

Fat Embolism Syndrome After Femur Fixation In Pediatric Patient: A Case Report

Manas FF; Govindasamy M

Department Of Orthopaedics, Hospital Sungai Buloh, Selangor

INTRODUCTION:

Fat Embolism Syndrome (FES) is rarely found in pediatric age group patients as the incidence and etiology are little is known. Many reports describe about the FES cases before the fracture fixation was done. We will describe a unique case of FES in a pediatric patient post operatively after fracture fixation.

METHODS:

A 10 years old boy presented with alleged motor vehicle accident, sustained closed fracture midshaft right femur and closed fracture distal third right tibia. Titanium Elastic Nail System (TENS) done for right femur fracture and back slab was applied for right tibia fracture. Post operatively, patient developed desaturation and persistent tachycardia. Because of respiratory distress and concerns about the FES, a computed tomography (CT) scan of the thorax with intravenous contrast was obtained showed bilateral symmetrically distributed ground glass and small intrapulmonary nodules, suggestive for pulmonary fat embolism as correlated with recent history of trauma.



Figure 1.
Radiographs showing closed diaphyseal fractures of the femur.

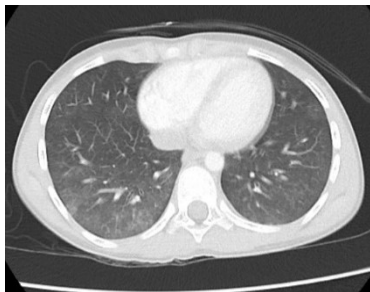


Figure 2. CT scan showing bilateral symmetrically distributed ground glass and small intrapulmonary nodules consistent with fat embolism syndrome.

DISCUSSIONS:

The incidence of Fat Embolism Syndrome (FES) in pediatric age group is rare and only reported in few literatures previously. However, most of them reported before the fracture fixation was done. This case report highlights the FES case after the fracture was fixed. As the physiological differences in the immature skeleton and differences in fracture management in pediatric patients, the FES is rare in children. The high index of suspicion is required to make the diagnosis promptly and the diagnosis of FES remains primarily a clinical one.

The pathophysiology of FES according to biochemical evidence is fat droplets are forced into the venous system and occlude the microvasculature of the lung, leading to a ventilation-perfusion (VQ) mismatch in which regions of the lung are ventilated but not perfused. These fat droplets usually are generated during reaming or nail placement when an intramedullary nail is used for fixation of a long-bone fracture. As in this case, the fat droplets might be result of the implant fixation and also can be caused by the trauma itself.

CONCLUSION:

FES is rare in pediatric patients, however a prompt diagnosis must be made especially when a child or adolescent with a long-bone fracture shows signs of respiratory distress and mental status changes. Even though the fracture fixation was already performed, the high index of suspicion must be present to make the diagnosis.

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