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CLINICAL IMAGE

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Barium sulfate aspiration pneumonia: A fatal case of death

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Abstract

Accidental aspiration of barium is a rare event. We present the case of a patient who, after the administration of barium, he showed sudden cough with dyspnea and vomiting and chemical pneumonia with areas of consolidation. The case emphasizes caution when administering barium to patients at risk of aspiration.

KEYWORDS

aspiration pneumonia, barium, death, forensic pathology, radiology

A 54-year-old man with stomach pain went to the hospital for an esophagus-gastro-duodenoscopy. In his medical history, he had a chronic obstructive pulmonary disease and gastroesophageal reflux. The endoscopic examination showed no pathological changes; an X-ray examination was recommended to evaluate the esophageal transit due to the patient's difficulty in ingesting food with vomiting. The method with the barium sulfate meal was chosen to evaluate the transit esophagus-stomach-bowel. Following the administration of the barium, the patient began to have a sudden cough with dyspnea and vomiting. The patient presented with de-saturation. He was transferred to intensive care unit for intubation. A chest X-ray showed the barium inside the lungs with altered ventilation/perfusion (V/Q) ratio. The patient underwent bronchioalveolar lavage. The man died of acute respiratory failure. The autopsy showed diffuse intra-alveolar spreading of barium (Figure 1) with whitish areas of consolidation (Figure 2) throughout the lung parenchyma (Figures 3-4). For patients at risk of aspiration, administration with reduced volumes of barium sulfate is recommended.[1,2] In these cases, ingestion should take place slowly (at least thirty minutes), under close health surveillance and through gradual steps. We also suggest filling in a form with indication of the timing of ingestion and the number of steps performed, the volume of barium ingested and the total

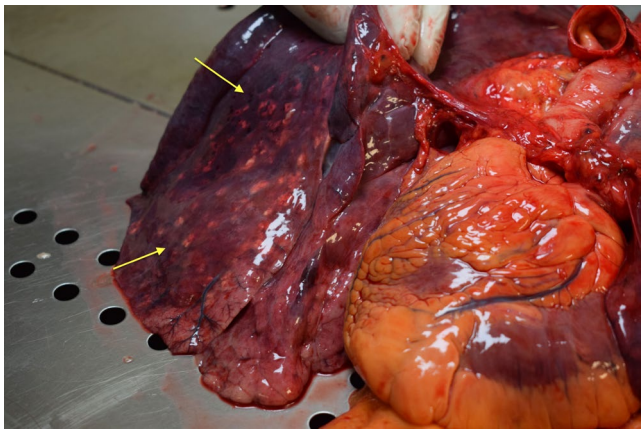

FIGURE 1 Lungs with whitish areas of consolidation (markings)

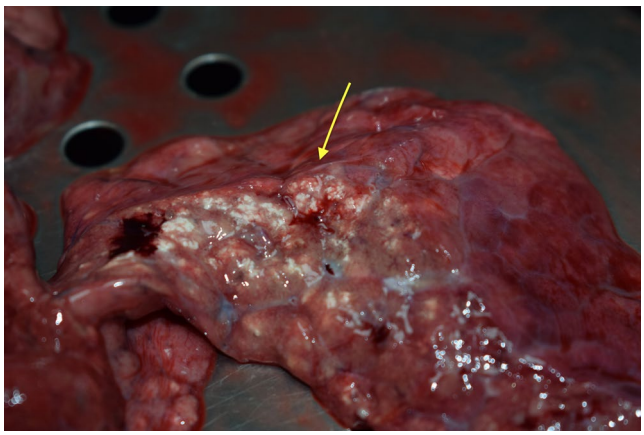

FIGURE 2 Detail of the chemical pneumonia from barium sulfate aspiration

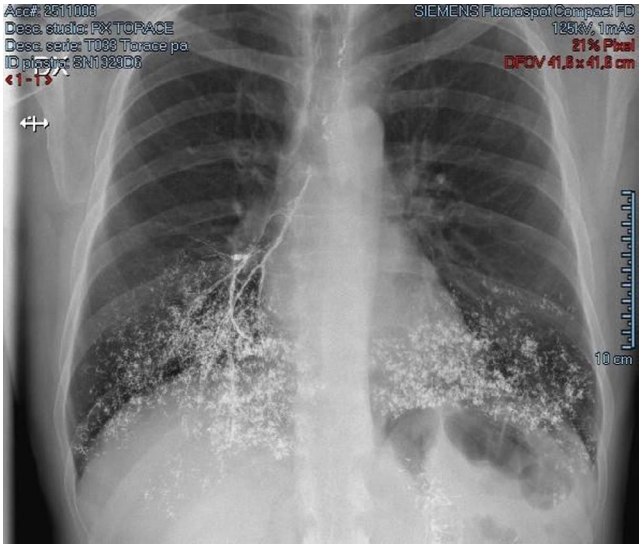

FIGURE 3 X-Ray chest image showing bilateral opacification of bronchial tree

patient monitoring time. In patients with dysphagia and higher risk of aspiration, also iso-osmotic agents may be considered, if available. In the case of barium use, a lateral projection fluoroscopy of the pharyngeal phase of swallowing should be considered.

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None.

CONFLICT OF INTEREST

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

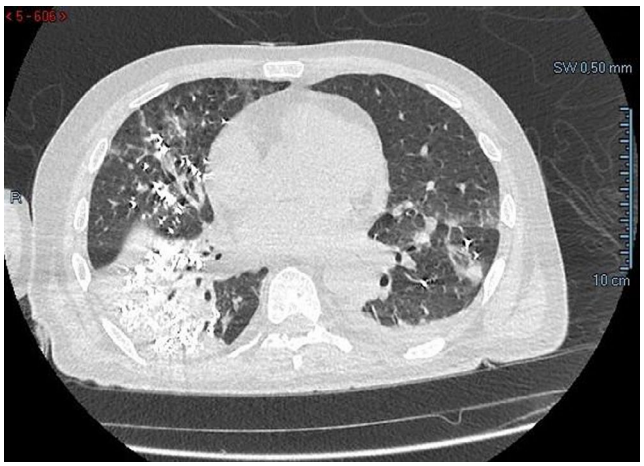

FIGURE 4 CT chest image showing presence of barium at the pulmonary bases with thickening of the basal parenchyma of the right lung

AUTHOR CONTRIBUTIONS

M.A.S. wrote the manuscript; P.R. contributed to editing of the manuscript and analysis of the case; I.A. conceived the idea of the manuscript, coordinated the realization and writing of the paper, and took the photographs.

CONSENT

The authors retain informed consent signed by the deceased's next-of-kin.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no datasets were generated or analyzed during the current study.

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