Calcific olecranon bursitis in end-stage renal disease

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To the Editor,

A 72-year-old White man with a history of end-stage renal disease (ESRD) secondary to diabetic nephropathy on hemodialysis for 1 year has presented with worsening pain and swelling in the left elbow of 1 week duration. He denied any trauma. He had chronic left olecranon bursitis for 2 years and review of elbow radiograph from 1 year ago confirmed the same [Fig. 1b]. He did not undergo any intervention, as it was not causing any discomfort. Physical examination revealed soft-tissue swelling, tenderness, and crepitus at the left elbow joint [Fig. 1a]. Radiograph of the elbow at presentation demonstrated prominent calcifications and gas in the olecranon bursa (Fig. 1c) suggestive of infected calcific olecranon bursitis. Analysis of the bursal aspirate demonstrated a high white blood cell count ($36,120/\text{mm}^3$) with granulocyte predominance, consistent with infection. He was treated with antibiotics with a plan for bursectomy as outpatient. Interestingly, the patient's serum ionized calcium, phosphate and uric acid level were within normal limits. Serum parathyroid hormone level was 165.7 pg/mL, acceptable for ESRD patients.

ESRD is a known risk factor for extra-osseous calcification and infection [1]. Significant increase in bursal calcification in our patient was temporally associated with initiation of dialysis, which may be attributed to 'hidden' or 'transient' hypercalcemia in the setting of exposure to higher dialysate calcium concentrations [2]. Calcium concentration in the standard dialysate we use is 2.5 mmol/L,

but the patient was being intermittently dialyzed against high calcium bath (3.5 mmol/L) for intradialytic hypotension. Olecranon bursitis has been previously reported in dialysis patients but primarily in the extremity with arteriovenous access, attributed to repeated microtrauma from patients resting on their elbow during haemodialysis treatment [3, 4]. However, our patient had it on the opposite extremity, implicating non-mechanical factors, possibly uremic milieu and chronic inflammatory state.

Fig. 1 **a** Patient's left upper extremity at presentation demonstrating inflammatory swelling in the elbow region. **b** Radiograph of the left elbow approximately 1 year prior to presentation showing soft tissue swelling consistent with olecranon bursitis with minimal central calcification. Vascular calcification can be seen as well. **c** Radiograph of the same elbow at presentation demonstrating more prominent calcifications and air in the olecranon bursa. No joint involvement was noted

Both the authors made equal and substantial contribution to the preparation of this manuscript.

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Compliance with ethical standards

Conflict of interest The authors have declared that no conflict of interest exists.

Human and animal rights (with IRB approval number) This article does not contain any studies with human participants or animals performed by any of the authors. IRB approval is not applicable for a single ‘clinical image’.

Informed Consent Written informed consent obtained from the patient.

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