (predicted 2.6) and VC 3.2 (predicted 3.5), which was similar to previous measurements in 1996.

In view of the unusual CXR appearance, a HRCT scan was performed. This confirmed the presence of predominantly right-sided dense basal micronodular shadowing with calcification (Figure 2). In view of the patient's previously normal CXR and the absence of other significant respiratory disease, the radiological abnormalities were felt to be due to barium aspiration following his VFS five months earlier.



FIGURE 1 Chest X-ray showing bilateral basal dense calcifications more apparent in the right lung.

DISCUSSION

Barium sulphate is an insoluble salt, which is used in the investigation of the upper gastrointestinal tract, including assessment of aspiration risk. The amount used is usually small and harmless, although there have been reported cases of respiratory failure and death following aspiration of significant quantities.^{1,2} The area of the lung affected usually depends on the position of the patient during and shortly after the barium study, with the basal segments of the lower lobes most commonly involved.³

Aspiration is common in several conditions, including neurodegenerative conditions, and leads to an increased risk of respiratory illness. Videofluoroscopy is often a

useful assessment of swallowing difficulties, but should not be considered a 'gold standard' test due to poor interobserver reproducibility of test scoring.⁴ Up to two-thirds of patients with pharyngeal residue and dysphagia have radiological evidence of overflow aspiration.⁵ However, pharyngeal residue in the vallecula and pyriform sinuses is common in the elderly, seen in up to 25% of asymptomatic individuals.⁶

CONCLUSION

In the current case we showed how barium aspiration was demonstrated, and therefore confirmed the clinical suspicion of lung aspiration retrospectively from CXR appearances, although no aspiration was documented during VFS. We suggest that follow-up CXR after VFS may provide an alternative strategy for confirming lung aspiration when there is no aspiration observed during VFS but clinical suspicion persists.

Consent: The patient has given his consent for the case report to be published.



FIGURE 2 Barium accumulation in the right lower lobe on an HRCT scan.

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