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IMAGE

Developing Westermark Sign

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One evening, a 74-year-old lady with background of stable angina was admitted to the Acute Medical Unit of our hospital via the Emergency Department with central chest tightness. Clinical examination had revealed a pulse of 87, oxygen saturation of 93% on room air, and a blood pressure of 155/86 mmHg. Her electrocardiograph (ECG) was normal sinus rhythm. Her first chest radiograph had been unremarkable (Figure 1). She had raised troponin-I at 74 ng/L (<40 ng/L) and was treated as non-ST-elevation myocardial infarction (NSTEMI). In the early hours of the morning she was transferred to the Coronary Care Unit. The following morning, during the post-take ward round, her oxygen requirements had increased, and she was saturating 94% on 4 litres of oxygen. On further questioning, she reported a gradual shortness of breath over the last 1 week. Furthermore, prior to her transfer to Coronary Care Unit she had had a brief period of syncope which she had not reported to the nursing staff. A repeat chest radiograph revealed oligaemia of the right lung which is known as Westermark Sign (Figure 2). A computed tomographic (CT) pulmonary angiogram revealed a pulmonary embolus in the corresponding region (Figures 3 and 4) and a deviated cardiac interventricular septum (Figure 5). She recovered well with anticoagulation. Westermark Sign has a reported sensitivity of 14% and specificity of 92% [1].

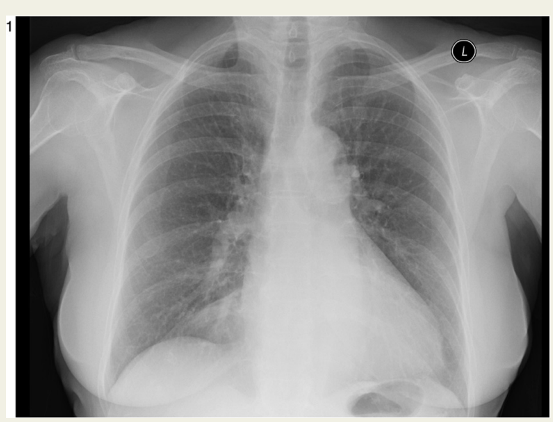

Figure 1 Admission chest radiograph.

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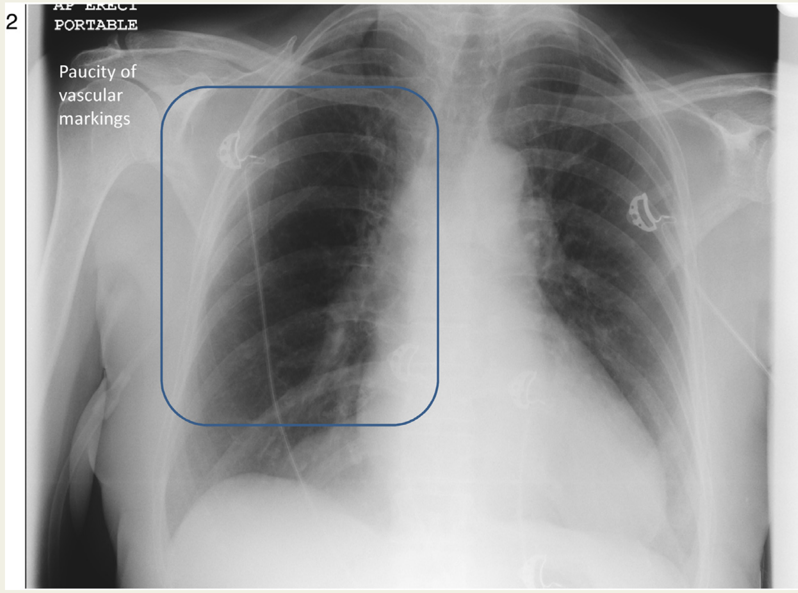

Figure 2 Repeat chest radiograph showing Westermark Sign.

