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Clinical Image

CLINICAL IMAGE

Skeletal findings in secondary hyperparathyroidism

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It is rare to see skeletal manifestations of secondary hyperparathyroidism (SHPT) with early detection and treatment of chronic kidney disease (CKD) and its complications.

A 28-year-old Hispanic male with no known past medical history has presented with nausea, vomiting, epigastric pain and nose bleeds. He was a recent immigrant from Mesoamerican

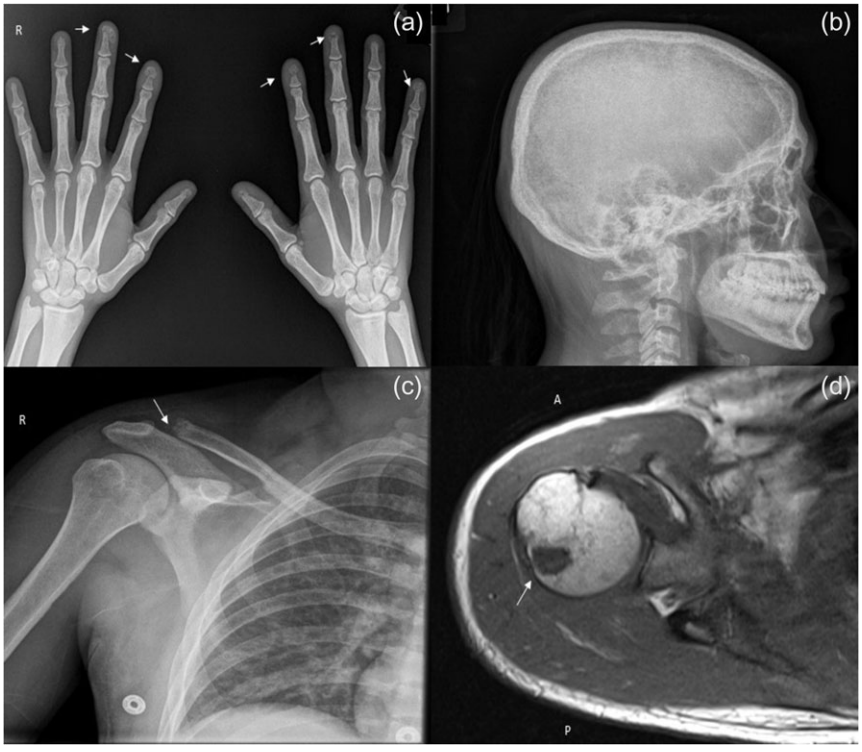

Figure 1: (**a**) X-ray of the hands showing bilateral acro-osteolysis with resorption of the distal phalangeal tufts (arrows). (**b**) X-ray of the skull showing abnormal bony mineralization along the patient's calvarium. (**c**) X-ray of the right shoulder showing resorption of the distal end of the clavicle and also mild focal subchondral cystic change along the posterior lateral humeral head, better visualized on MRI of the right shoulder (arrows) (**d**).

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region and has not seen a physician recently. Laboratory values showed blood urea nitrogen of 213 mg/dl (6–20 mg/dl), serum creatinine 19 mg/dl (0.4–0.9 mg/dl), serum potassium 5.8 mmol/l (3.3–5.1 mmol/l), serum bicarbonate 14 mmol/l (22–28 mmol/l) and he was hypervolemic. Renal replacement therapy was initiated.

His uremic symptoms including nose bleeds improved with dialysis. Work up of acute kidney injury was negative for any auto-immune or glomerular processes. His serum parathyroid hormone (PTH) level was 3904 pg/ml (15–65 pg/ml) with serum calcium level of 9.5 mg/dl (8.4–10.2 mg/dl) and phosphate 10.8 mg/dl (2.7–4.5 mg/dl). His vitamin D level was 20 ng/ml (20–40 ng/ml). He later complained of shoulder and hand pain for which radiographs were obtained. X-ray of the hands showed bilateral acro-osteolysis with resorption of the distal phalangeal tufts (Fig. 1a). X-ray of the right shoulder showed resorption of the distal end of the clavicle and also mild focal subchondral cystic change along the posterior lateral humeral head (Fig. 1c) that is better visualized on magnetic resonance imaging (MRI) of the right shoulder (Fig. 1d). X-ray of the skull showed abnormal bony mineralization along the patient's calvarium (Fig. 1b). All these image findings are sequelae of SHPT.

Current guidelines recommend monitoring serum levels of calcium, phosphorus and PTH beginning in CKD stage3 (glomerular filtration rate 30–59 ml/min/1.73 m^2) [1]. Management of SHPT in CKD patients includes optimization of serum phosphate and calcium levels by using phosphate binders and vitamin D analogs. Resistant cases might need treatment with calcimimetic agent, Cinacalcet. In those with markedly elevated PTH levels (usually above 1000 pg/ml) refractory to medical management, surgical parathyroidectomy should be considered [2, 3].

CONFLICT OF INTEREST STATEMENT

None declared.

FUNDING

None.

ETHICAL APPROVAL

None required.

CONSENT

Written informed consent obtained from the patient.

GUARANTOR

Abhilash Koratala.

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