

Case	(288) Fat embolism syndrome: step by step. a case report.
Authors	
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N. Lorite Diaz, E. Castañer Gonzalez, M. Andreu Magarolas, V. Perez Riverola, J. Cabero Moyano, A. Malet Munte.
Udiat Corporació Sanitària Parc Taulí.

CASE PRESENTATION

After a motorcycle accident, a 25-year-old man had four limb fractures. Whole-body CT showed fat inside the left common iliac vein and in both external iliac and femoral veins, compatible with fat emboli. After the fractures were immobilized with external fixators and tractions, he was admitted to the intensive care unit. Approximately 80 hours later, he developed symptoms of respiratory distress and petechiae on his chest/upper hemiabdomen, shoulders and conjunctivae. A chest and head CT were performed.

Chest CT showed extensive bilateral involvement of the lung parenchyma, with multiple centrilobular nodular opacities tending to converge and extensive areas of bilateral gravity-dependent atelectasis.

Head CT showed several focal hypodensities in the subcortical and periventricular regions, and centrum semiovale. Multiple supratentorial and infratentorial ischemic embolic lesions and microbleeds were confirmed by brain MRI. He has undergone several operations and needs neurological rehabilitation for severe subcortical neurocognitive impairment.

DISCUSSION

These clinical and radiological findings were compatible with fat embolism syndrome (FES). Radiologists need to know the spectrum of CT and MRI findings for FES, a rare syndrome that develops after bone fractures in which fat in bone marrow is released into the circulation, resulting in pulmonary and systemic (most commonly neurological and cutaneous) symptoms.

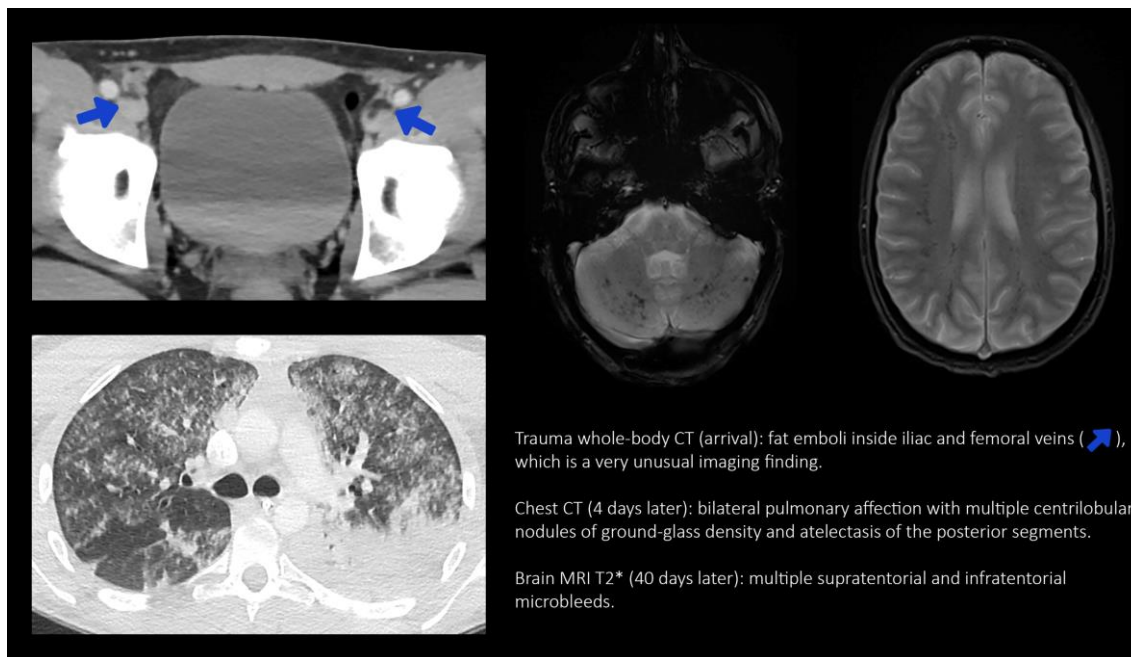
FES is most often diagnosed when these clinical manifestations become apparent (reported cases of fat emboli in transit are unusual). The risk of FES is increased in long-bone (especially femur) and pelvic fractures, and in patients with multiple and closed fractures.

Two theories are proposed to explain the pathogenesis: in mechanical theory, fat globules would enter the bloodstream directly through tissue disrupted by trauma; in biochemical theory, which explains the 24-72 hours delay in the onset of symptoms, toxic intermediaries produced by circulating fat would damage capillary beds.

There are no definitive treatments for FES beyond supportive care. Early correction of fractures may prevent FES, but it is unknown whether this strategy is effective in patients with established FES (fat emboli were seen inside iliac veins from the beginning in our case).

CONCLUSION

FES remains a diagnostic challenge for clinicians. Prompt recognition is important so that supportive therapy can be instituted early. Radiologists need to know the subtlesigns on the first CT (e.g., fat emboli inside vessels although it's very unusual) and the wide spectrum of imaging findings seen in the course of FES.



BIBLIOGRAPHY

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