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Primary hyperparathyroidism in a patient with multiple Brown tumors and pathologic femur fracture mimicking malignancy: a case report

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Introduction: In this article we report a case of multiple brown tumors with a pathologic fracture of femoral shaft caused by a parathyroid adenoma.

Case Report: A 71-year-old female was admitted to our emergency center for dizziness and fatigue and pain in left thigh without any trauma history. In our initial examinations she complained of pain and tenderness in left thigh. There were no swelling or overlying skin changes. There were no palpable inguinal, axillary or cervical lymph node. Plain radiographs showed left femoral shaft fracture with multiple lytic lesions in pelvis and both femurs, ribs, right humerus, right tibia and left ulna



Figure 1. Pelvis



Figure 2. Left femur

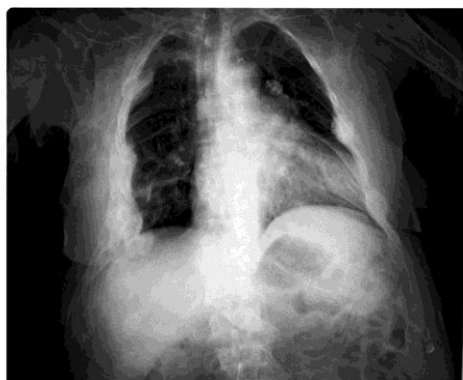


Figure 3. Ribs



Figure 4. Left ulna



Figure 5. Right tibia

MRI revealed multiple lesions in both femur and pelvis with contrast enhancement suggesting metastatic bone

lesions

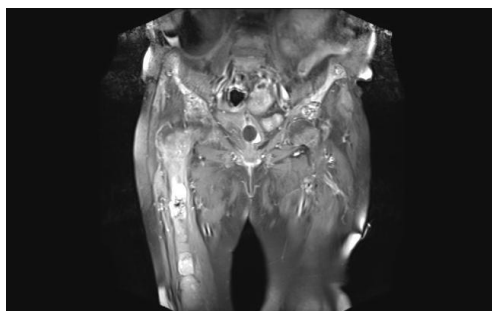


Figure 6. MRI

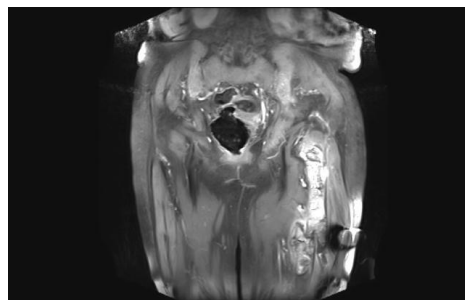


Figure 7. MRI

On laboratory evaluation serum calcium, serum alkaline phosphatase and serum parathyroid hormone level was high and serum phosphate level was decreased.

The diagnosis of hyperparathyroidism was definitive. An ultrasound examination of neck showed a homogenous mass in upper left pole of thyroid gland. Tc-99m scan of parathyroid revealed a well-defined mass with axial diameter of 3.8 cm in left upper parathyroid suggesting parathyroid adenoma. Whole-body scintigraphy showed multiple lesions in skeletal system.

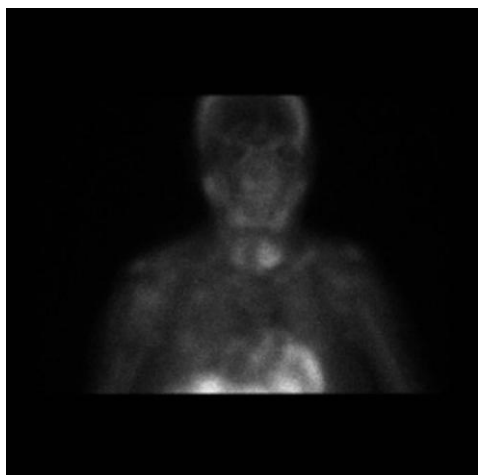


Figure 8. Tc-99m scan

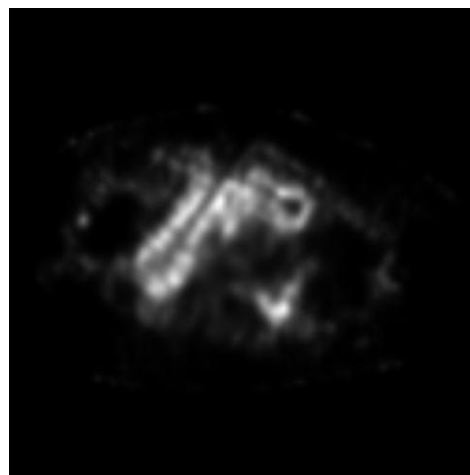


Figure 9. Tc-99m scan



Figure 10. Whole body

These findings together with clinical examination was suggestive for multiple brown tumors. Initially we ruled out malignancy using imaging and laboratory but definitive diagnosis needs histopathological examination. At the same time the patient's pathologic fracture of femur was impending so we provided an internal fixation.

Result: Consequently the patient was referred to our endocrinology and general surgery departments for further treatments.

Discussion: In modern times multiple brown tumors are rare because of routine health screening panels including blood calcium levels so primary hyperparathyroidism is often recognized before development of serious bone disorders. Multiple

brown tumors can mimic multiple skeletal metastases and cause pathologic fractures. In the case of multiple lytic bone lesions and increased blood calcium levels, hyperparathyroidism should always be kept in mind in addition to malignancies. In order to avoid unnecessary treatments such as chemotherapy, early diagnosis is important.