Nonfulminant Subacute Pulmonary Fat Embolism Following Fracture of Radius and Ulna

Sir,

Fat embolism syndrome (FES) is a potentially serious complication in patients who have suffered long bone fractures and crush injury or have undergone orthopaedic procedures.1 We report an unusual case of fat embolism syndrome following fracture of radius and ulna.

A 26 years male presented with the complaint of breathlessness and fracture of radius and ulna on the fourth day following a road traffic accident. He was referred to us with provisional diagnosis of acute respiratory distress syndrome. At the time of admission he was dyspnoeic, restless and also had mild degree of chest pain. His pulse rate was 115/minute, BP 103/62 mm Hg, respiratory rate 44/minutes, oxygen saturation 86% and body temperature 38.8°C. Arterial blood gas showed PaO$_2$ 56, PaCO$_2$ 30 mm Hg. He was intubated and put on ventilator at a FiO$_2$ of 0.4. Chest radiograph revealed bilateral radio-opaque infiltrates in the lower and perihilar regions more marked on right lower zone (Fig. 1). He had low haemoglobin and haematocrit (6.5 gm% and 27%), without apparent bleed or history of blood loss. Sputum examination detected no fat globules and Gram staining showed no pathogenic organisms and was sterile on incubation. Packed red blood cells were transfused and fluid resuscitation was done. Over the next four days, patient improved. The arterial blood gas showed pH 7.46, PaO$_2$ 109, PCO$_2$ 32 mm Hg, at FiO$_2$ of 0.3 and was extubated. Patient was discharged from intensive care unit and was referred to orthopaedic surgeon.

FES has three types of presentations: subclinical, nonfulminant subacute and fulminant. A symptom-free period of at least 12 hours after trauma usually precedes the early manifestations of the subclinical and nonfulminant subacute forms of FES but the fulminant form is characterized by rapid progression of clinical symptoms beginning within a few hours following injury.2

The nonfulminant subacute form is manifested by the respiratory insufficiency, fever, tachycardia, and petechial rashes that appear on chest, neck, upper arms, axillae, shoulders and oral and conjunctival mucous membrane and are considered pathognomic signs.2 The rash comes in crops and fades after 48 hours after appearance.2 A minimum 6-12 petechial rashes can firmly establish the diagnosis. Our patient had tachypnoea, dyspnoea and hypoxaemia, tachycardia, pyrexia, fat globule in the urine, decreased haemoglobin and haematocrit. Though pathognomic signs of petechial rashes were absent at the time of admission, we kept a possibility of their disappearance before admission. The typical chest radiograph favoured the diagnosis of FES and other causes were ruled out on the basis of history and investigation.

This case was unusual because the source of emboli was consequent of fracture of radius and ulna, which has never been reported in the literature as the aetiology of the syndrome. With experience of with the present case, we suggest that the diagnosis of FES should also be considered in respiratory distress in minor trauma situation where patient has respiratory symptoms, radiographic changes and laboratory supportive evidences.

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