Detection of melorheostosis in a young lady with upper limb pain on Three Phase Bone Scintigram / SPECT-CT

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Summary

Melorheostosis is a benign, noninheritable bone dysplasia characterized by its classic radiographic features of dense, flowing hyperostosis. It frequently affects one limb, usually the lower extremity and rarely the axial skeleton. A 26-year-old lady with obesity, polycystic ovarian syndrome and scalp dandruff presented with a long standing history of upper extremity pain and inability to adduct the arm completely. A Tc-99m MDP whole body and SPECT/CT scan performed for suspected fibrous dysplasia showed increased radiotracer uptake in densely sclerotic humeral and radial melorheostosis. This case highlighted the role of SPECT/CT imaging in this rare condition.

KEY WORDS: melorheostosis; three phase-bone scintigraphy; SPECT-CT.

Introduction

Melorheostosis is a rare entity and has not been described using SPECT/CT imaging. As more and more centers are using SPECT/CT routinely, this case highlights the ease with which such diagnosis can be made. Melorheostosis is a benign, noninheritable bone dysplasia characterized by its classic radiographic features of dense, flowing hyperostosis. It frequently affects one limb, usually the lower extremity and rarely the axial skeleton (1-3). It was first described in 1922 by Leri and Joanny (4).

Case report

A 26-year-old lady with obesity, polycystic ovarian syndrome and scalp dandruff presented with a long standing history of upper extremity pain and inability to adduct the arm completely. A Tc-99m MDP whole body and SPECT/CT scan performed for suspected fibrous dysplasia showed increased radiotracer uptake in densely sclerotic humeral and radial melorheostosis. This case highlighted the role of SPECT/CT imaging in this rare condition.

Dynamic blood flow, body pool and whole body bone scintigraphy followed by SPECT/CT images were performed 3 hours after the intravenous injection of 750 MBq Tc-99m methylene diphosphonate in the right foot; using a dual-headed gamma camera (Symbia, Siemens) equipped with a general purpose collimator (Figure 1).

As the pattern of MDP uptake and sclerosis on CT in the upper limbs was atypical for suspected fibrous dysplasia, plain radiographs of the left upper were obtained for further evaluation. The radiographic findings were typical of melorheostosis (Figures 2-5).

Figure 1 -
Detection of melorheostosis in a young lady with upper limb pain on Three Phase Bone Scintigram / SPECT-CT

Figures 1-4 - Initial flow images showed mild hyperemia and increased blood pool activity involving left forearm. B) Delayed static views showed heterogeneous increased radiotracer uptake involving left ulna. C) On correlation with SPECT / CT images there was cortical thickening and dense sclerosis involving left ulna and the distal portion of the left humerus.

Figures 2-4 - Frontal and lateral radiographs of the left upper extremity showed a "dripping candle wax sign" and smooth cortical hyperostosis involving the ulna nearly diffusely; the distal left humerus also demonstrates smooth undulating cortical thickening predominantly along the medial supracondylar margin.

Melorheostosis is usually seen as asymmetric cortical hyperostosis in contiguous bones (5). Bone scan appearances of melorheostosis have been described in the past as moderately increased tracer uptake in an asymmetric linear pattern (6). It can be polyostotic, involving contiguous bones across the joints along the sclerotomal distribution (7). In the case discussed here, although there was a strong suspicion of melorheostosis on scintigraphic appearances alone, the radiographic findings were typical and confirmatory.

References
A. Hassan et al.