The Royal Bournemouth and Christchurch Hospitals
NHS Foundation Trust

An Atypical Presentation of Hyperparathyroidism

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Case

Mrs B is a 46 year old female who was referred to an orthopaedic outpatient clinic with a painful swelling at the base of her middle finger, which had been gradually increasing in size. Ultrasound and X-ray showed a highly vascular irregular mass with bony involvement of the third metacarpal. Initial suspicions were of an enchondroma.

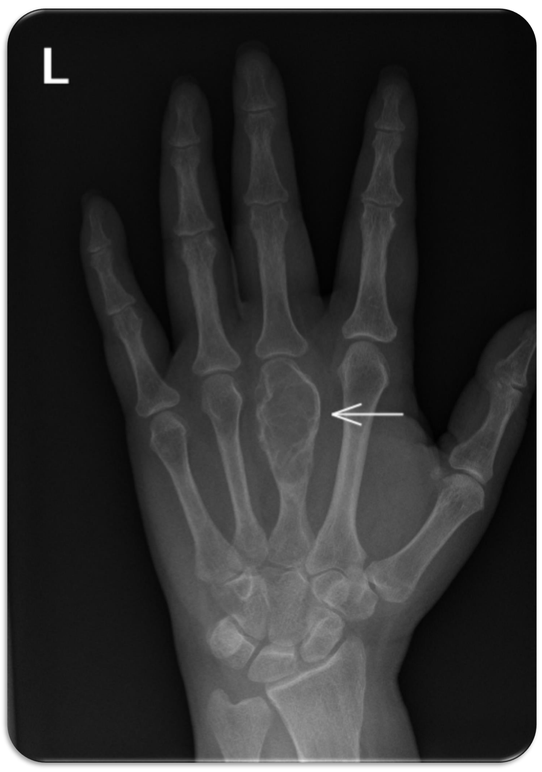


Figure 1: X-ray of left hand demonstrating an expansile lesion involving the distal half of the third finger metacarpal.

