Glue pulmonary embolism and pulmonary oedema as a rare complication after endovascular embolisation of oesophageal varices

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DESCRIPTION
A 51-year-old woman presented with dyspnoea of acute onset. The patient had a history of decompensated alcoholic chronic liver disease with portal hypertension and bleeding oesophageal varices treated with transjugular intrahepatic portosystemic shunt and endoscopic glue embolisation, respectively. CT pulmonary angiogram (CTPA) revealed multiple bilateral high-density emboli within lobar, segmental and subsegmental pulmonary arteries (figure 1) with associated radiographic features suggestive of pulmonary oedema (figure 2).

Non-thrombotic pulmonary embolism is defined as the embolisation of pulmonary circulation by any material other than thrombus including different cellular types (adipose, amniotic, neoplastic), micro-organisms, gas and foreign body. Cyanocrylates (glue) are frequently used for treatment of variceal bleeding. The liquid monomer polymerises and becomes solid when exposed to blood. Glue embolism has a reported incidence of 0.5%–4.3%, with its risk depending on glue volume, injection rate and variceal diameter. Pathophysiologically, the embolism occurs due to patent portosystemic vascular shunts, present in portal hypertension.

CTPA represents the primary imaging modality for detection of embolic material within the pulmonary arteries and evaluation of parenchymal changes. Window setting should be carefully adjusted so that contrast enhancement does not obscure the embolic material. Parenchymal findings include pulmonary oedema, although glue plugs can be colonised by bacteria, thus leading to abscess formation. Presentation varies from asymptomatic to death after massive pulmonary embolism and can start during endoscopy or show a delayed onset. Symptoms may resolve over the following days after conservative management.

Learning points
► Pulmonary embolism caused by glue used to treat variceal bleeding is a rare entity. Transjugular intrahepatic portosystemic shunt may act as a portosystemic vascular shunt, allowing for the circulation of glue from oesophageal varices to the inferior vena cava and pulmonary circulation.
► CT pulmonary angiogram is the imaging modality of choice for this diagnosis, visualising the foreign material lying within the branches of the pulmonary artery. Pulmonary oedema can be an additional manifestation of this entity.
► It is essential to carefully adjust window settings so that intravenous contrast material does not obscure the embolised material.


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**REFERENCES**