

Metastatic calcification: Be watchful when renal failure complicates renal tubular acidosis

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Case report

A 14-year old boy, who attended clinic very irregularly for management of chronic kidney disease, developed tender localized multiple lumps over the left shoulder and elbow, without affection of joint movements. He was on sodium citrate and phosphate buffer for mixed renal tubular acidosis since the age of 3 years. Calcitriol, antihypertensives, iron and folic acid had been added when chronic renal failure developed. Widespread peri-articular soft tissue calcification was seen on radiography (Figure 1). Intracranial, pulmonary and renal calcifications were absent.



Figure 1: Extensive peri-articular soft tissue calcification around the left shoulder joint

Serum calcium was 7.44 mg/dl (Normal 8.4-10.4), serum phosphate 15.6 mg/dl (Normal 3.4-6.2), serum

creatinine 525 $\mu\text{mol/l}$ (Normal <97) and serum parathyroid hormone 510ng/l (normal 15-65). [Calcium] x [Phosphate] was 116 mg^2/dl^2 . Phosphate buffer was discontinued, dietary phosphate restricted and calcium carbonate administered as a phosphate binder. Three days later, serum phosphate decreased to 8.6 mg/dl, and serum calcium normalized. Pain and tenderness took four weeks to resolve.

Discussion

Phosphate buffer was prescribed for correction of hypophosphataemia caused by renal tubular acidosis. However, when phosphate excretion deteriorated due to impaired renal function, hyperphosphataemia resulted with secondary hyperparathyroidism contributing to this dyselectrolytaemia. [Calcium] x [Phosphate] product above 70 mg^2/dl^2 is associated with a high risk of metastatic calcification in joints, soft tissue, kidney, brain, lung and arteries¹⁻³. Our patient had only extensive soft tissue calcification but highlights the need for careful monitoring of serum calcium and phosphate levels especially when both tubular dysfunction and glomerulopathy co-exist.

References

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