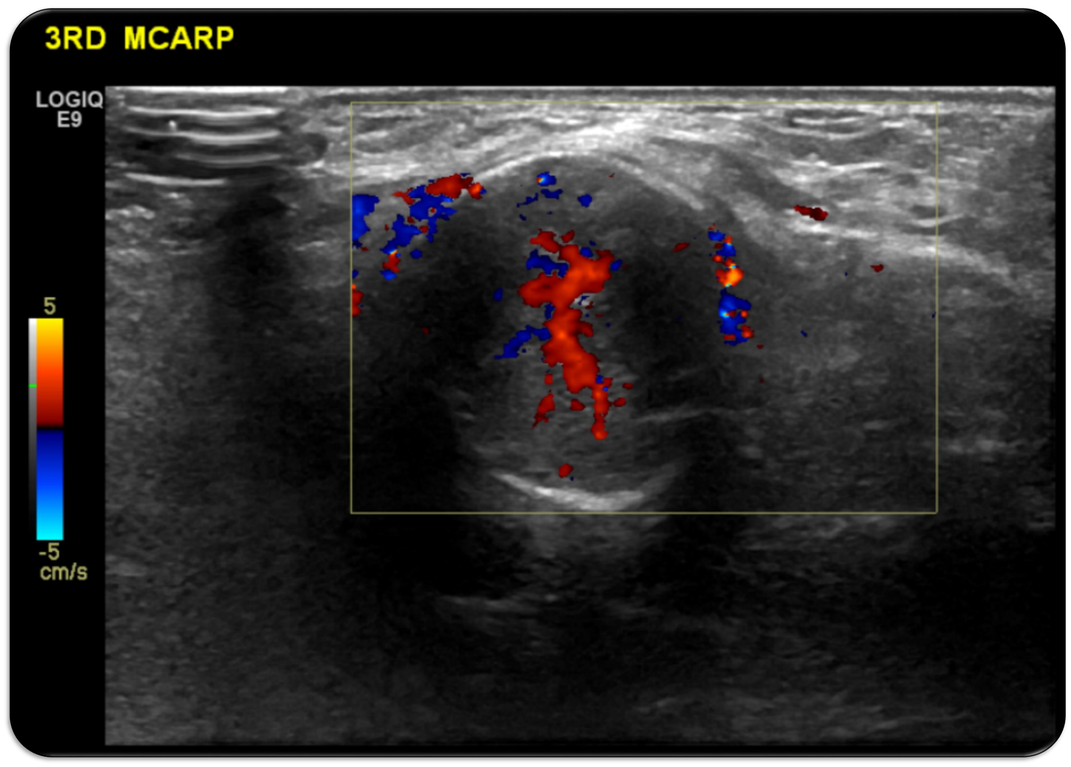
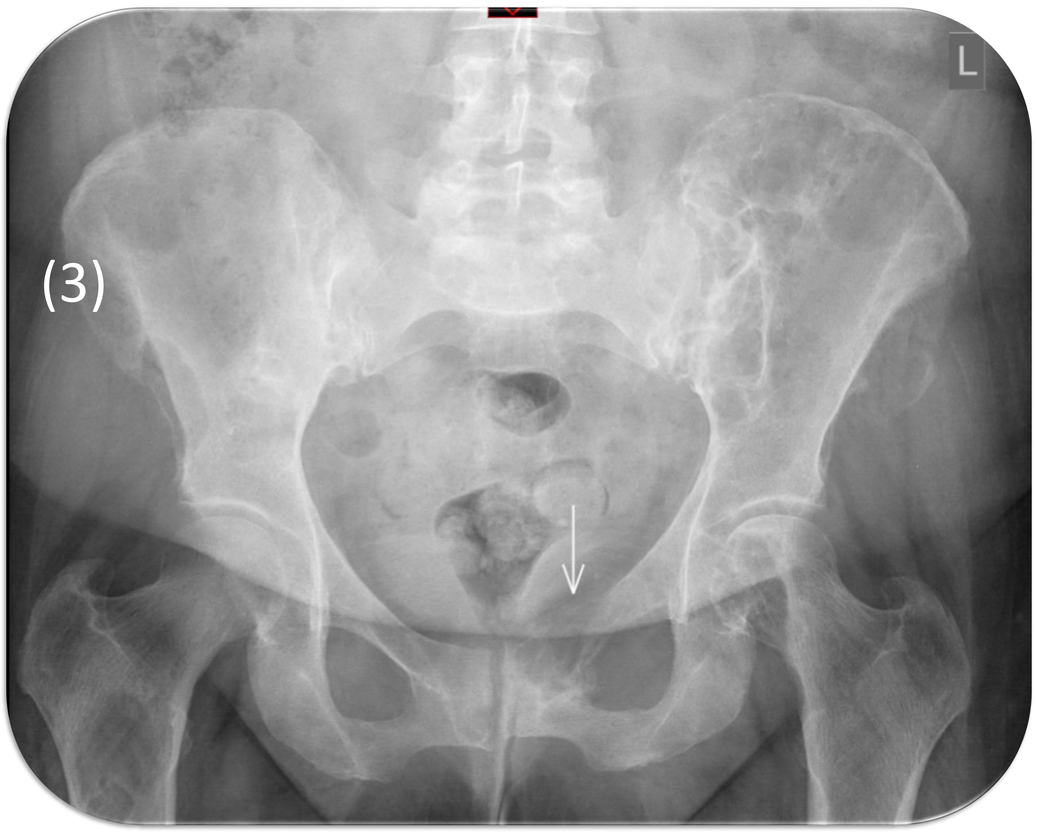


Figure 2: Ultrasound doppler of the left hand shows a highly vascular irregular mass with bony involvement.



Case continued…

The Orthopaedic team arranged an MRI and proceeded to biopsy the lesion. Histology suggested a giant cell tumour. Curretage of the lesion with bone grafting was performed. Further histology again suggested a giant cell tumour of soft tissue.

