Fat embolism syndrome causing a crazy-paving pattern on CT

Edson Marchiori[1], Bruno Hochhegger[2], Gláucia Zanetti[1]

A 38-year-old man was admitted 2 h after a motocross accident for treatment of a left diaphyseal femoral fracture (Figure 1A). A chest X-ray was normal. The femoral fracture was treated with intramedullary nail fixation. Two days after the accident, the patient developed fever, shortness of breath, chest pain, and neurological symptoms, including mental confusion and seizures. Physical examination revealed petechiae involving the conjunctivae (Figure 1B). Pulse oximetry revealed a decrease in oxygen saturation to 70% on room air. Chest CT showed bilateral ground-glass opacities with interlobular septal thickening causing a crazy-paving pattern (Figures 1C and 1D). A diagnosis of pulmonary fat embolism syndrome (FES) was established. The patient was treated conservatively with supplemental oxygen, and his respiratory status improved gradually.

Fat embolism is defined as the release of fat, usually derived from bone marrow, into the systemic or pulmonary circulation. FES is a potentially fatal complication of trauma (particularly long bone fractures) or orthopedic surgery. The clinical diagnosis of FES is based on a triad of hypoxia, mental confusion, and petechial rash.[1-3] FES usually presents on CT as bilateral patchy or diffuse ground-glass opacities.[1-3] In conclusion, the diagnosis of FES should be considered in patients who have a 1- to 3-day history of trauma before symptom onset in combination with the classic clinical and imaging findings of this syndrome.

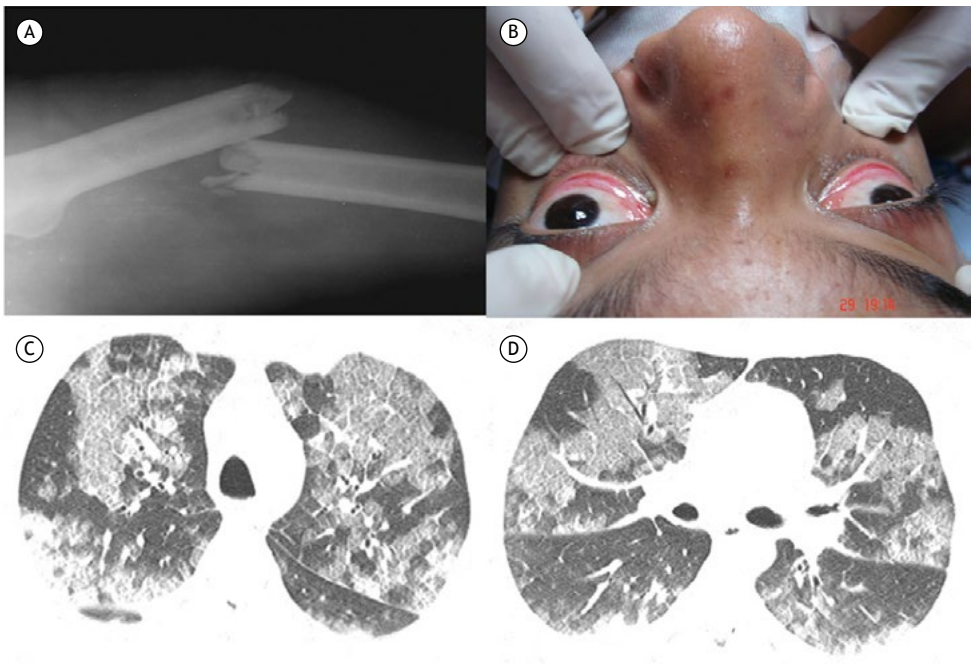

Figure 1. In A, an X-ray showing a complete diaphyseal fracture of the left femur. In B, petechiae involving the conjunctivae. In C and D, axial chest CT images obtained at the level of the upper lobes and subcarinal region demonstrate bilateral scattered ground-glass opacities with interlobular septal thickening causing a crazy-paving pattern.

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1. Universidade Federal do Rio de Janeiro, Rio de Janeiro (RJ) Brasil.
2. Florida University, Miami (FL) USA.