

Case	(618) Incidental detection of cement pulmonary embolism
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## CASE PRESENTATION

A 67-year-old woman was admitted for dyspnea and unwellness in the last 2 days. On chest X-ray taken at the moment of admission, radiopaque material is visualized outlining the pulmonary vessels. It is also identified a vertebral arthrodesis with cemented screws.

Then, urgent CT angiography was performed, showing no signs of acute pulmonary thromboembolism.

However, some hyperdense material was identified in peripheral pulmonary arteries at the right upper lobe and middle lobe, suggestive of cement embolism. Finally, our patient was hospitalized and diagnosed of influenza, recovering with the proper treatment.?

## DISCUSSION

With the aging of the population, incidence of osteoporotic and metastatic vertebral fractures is increasing. Some treatments inject acrylic cement into vertebral bodies. Among their most serious -although uncommon- complications is pulmonary embolism, secondary to cement leakage through the paravertebral venous plexus.

Various agents can cause nonthrombotic pulmonary embolism. It is an infrequent condition that can be asymptomatic or manifests with dyspnea or chest pain, and we should not forget that it can have potentially fatal consequences. Fortunately, it often presents specific imaging features, facilitating the correct diagnosis:

- Septic embolism. Radiographs usually show peripheral, poorly marginated lung nodules bilaterally, sometimes with cavitation.

- Hydatid embolism. CT may demonstrate occlusion of pulmonary arteries and their branches by cystic lesions.

- Fat embolism. On radiographs, we may appreciate widespread homogeneous and heterogeneous areas of increased opacity without other signs of cardiogenic edema.

- Amniotic fluid embolism. Radiographic findings include diffuse bilateral heterogeneous and homogeneous areas of increased attenuation.

- Tumor embolism. Focal or diffuse heterogeneous areas of increased opacity may be present on radiographs, as well as "Tree-in-bud" pattern on CT.

- Air embolism. It may manifest on CT as small amounts air -radiolucencies on radiography- in the systemic veins, right heart or main pulmonary arteries.

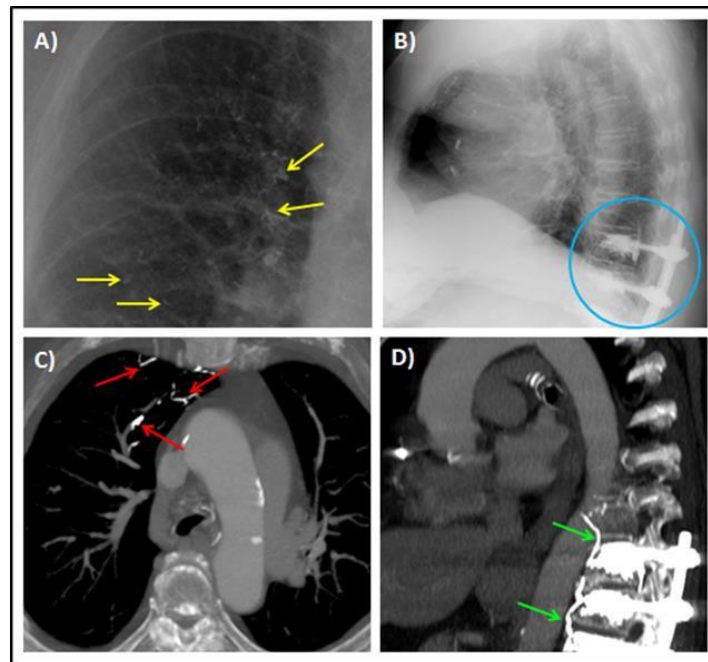
- Talc embolism. Radiography findings progress from fine miliary nodules to large areas of increased opacity. It is also a rare cause of "tree-in-bud" appearance on CT.

-Cement embolism. Tubular opacities outlining the pulmonary arteries can be observed both on radiography and CT. Besides, CT may show paravertebral leaks.

## CONCLUSION

Procedures that inject cement into vertebral bodies have a potential risk of pulmonary embolism via paravertebral veins. Imaging tests typically demonstrate dense tubular opacities outlining the pulmonary arteries.

This complication is rare and sometimes asymptomatic, resulting in incidental finding as in our case, but can also lead to fatal consequences.<sup>18</sup>



Cement pulmonary embolism in a 67-year-old woman. A) Zoom at posteroanterior chest X-ray manifests small tubular opacities in the right middle lung field (yellow arrows). B) On lateral projection, we can easily appreciate arthrodesis material with cemented screws (blue circle) in the thoracolumbar spine. C) CT angiography demonstrates tubular calcium-density material (red arrows) in peripheral branches of pulmonary arteries, compatible with cement embolism. D) Sagittal plane depicts paravertebral veins filled with acrylic cement (green arrows).

## BIBLIOGRAPHY

- Han D, Lee KS, Franquet T, Müller NL, Kim TS, Kim H, Kwon OJ, Byun HS. Thrombotic and nonthrombotic pulmonary arterial embolism: spectrum of imaging findings. *Radiographics*. 2003; 23(6): 1521-39.

- Al-Nakshabandi NA. Percutaneous vertebroplasty complications. *Ann Saudi Med*. 2011; 31(3): 294-7.