Whilst awaiting further investigation the patient developed increasing pain in her left hip. X-ray of her pelvis was performed and showed a pathological fracture through the left superior pubic ramus and body of the left pubic bone.

Figure 3: X-ray of pelvis shows a lytic lesion in the left superior pubic ramus and superior part of the body of the left pubic bone.

Blood tests revealed an adjusted calcium concentration of 3.29mmol/L (reference range 2.20-2.60mmol/L). Parathyroid hormone levels were elevated at 71.1pmol/L (reference range 0.9-6.5pmol/L). This raised suspicion of primary hyperparathyroidism with her initial swollen digit representing a Brown tumour. CT was arranged followed by a SPECT scan. CT showed a mass in the superior mediastinum as well as multiple large volume lytic lesions involving the pelvis and both femurs as well as lesions in the maxilla and mandible.

SPECT showed an intense focus of abnormal activity inferior to the lower pole of the left lobe of the thyroid, consistent with a primary parathyroid adenoma. Mrs B underwent planned parathyroidectomy with pre-loading of vitamin D. Post-operatively there was no hypocalcaemia and she has gone on to make a good recovery. Subsequent imaging has shown significant improvements in bone health.

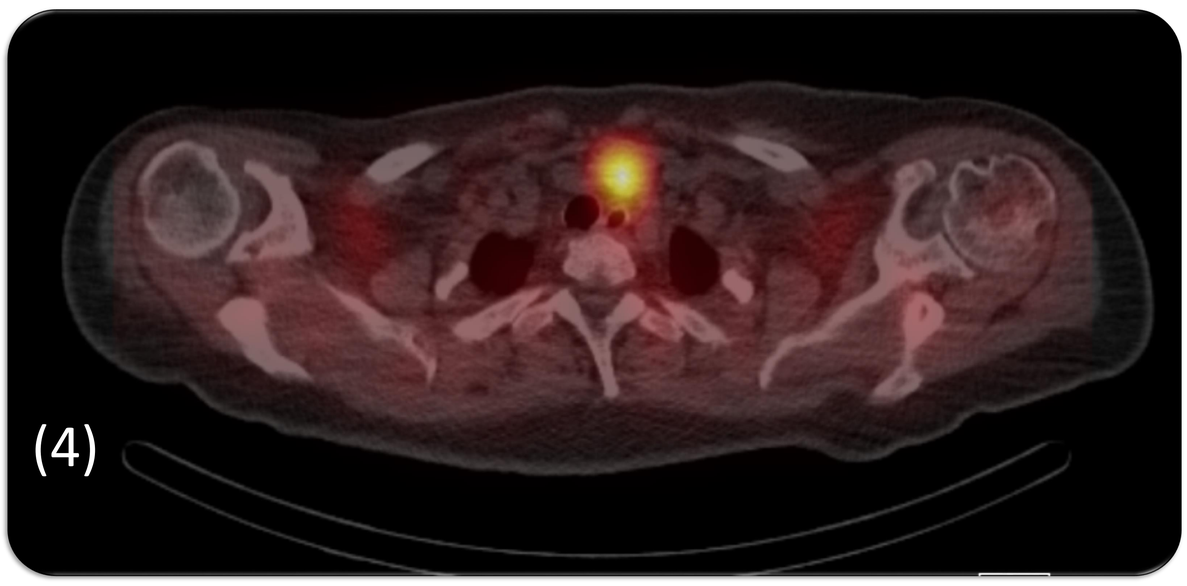


Figure 4: SPECT shows an intense focus of abnormal activity inferior to the lower pole of the left lobe of the thyroid.

Summary

Brown tumours are now a relatively rare presentation of primary hyperthyroidism. The textbook symptomatic presentation with renal stones and bone pain is far less frequent than the more common finding of incidental hypercalcaemia, with only ~1% presenting with skeletal disease.