Case report

Severe respiratory failure due to embolization of cyanoacrylate sclerosant

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Learning Point for Clinicians
N-butyl-2-cyanoacrylate sclerotherapy is increasingly used for the management of acute variceal haemorrhage. Sudden respiratory distress post-endoscopic sclerotherapy should prompt investigation for pulmonary embolization of cyanoacrylate sclerosant.

Case report
Gastric variceal bleeding is a serious complication of portal hypertension with significant morbidity and mortality to the patient. Endoscopic injection of N-butyl-2-cyanoacrylate (N-BCA) is widely used for the control of gastric variceal bleeding with initial haemostasis of 87–100%. We present a case of severe respiratory failure due to pulmonary embolization of cyanoacrylate sclerosant used in variceal sclerotherapy with accompanying radiographic images.

A 47-year-old man with known hepatitis C, alcoholic liver cirrhosis, portal hypertension and oesophageal varices presented to the emergency department with massive haematemesis and haemorrhagic shock. Following resuscitation and endotracheal intubation, urgent upper gastrointestinal endoscopy confirmed the presence of bleeding gastric varices. Endoscopic injection of sclerotherapy was performed using N-BCA (Histoacryl® BBraun Medical). Haemostasis was achieved and there were no immediate complications. Following the procedure, the patient had two failed trials of extubation, both occasions marked by the development of hypoxaemia and respiratory distress. Subsequent chest radiograph revealed numerous branching hyperdensities throughout the lung fields (Figure 1A). Computed tomography scanning identified multiple vascular densities consistent with a diagnosis of cyanoacrylate emboli (Figure 1B). The patient had a prolonged ICU course complicated by ARDS, ventilator-associated pneumonia and encephalopathy, eventually culminating in death due to recurrent gastric variceal bleeding.

Discussion
Gastric variceal bleeding is a common complication of portal hypertension that carries a high mortality, estimated to be 30–53%. Emergency management of acute bleeding involves either sclerotherapy injection or band ligation of the varices in combination with pharmacological agents such as terlipressin or octreotide.

Two randomized controlled trials of ligation and N-BCA sclerotherapy showed reduced re-bleeding rates with sclerotherapy. N-BCA biological glue is a watery solution that polymerizes and hardens instantaneously on contact with ionized material such as blood and endothelium, resulting in a clot in the vessel where applied. Reported complications after endoscopic injection of sclerotherapy include dysphagia, sepsis...
and fever. Serious complications, including embolization to brain, portal vein and the lungs, are rare but have been previously reported. Systemic embolization of cyanoacrylates appears to occur most commonly via the gastrorenal and splenorenal veins. The incidence of N-BCA pulmonary embolism following endoscopic sclerotherapy is unclear owing to the small number of reported cases. The reported severity varies from asymptomatic to fatal. A diagnosis of N-BCA lung emboli should be considered in any patient with new respiratory failure or fever, cough, tachycardia, pleuritic chest pain or dyspnoea after endoscopic sclerotherapy. Chest radiography or non-contrast-enhanced computed tomography can be used to confirm the diagnosis. There is no definitive treatment for glue embolism, besides supportive care and the management of complications.

Conflict of interest: None declared.

References