IMAGING CORNER

Hepatic Visualization on DXA Scan: An Ancilliary Finding

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Abstract

Thalassemia major is a genetic haemoglobinopathy manifesting as severe anaemia, jaundice and hepatosplenomegaly. Due to altered iron metabolism and increased bone resorption it is associated with secondary osteoporosis manifested as decreased bone mineral density (BMD). Dual energy X-ray absorptiometry (DXA) is frequently performed for the diagnosis of secondary osteoporosis. Soft tissues are rarely visualized on DXA unless there is calcification involving those structures like nephro-, cholelithiasis or iatrogenic e.g. surgical clips. Hepatic iron deposition occurs in thalassemia due to repeated blood transfusions which leads to increased density of the liver resulting in visualization of liver on DXA scan.

We present an interesting image of hepatic visualization on DXA performed for bone mineral density assessment in a patient with thalassemia major.

Keywords: Thalassemia major, secondary osteoporosis, iron overload, liver, DXA.

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Discussion

A 28-year-old male, known case of thalassemia major, presented for DXA scan for bone mineral density assessment. He had a history of repeated blood transfusions secondary to known haemoglobinopathy. The lumbar spine and total hip regions were assessed for bone mineral density (Figure A, B). Lateral vertebral assessment was also done to evaluate for vertebral compression fracture (Figure C). However, on both lumbar spine frontal projection and lateral view, there was increased liver attenuation secondary to iron deposition due to repeated blood transfusions (Figure D, green box)

Central DXA is the imaging modality of choice for diagnosis of primary and secondary osteoporosis.[1] Thalassemia major, a genetic cause of severe anaemia, leads to secondary osteoporosis due to increased bone resorption and altered iron metabolism.[2] Therefore, DXA is an important diagnostic tool to assess bone mineral density in patients with thalassemia major. The lumbar spine and total hip regions are imaged where the field of view partially includes abdominal viscera and aorta. Often, soft tissues are visualized when calcification or increased attenuation is due to artifact.[3,4] Repeated blood transfusions in patients with thalassemia major leads to iron deposition in liver and causes increased attenuation leading to visualization of liver on DXA images.[5] Though an incidental finding in DXA imaging, the visualization of liver must not be overlooked, and clinical correlation must be considered to assist in diagnosis of possible pathological processes.

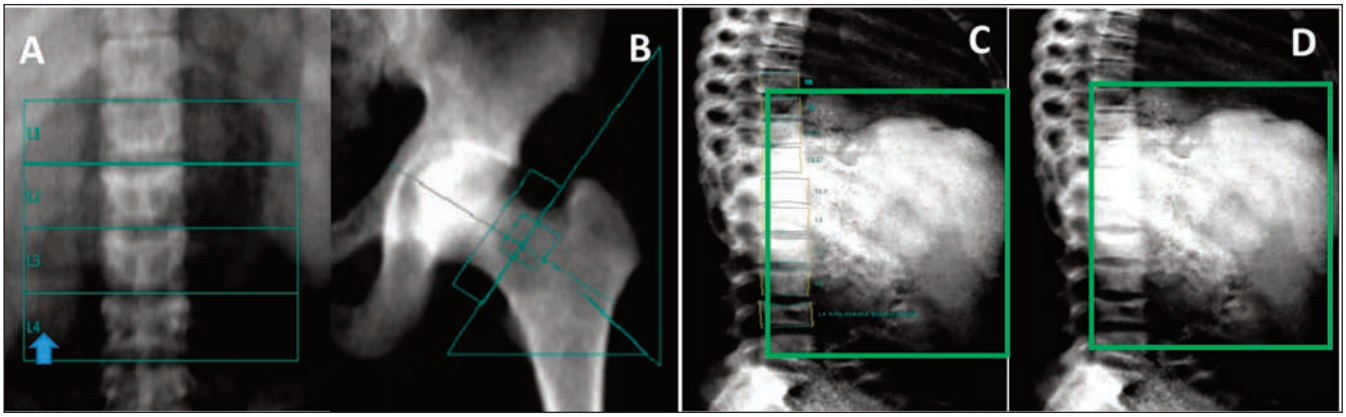

Figure: Frontal lumbar spine images of the patient show increased attenuation in right hypochondrium in the region of liver (A,B blue arrows). Lateral vertebral views clearly demarcate right hypochondrial increased soft tissue attenuation as liver (D,E blue arrows). Also noted is the increased liver size on lateral lumbar spine view.

References

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