

Short Report

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Diffuse osteosclerosis of axial and appendicular skeleton is rare in renal osteodystrophy: Case report***Corresponding Author: Amit Kumar**

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Abstract

Diffuse osteosclerosis of axial and appendicular skeleton is an unusual manifestation of renal osteodystrophy. Symmetrical involvement of multiple bones is the finding. The more common encountered feature is rugger jersey appearance of spine due to affected vertebral end plates.

We present a case with chronic kidney disease and renal osteodystrophy manifesting in the form of diffuse osteosclerosis.

Keywords: Chronic kidney disease; Renal osteodystrophy; Diffuse osteosclerosis; Axial and appendicular skeleton.

Introduction

Renal osteodystrophy is a term comprising all disorders of calcium and phosphate metabolism along with abnormalities of musculoskeletal system in a patient with chronic kidney disease [1]. It is an amalgam of pathological conditions comprising hyperparathyroidism and osteomalacia. The finding may involve both spectrum i.e. Osteopenia and osteosclerosis [2]. Also, sclerosis involving only the bone ends is an unusual finding and it must be differentiated from osteonecrosis [3].

This case demonstrated the unusual spectrum of renal osteodystrophy with diffuse osteosclerosis of multiple bones.

Case report

A 45-year-old male came to the Department of Medicine for regular follow up for impaired kidney function test. Routine blood investigations showed raised serum creatinine level. He was referred to the department of Radiodiagnosis for NCCT KUB study. It showed a small right kidney- likely atrophied (Figure 1). Left kidney showed compensatory enlargement with moderate hydronephrosis (Figure 1). The left ureter was also dilated in its whole extent (Figure 2). The bladder was distended with mildly thickened and irregular wall (Figure 2) with urinary bladder diverticula. Bone window showed marked, diffuse osteosclerosis of multiple vertebrae, ribs and hip bones (Figure 3).

Discussion

In a long-standing case of renal insufficiency, secondary hyperparathyroidism occurs due to parathyroid cell hyperplasia [4]. This increased secretion of parathormone is due to decreased level of serum calcium caused by increased serum phosphate levels and decreased $1.25(\text{OH})_2$ Vitamin D as a consequence of impairment of renal parenchyma [5].

Osteosclerosis is a common manifestation of chronic renal insufficiency. However, it usually involves metaphysis of long bones or superior and inferior end plates of vertebrae, resulting in classical appearance of 'rugger jersey vertebrae' which is quite pathognomic of hyperparathyroidism, particularly due to chronic renal failure. But involvement of bone ends is quite unusual [6-9].

The main differentials of rugger jersey spine include Paget's disease which is characterised by picture frame vertebra [8]. And Osteopetrosis, characterised by Sandwich vertebra [10].

Osteosclerosis predominantly involves spine followed by pelvis, ribs and skull. The accentuated radiodensity of bones is attributed to increased trabecular bone mass [3].

In some cases, haematological decompensation may occur due to compromised marrow function.

Bone biopsy is the gold standard to confirm the diagnosis of

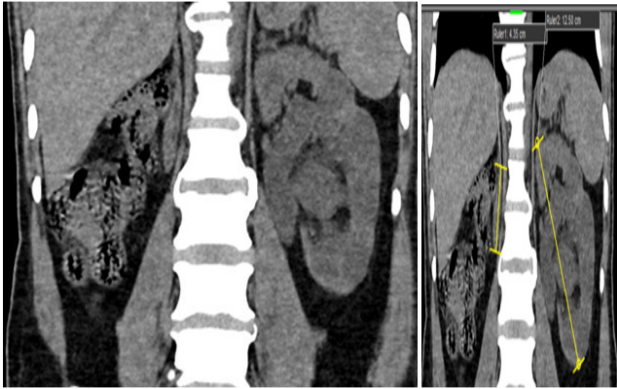


Figure 1: Small right kidney and enlarged left kidney with mild to moderate hydronephrosis.



Figure 2: Mild irregular and thickened bladder wall with dilated left ureter.

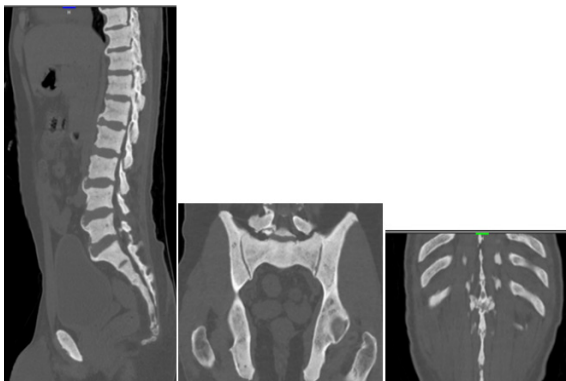


Figure 3: Diffuse osteosclerosis involving multiple vertebrae, ribs and bilateral hip bones.

Renal osteodystrophy. Radiological investigations help in early diagnosis and aids in follow up of patients in monitoring the effects of therapy.

Conclusion

Renal osteodystrophy is commonly encountered in the patients with chronic kidney disease but they present as sclerosis of the end plates of the vertebral bodies. It is also important to know the other varied and unusual presentation in CKD. Here, we report a case with rare presentation of bone involvement in the form of diffuse osteosclerosis.

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