Lower back pain in a patient on long-term haemodialysis

Roberta Callus,¹ Richard Pullicino,² Louis Buhagiar,¹ Adrian Mizzi²

¹Department of Medicine, Mater Dei Hospital, Msida, Malta

²Department of Medical Imaging, Mater Dei Hospital, Msida, Malta

Correspondence to
Dr Roberta Callus,
robertacallus@yahoo.co.uk

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DESCRIPTION

A 60-year-old woman with end-stage renal disease secondary to adult polycystic kidney disease, presented with a 6-month history of worsening sacral and rectal pain. She reported anorexia and significant weight loss. She was on haemodialysis for 5 years prior to receiving a renal transplant, which failed after 8 years. She was then recommenced haemodialysis for another 4 years to date. She underwent bilateral nephrectomy of her native kidneys prior to transplantation. Clinical examination showed cachexia, hepatomegaly and a right iliac fossa graft. Rectal examination was normal. Passive movements of both lower limbs were painful; however, there was no neurological deficit.

Investigations showed a chronic normocytic anaemia despite high doses of erythropoietin and adequate iron stores. Secondary hyperparathyroidism progressed despite treatment with alfacalcidol and phosphate binders. Serum calcium was

2.40 mmol/L (normal 2.05–2.55 mmol/L); phosphate 1.63 mmol/L (normal 0.87–1.45 mmol/L); alkaline phosphatase 503 U/L (normal 40–104 U/L) and parathyroid hormone 2053 pg/mL (target 150–300 pg/mL). CT imaging revealed a sacral mass (figures 1–3).

Brown tumours are more common in primary compared with secondary hyperparathyroidism.¹ In this case the severe hyperparathyroidism was attributed to a long history of advanced chronic kidney disease, as well as poor phosphate control. Thirty-seven cases of brown tumours affecting the spine have been reported in the literature, all presenting with symptoms and signs of cord compression.² The thoracic spine was affected in 58.3% of cases.² Treatment options include decompression surgery and/or parathyroidectomy. Osteoclastomas may be prevented by prompt diagnosis and treatment of hyperparathyroidism in chronic kidney disease as well as in renal transplant patients.

Figure 1 (A) Axial CT image at the level of L2 vertebral body shows multiple simple cysts scattered in both liver lobes. (B) Follow-up CTs taken 3 years apart demonstrate interval development of a lobulated soft tissue mass centred in the left posterior elements of L1. The lesion extends medially and causes narrowing of the central canal.

Figure 2 Axial CT images through the pelvis taken 3 years apart. (A) A renal transplant is noted in the right iliac fossa and appears within normal limits. The visualised sacrum and ilia are unremarkable. (B) There is loss of cortico-medullary differentiation in keeping with a failed renal graft. A soft tissue mass is seen in the dorsal aspect of the sacrum which extends into the sacral canal. Note decreased mineralisation in the iliac wings in keeping with osteomalacia.

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Figure 3 A biopsy of the mass showed vascularised fibrous tissue with osteoclast-type giant cells. These cells have a haphazard arrangement favouring the diagnosis of a spinal osteoclastoma (brown tumour). Also note the brown haemosiderin deposition (A—H&E stain $\times 100$; B—H&E stain $\times 400$).

Learning points

- Brown tumours should be considered in the differential diagnosis of a spinal mass in a patient with long-standing chronic kidney disease.
- Regular monitoring and prompt treatment of mineral bone disorders in chronic kidney disease, according to established guidelines, is important.
- Spinal cord compression is a frequent complication of spinal brown tumours.

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