



Vertebral Bone Infarction in Sickle Cell Disease

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Description

A 9-year-old girl with history of sickle cell anemia presented to our hospital with severe low back pain with 8 days duration, not relieved with analgesics. She had previous episodes of vaso-occlusive crisis and a basal hemoglobin level of 4,9 mmol/L. Spinal magnetic resonance imaging revealed multiple recent bone infarcts in the lumbar vertebral bodies (Figure 1 & 2A) and at the right sacral ala (Figure 2B), with a linear pattern of enhancement involving the subchondral bone marrow on the right lateral aspect of the sacrum, suggestive of acute osteonecrosis (Figure 2C).

Sickle cell anemia is an autosomal recessive hemoglobinopathy characterized by anemia, hemolysis and recurrent vaso-

occlusive crises [1,2]. During these episodes, insufficient oxygen is delivered to organs, leading to acute and chronic complications [1,2]. Bone infarcts tend to occur in medullary cavities and epiphyses and are often painful, but they can also be clinically silent and occur anywhere in the skeleton. In the spine, acute bone infarcts are usually depicted by increased T2 signal intensity areas, with a peripheral rim of enhancement in some cases, which might help to distinguish them from osteomyelitis [3]. As the bone softens and the cortical gets thinner, vertebral bodies assume a biconcave H-shaped appearance.

Treatment is usually supportive, including analgesia, hydration and antibiotics in case of suspected infection [2].

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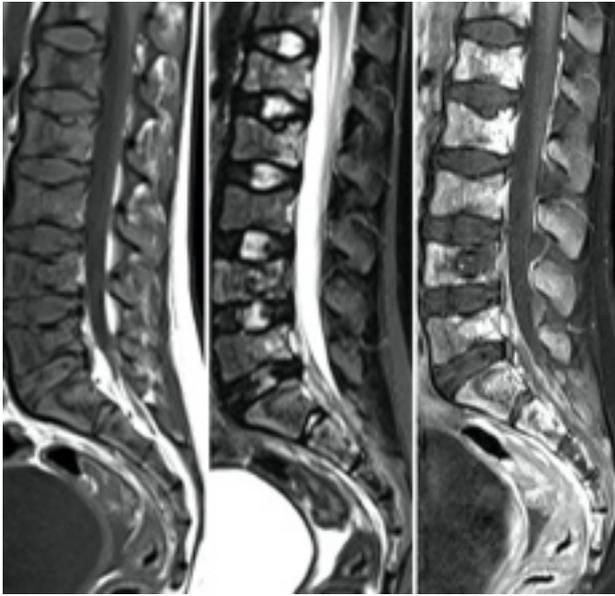


Figure 1: Sagittal T1-weighted (T1WI) (A), T2/ Short-tau inversion recovery (STIR) (B), and T1WI fat-saturated post-contrast (C) showing areas of hyperintensity on STIR and low signal intensity on T1WI in multiple vertebral bodies representing recent bone infarcts. Note the characteristic “codfish vertebra” sign, with biconcave appearance of the lumbar vertebrae.

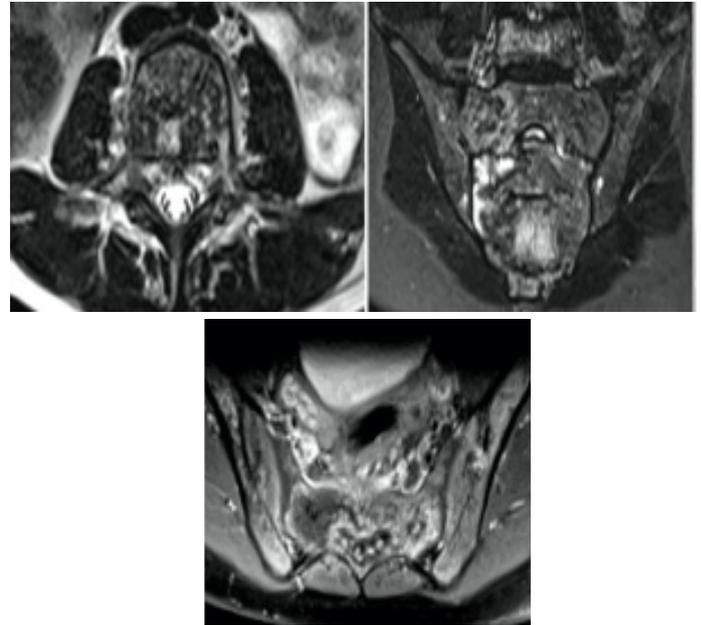


Figure 2: Axial T2-weighted at the level of L4 (A) showing a bone infarct of the vertebral body. Note the “double-line” sign, with a hyperintense center of granulation tissue and a hypointense outer ring of sclerosis. Coronal T2/ STIR (B) and axial T1WI fat-saturated post-contrast (C) demonstrating a bone infarct of the right sacral ala (B), with bone edema and a linear rim enhancement, suggestive of acute osteonecrosis (C).

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