



Medical Imagery

Man with Shortness of Breath

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A man aged 61 years presented to our emergency department with a 2-day history of increasing shortness of breath. The patient had a history of herniation of the intervertebral discs following kyphoplasty 1 month previously. He had a blood pressure of 120/87 mmHg, a pulse rate of 116 beats/min, a respiratory rate of 16 breaths/min, and an oxygen saturation of 100%. He reported mild chest tightness without fever, cough, or back pain. Electrocardiography revealed right ventricular hypertrophy (Figure 1A), and laboratory results, including complete blood count, gas, and troponin, were unremarkable. Chest radiography followed, and computed tomography (CT) were obtained (Figures 1B and 1C). The imaging results revealed considerable high-density material consistent with cement pulmonary embolism. This is a rare complication of kyphoplasty, for which polymethylmethacrylate (bone cement) is injected into the desired vertebral body. The pathophysiology of pulmonary cement embolization involves accidental extravasation of bone cement into the valveless vertebral venous plexus, from where cement enters thoracic venous system.¹ Vertebral compression fractures patients with heart failure, coronary artery disease, and receiving antihypertension medication were prone to developing venous thromboembolism.²

Typical CT images exhibit multiple dense tubular opacities located along the course of the pulmonary arteries. However, the present patient's images revealed a consistent blockage in the main pulmonary trunk. This unusual result may have been due to the different viscosities of bone cement. The various treatment options depending on amount of cement embolized and patient's severity of symptoms are anticoagulation, percutaneous removal, cardiopulmonary bypass and surgical removal.³ Surgical embolectomy was selected for the present case. After the surgery, the patient recovered well and was discharged without further incident.

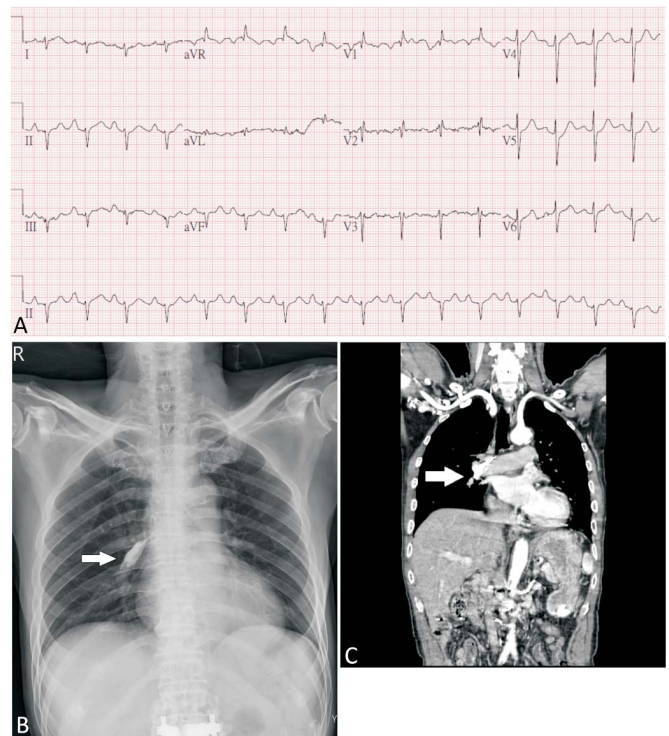


Figure 1. (A) Electrocardiography revealed right ventricular hypertrophy (Dominant R wave in V1 and dominant S wave in V5, V6). (B) Chest radiography revealed ill-defined lesion (arrow). (C) Computed tomography revealed high-density material in right pulmonary trunk, consistent with cement pulmonary embolism (arrow).

References

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