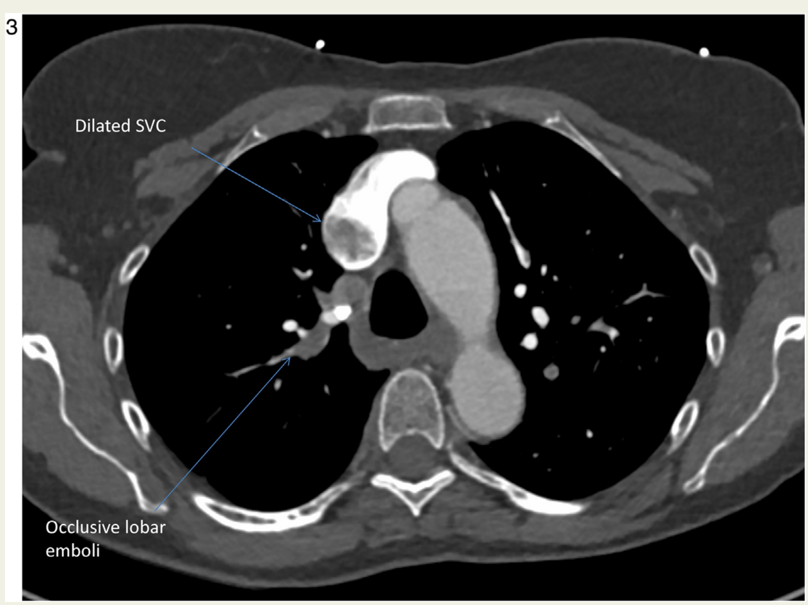

Figure 3 Images from computed tomography (CT) pulmonary angiograph illustrating occlusive emboli.

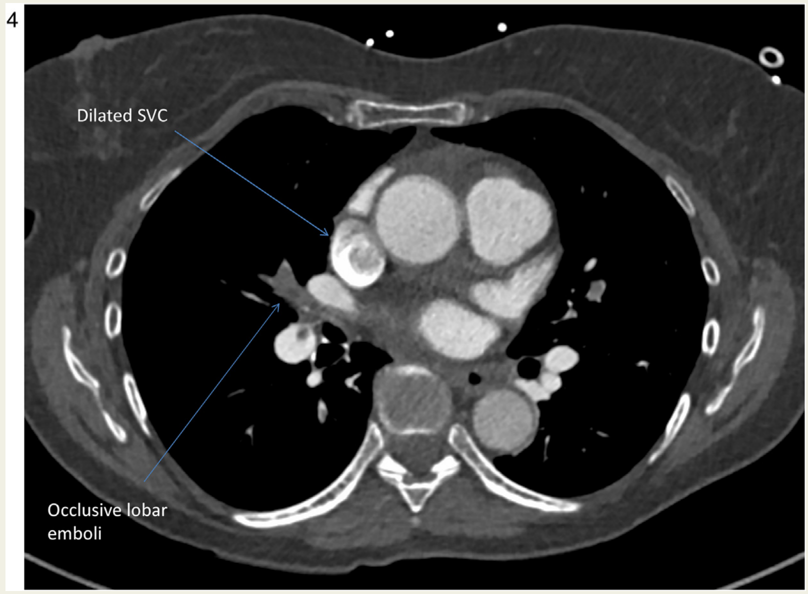

Figure 4 Images from CT pulmonary angiograph illustrating occlusive emboli.

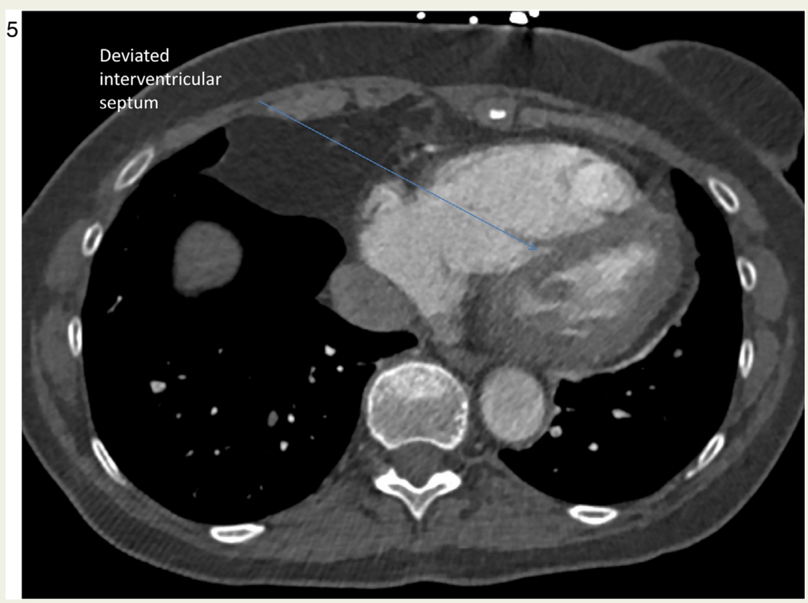

Figure 5 Images from computed tomography (CT) pulmonary angiograph illustrating right heart strain.

Reference

[1] Worsley DF, Alavi A, Aronchick JM, Chen JT, Greenspan RH, Ravin CE. Chest radiographic findings in patients with acute pulmonary embolism: observations from the PIOPED Study. Radiology 1993;189(1):133–6.