

# Acrylcement pulmonary embolism

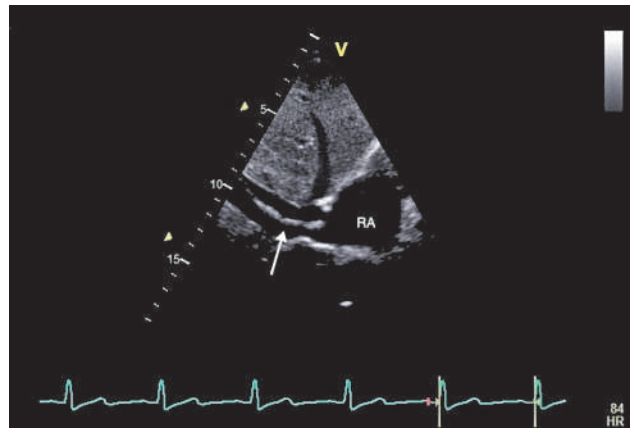
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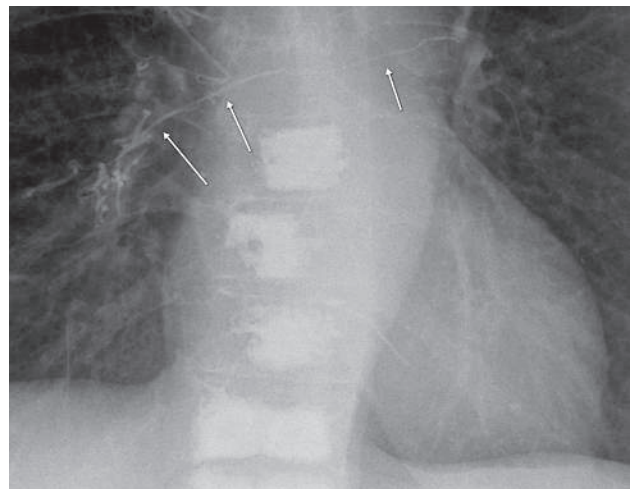
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A 70-year-old woman with multiple osteoporotic fractures was treated by kyphoplasty for the fractured vertebrae D11–12, L1, L3–4 in one session without complications and by vertebroplasty for D8–10 and L2 after another four days. During vertebroplasty using fluoroscopy intra-operatively the surgeon discovered bone cement entering in the perivertebral venous system. The patient was monitored in the ICU. No cardiovascular or arrhythmic complications occurred. An echocardiography showed a long and thin echo-dense, ice hockey stick like structure, floating in the IVC (fig. 1, arrow, video 1) reaching the right atrium (video 2). Another part of this structure was seen in the bifurcation of the pulmonary artery. It seems that the filiform embolus had broken passing the right ventricle. Multiple embolisms were visible on the conventional thoracic X-ray (fig. 2 and 3, arrows) and could be verified on a CT scan (fig. 4, arrows). Vertebroplasty and kyphoplasty are vertebral augmentation procedures being performed with increasing frequency. It is still debated whether the long term efficacy of these invasive procedures outweighs conservative treatment [1]. They carry some risks of complications, such as acrylic cement leakage out of the vertebrae causing local nerve root injury or entering in the venous system causing systemic venous and pulmonary embolism [2, 3]. Most of the embolisms are small and asymptomatic, rare cases are published with serious complications: cardiac perforations, tamponade, paradoxical embolism, late thrombus formation. Polymethyl methacrylate (PMMA) is fragile and fragment extraction by interventional procedure seems to be difficult. If extraction is necessary, open heart surgery is recommended most often [4]. This patient's course was uneventful during a follow-up of three years without anticoagula-



**Figure 1**

An ice-hockey-stick-like structure floats in the IVC (arrow). RA = right atrium.



**Figure 2**

Multiple embolisms were visible on the conventional thoracic X-ray (arrows, pa view).

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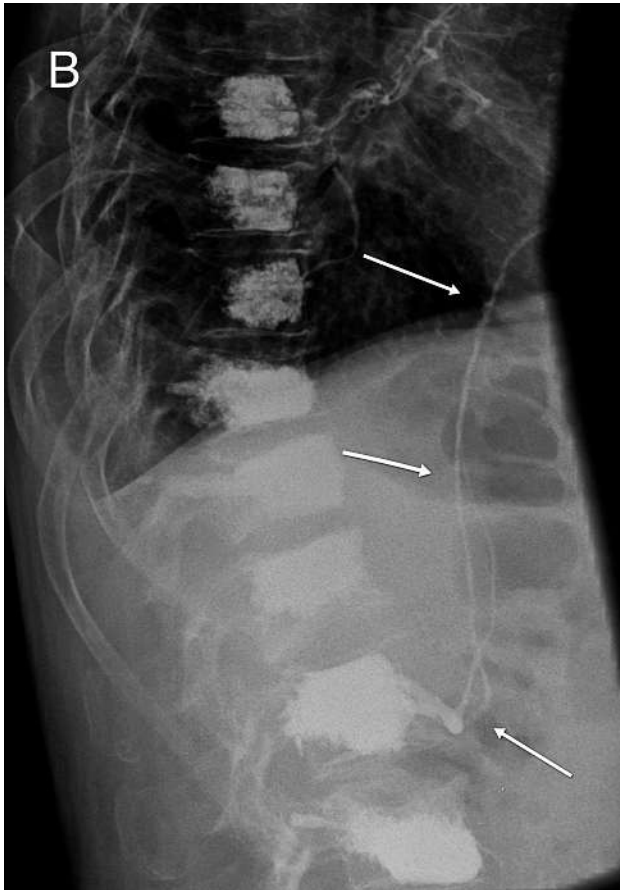
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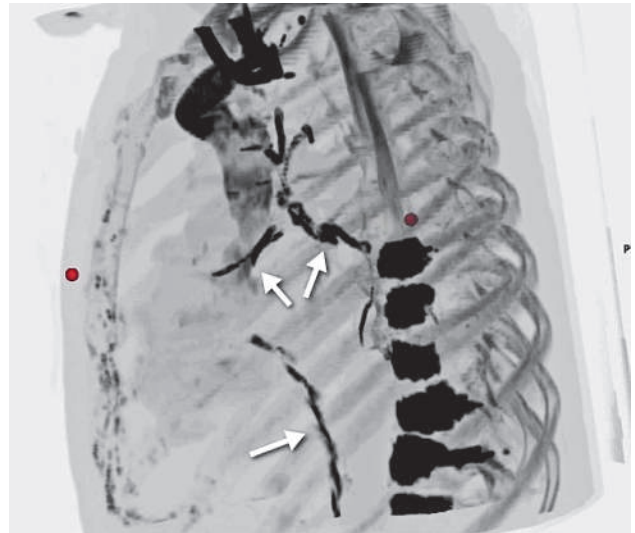
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**Figure 3**  
Multiple embolisms were visible on the conventional thoracic X-ray (arrows, lateral view).

tion. No thrombus formation appeared and pulmonary pressure assessed by Doppler-echocardiographic means remained normal. A long term follow-up by Doppler-echocardiography is recommended because of the possibility of late thrombus formation around the embolised materials. The back pain release over three years after multiple vertebral augmentation procedures in this case was excellent.



**Figure 4**  
Multiple embolisms could be verified on a CT scan (arrows).

You will find data supplement videos on the website: <http://www.cardiovascmed.ch/for-readers/multimedia>



Echocardiography shows a long and thin echo-dense, ice-hockey-stick-like structure, floating in the IVC.



Echocardiography shows a long and thin echo-dense, ice-hockey-stick-like structure, reaching the right atrium.

## References

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