

Unusual Pattern of Femoral Head Avascular Necrosis on Bone Scintigraphy

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Abstract

Avascular necrosis/osteonecrosis of femoral head is demonstrated as a photopenic area on bone scintigraphy. We report a case with an unusual pattern of femoral head avascular necrosis on Tc99m MDP bone scintigraphy. A 46-year-old man, with diagnosed squamous cell carcinoma of lung, presented with 3 months history of right hip pain. Bone scan revealed a large photon deficient area involving the right femoral head with extension to the right trochanteric region. Trochanteric involvement is not typically seen. On correlative MRI scan the findings in the right proximal femur were labeled as early avascular necrosis.

Keywords: Avascular necrosis, osteonecrosis, Tc99m MDP bone scintigraphy.

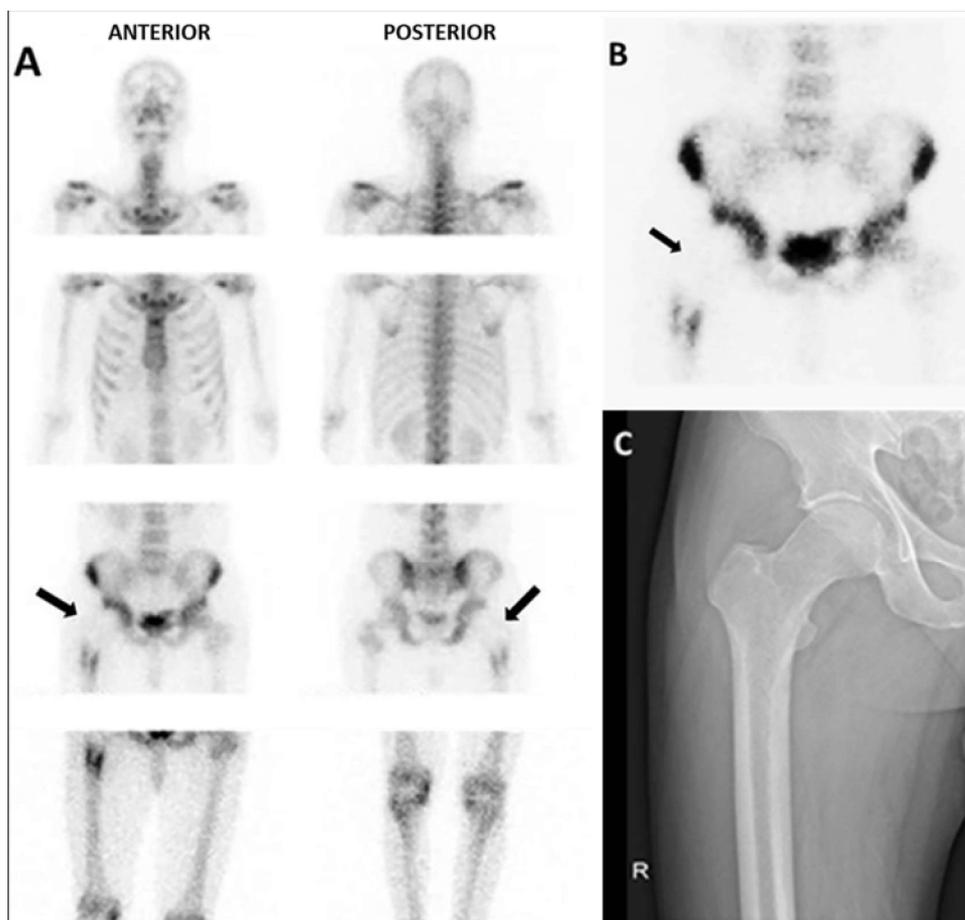


Figure: A 46-year-old man with diagnosis of squamous cell carcinoma right lung, presented with 3 months history of right leg pain. He underwent bone scan using 740MBq of Tc99m MDP injected intravenously. Whole body spot views (A) and pelvic view (B) displayed a large photon deficient area (Black arrow) involving the right femoral head and trochanter with heterogeneous increased cortical uptake in proximal right femoral shaft. X-ray of right femur (C) was unremarkable. On correlation with MRI scan, early avascular necrosis (AVN) was noted with subcortical odema and edematous signals from adductors and anterolateral muscles. Femoral head AVN poses a major diagnostic and therapeutic challenge. If progressed to joint destruction, this requires total hip replacement. Blood supply to the weight bearing part of femur is derived from the medial femoral circumferential artery. Persistent compromised blood flow renders femoral head at high risk for developing AVN.¹ Bone scan and MRI are the most valuable imaging modalities in the diagnosis and follow up. The multiphase bone scan is reported to be 98% sensitive and 96% specific.² Scintigraphic imaging reveals a photon deficient area involving the femoral head. Doughnut sign in AVN with surrounding rim of increased uptake indicates reactive zone surrounding the necrotic area.³ We illustrate a unique pattern of femoral head AVN whereby a large photon deficient area extended to the right femoral neck and trochanteric region. This could be attributed to the aberrant vascular supply of the proximal femur or trochanteric metastasis along with AVN of femoral head.

References

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