Fat Embolism Syndrome

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A 59-year-old man with Down’s syndrome sustained bilateral femoral neck fractures after a fall and underwent bilateral hemiarthroplasties within six hours from his injury. He developed respiratory distress and decreased level of consciousness while in the post-anesthesia care unit and had to be reintubated within an hour after his extubation. Over the next 24 hours, he developed skin rash shown in Figure 1. Despite supportive care, he remained unresponsive, developed multiorgan failure, and eventually died.

Fat embolism occurs in nearly all patients (>90%) with bone fractures during orthopedic prosthetic procedures and rarely occurs in other pathologic conditions. Approximately 3 to 4% of these patients develop the classical triad of the fat embolus syndrome (FES), which consists of petechial hemorrhages (Figure 1), respiratory distress (Figure 2), and cerebral abnormalities (Figure 3); most patients remain asymptomatic.

The clinical pattern of this syndrome has a bimodal distribution; some patients clearly demonstrate a fulminant course with the onset of symptoms within...
12 hours of injury. Most patients have a more subacute course and manifest symptoms 24 to 72 hours after injury\textsuperscript{2}. Bulger et al reported that only 33\% of patients in a 10-year review retrospective study of FES had documented petechiae\textsuperscript{2}. The most prominent manifestation of the syndrome is acute hypoxia\textsuperscript{2}. Even when lung injury is obvious, it may be attributed to infection, aspiration, or traumatic ARDS, rather than to FES\textsuperscript{3}. Treatment of FES is supportive care.

\textbf{Figure 2.} Chest X ray on admission (A) and two days later (B) reveals diffuse bilateral infiltrates along with PaO2:FiO2 < 200 mmHg suggestive of ARDS

\textbf{Figure 3.} MRI brain - diffusion - weighted images show numerous punctate foci of high signal intensity - cortical and subcortical secondary to fat emboli.
• The patient’s caregiver and power of attorney signed consent for publication of photos identifying patient for educational purposes.

References