

**A rare case of fatal acute  
respiratory distress syndrome  
following diesel oil siphonage**

Sir,

Diesel oil aspiration is an uncommon mode of

hydrocarbon aspiration and can lead to severe chemical pneumonitis either due to direct inhalation of aerosol or aspiration of liquid or indirectly following aspiration of vomitus secondary to diesel oil ingestion during the manual siphoning from fuel tanks. Siphonage of fuel from the motor vehicles fuel tanks is a typical practice seen in third world countries. Data are sparse on outcomes and complications of direct diesel oil aspiration following manual siphoning.<sup>[1,2]</sup>

We report a case of 21-year-old male industrial worker who was admitted to the emergency room with a history of diesel oil ingestion and aspiration following accidental siphoning of oil. He was febrile, dyspneic with altered sensorium and having feeble pulse (pulse rate-124/min) and falling blood pressure (82/40 mmHg). On auscultation of chest, coarse, basal, inspiratory crepitations were heard. Arterial blood gas (ABG) analysis showed severe hypoxemia with metabolic acidosis. In view of deteriorating clinical condition, his trachea was intubated with endotracheal tube and was supported with intravenous fluids and inotropes. He was then shifted to intensive care unit (ICU) for mechanical ventilatory support and further management. In ICU, chest X-ray Anteroposterior view (AP) showed bilateral, non-segmental, homogeneous opacities in the lower zones. There was a significant increase in leukocyte counts (total leukocyte count-16,200/UL, neutrophils 92%). Empirical broad spectrum antibiotics (piperacillin/tazobactam 4.5 g IV q8h) were immediately started after sending blood and tracheal aspirate for culture and sensitivity. On day 2 in ICU, the patient's clinical condition deteriorated dramatically. Chest X-ray showed bilateral progression of infiltrates involving nearly all lobes of the lungs. ABG analysis showed severely diminished PF ratio (PaO<sub>2</sub> / FIO<sub>2</sub> < 100). These findings were suggestive of a severe form of acute respiratory distress syndrome (ARDS).<sup>[3]</sup> Aggressive supportive therapy and low tidal volume ventilation strategy was immediately initiated.<sup>[4]</sup> We also started a continuous infusion of low dose methylprednisolone (@ 1 mg/kg/day after giving bolus of 1 mg/kg IV). On day 5, he had an episode of pulseless ventricular tachyarrhythmia, unresponsive to all possible resuscitative measures and eventually expired that day.

Direct aspiration of hydrocarbons may cause severe chemical (lipoidal) pneumonitis with perilous outcome.<sup>[2,5]</sup> The severity of lung tissue damage depends on physical characteristics of hydrocarbon, which includes viscosity, volatility and side chains of hydrocarbons. The probability of severe lung affliction

is extensive with hydrocarbons having high volatility and low viscosity (<60 saybolts seconds universal (SSU)).<sup>[6]</sup> Diesel fuel (grade 1D and 2D) have a low viscosity (32-45 SSU) and is highly volatile and a potential hydrocarbon to cause severe progressive lung damage and fatal ARDS.<sup>[6]</sup>

In early period of hydrocarbon induced pneumonia, patients may have non-specific symptoms such as cough, breathlessness and rarely chest pain or haemoptysis.<sup>[7]</sup> Later, these patients may develop cardiomyopathies or fatal cardiac arrhythmias.<sup>[7]</sup> Although right middle lobes are commonly affected by direct aspiration of diesel, chest radiographic findings may include consolidation, atelectasis, pleural effusion and lower lobe involvement as seen in this patient.<sup>[1,2,8]</sup>

The management strategies in these patients are usually symptomatic and supportive. There is limited and controversial role of corticosteroids and antibiotics with sparse data on outcomes.<sup>[1,8]</sup> This patient showed accelerated deterioration of lung functions and eventually expired due to fatal cardiac arrhythmias within a period of 4 days despite initiating corticosteroids, broad-spectrum antibiotics and strict adherence to ventilator protocols followed in ARDS patients.<sup>[4]</sup>

This case highlights that chemical pneumonitis triggered by direct diesel oil aspiration following manual siphoning is a pernicious clinical condition in which lung damage is progressive and extensive resulting in ARDS, which seldom respond to standard management strategies. Moreover, death can ensue due to fatal cardiac arrhythmias even in early course of the disease. Critical carers should circumspect this rare and fatal clinical condition early in its course and should intervene with aggressive management strategies to avoid cataclysmic outcomes.

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Quick response code	Website: <a href="http://www.ijaweb.org">www.ijaweb.org</a>
	DOI: 10.4103/0019-5049.123345