

Double gastric fluid level and aspiration pneumonitis in kerosene poisoning

Ryuki Esashi,¹ Hirohisa Fujikawa ,^{1,2} Yu Kataoka,¹ Minoru Saito¹

¹Department of Internal Medicine, Suwa Central Hospital, Chino, Nagano, Japan

²Department of Medical Education Studies, International Research Center for Medical Education, Graduate School of Medicine, The University of Tokyo, Bunkyo-ku, Tokyo, Japan

Correspondence to
Dr Hirohisa Fujikawa;
hirohisa.fujikawa@gmail.com

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DESCRIPTION

An 85-year-old man with severe Alzheimer's dementia presented to the emergency department with dyspnoea and cough. The patient was discovered having a cup of clear liquid in a kerosene odour-filled room. He did not recollect what he had done. On physical examination, he had a respiratory rate and oxygen saturation of 30 breaths/min and 94%, respectively, while breathing ambient air. Chest auscultation revealed bilateral coarse crackles, while no remarkable laboratory findings were found. Chest X-ray showed consolidation in bilateral lower lobes, and chest–abdomen–pelvis CT revealed double gastric fluid level (figure 1A) and consolidation in the right middle and left lower lobes (figure 1B). The patient, who was diagnosed with kerosene poisoning and aspiration pneumonitis, recovered following the intravenous administration of sulbactam–ampicillin.

Kerosene is produced from the fractional distillation of petroleum oil and is widely used as a fuel.¹ The majority of cases of kerosene ingestion are unintentional poisoning in children, whereas it is for suicidal purposes among adults. To the best of our knowledge, this is the first case of accidental kerosene ingestion by an elderly patient with severe dementia.

Although kerosene ingestion may possibly lead to various complications including encephalopathy and arrhythmia, it mainly involves the respiratory system.² Due to kerosene's low viscosity, a prompt diffusion occurs throughout the bronchial mucosa, causing severe lung inflammation after aspiration.² Aspiration of hydrocarbons leads to two types of histopathological changes: a generalised hyperaemia and a focal bronchopneumonia.³ Because patients with respiratory symptoms soon after ingesting kerosene commonly progress fulminantly to respiratory failure, early recognition and intervention are critical. Chest imaging typically

Learning points

- ▶ Accidental ingestion of kerosene can lead to severe chemical pneumonitis and respiratory failure, requiring immediate intervention.
- ▶ The double gastric fluid level provides clues for diagnosis of kerosene ingestion, even if the physician is unable to obtain a history from the patient.

demonstrates bilateral interstitial infiltrates in the middle and lower lobes.⁴

Management of kerosene ingestion is mainly supportive care including oxygen inhalation and close monitoring of respiratory status.^{2,5} Although antibiotics are frequently prescribed, routine prophylactic antimicrobial use is not recommended for kerosene-induced pneumonitis.² While one study showed that chemoprophylaxis appeared to decrease morbidity,⁶ another study revealed no evidence that recommended for use of antibiotics.⁷ Antibiotics are generally considered to be of use only if signs of secondary infection are present.² Corticosteroids also should be avoided.^{2,7}

Daffner *et al* reported double gastric fluid level in kerosene poisoning,⁸ which was identified on the chest plain radiography in 22 of 52 cases. The minimal amount of kerosene required to produce this sign was 5 mL. Although the precise sensitivity and specificity are unknown, the sharpness of the kerosene–air interface is considered characteristic.⁸ To the best of our knowledge, this report is the first to describe the double gastric fluid level on CT in kerosene poisoning, showing that, although the patient did not remember the history of the present illness, the finding of double gastric fluid level with the typical chest imaging led to the diagnosis of kerosene ingestion.

As the number of elderly people with dementia is increasing worldwide, clinicians may encounter an increasing number of kerosene ingestion cases as well, similar to the present case. CT may provide clues for early diagnosis of kerosene ingestion.

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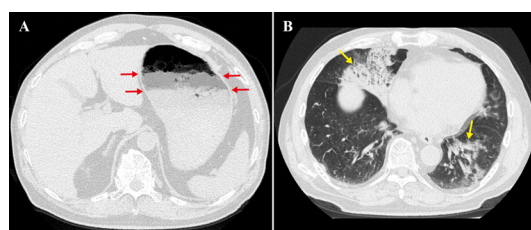


Figure 1 (A) Chest–abdomen–pelvis CT showing a double gastric fluid level (red arrows). (B) Chest–abdomen–pelvis CT showing consolidation in the right middle and left lower lobes (yellow arrows).



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ORCID iD

Hirohisa Fujikawa <http://orcid.org/0000-0002-8195-1267>

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