Severe Osteomalacia in An Adult HIV Patient on Tenofovir Disoproxil Fumarate

Dear Editor,

A 40-year-old with a HIV infection, on antiretroviral therapy which included tenofovir disoproxil fumarate for the last 14 years, presented with severe back pain. There was weakness of bilateral lower limbs, hypokalemia (2.4 meq/L), with normal anion gap metabolic acidosis, hypophosphatemia (1.5 mg/dl), hypocalcemia (3.8 mg/dl), elevated alkaline phosphatase, and serum creatinine (2 mg/dl) at presentation. Vitamin D and parathyroid hormone levels were within normal range. While urine analysis revealed glycosuria but nil albumin in the urine, the 24-hr collection had more than 1 g of protein. In the face of low serum phosphate, she had a 24-hr urine phosphate of 502.9 mg suggesting phosphaturia as the cause of low serum phosphate. Her autoimmune workup, serum, and urine electrophoresis also turned out negative.

Chest X-rays showed pseudo-rib fractures (Milkman's fracture) on the second and sixth ribs on both sides. A Tc99 bone scan demonstrated foci of abnormally increased tracer concentration in corresponding bones and other multiple sites, as seen in Figure 1.

A diagnosis of tenofovir disoproxil fumarate induced Fanconi syndrome with severe osteomalacia was made. Switching to another tenofovir prodrug, tenofovir alafenamide, and repletion of calcium, phosphates, potassium, and sodium bicarbonate by intravenous and oral routes resulted in significant improvement over a period of 2–3 weeks.

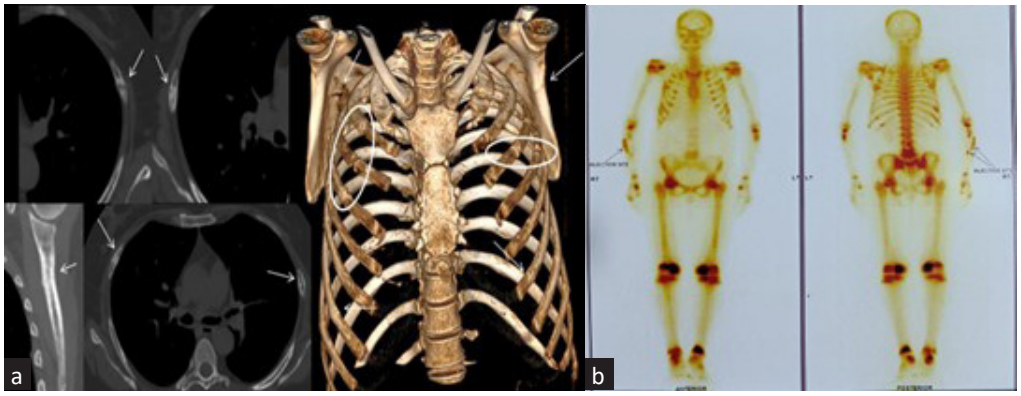

Figure 1: (a) Computed tomography thorax imaging and 3D reconstruction showing pseudofractures or Milkman's fractures of multiple ribs bilaterally and medial borders of both scapulae are shown by the white arrows and white circles respectively. (b) Tc 99 bone scan showing increased uptake in the same areas.

Vigilance during tenofovir treatment is recommended by the EASL and IDSA. Serum creatinine and electrolytes, including phosphate, should be obtained every 3 months in the first year and every 6 months thereafter.[1,2] TDF should be discontinued for serum phosphate below 2 mg/dL or creatinine clearance below 50 mL/min.[2] Stopping TDF typically leads to renal recovery over months, though there have been reports of persistent renal impairment.[3]

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

Conflicts of interest

There are no conflicts of interest.

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References

1. European Association For The Study Of The Liver. EASL clinical practice guidelines: Management of chronic hepatitis B virus infection. J Hepatol 2012;57:167-85.
2. Gupta SK, Eustace JA, Winston JA, Boydstun II, Ahuja TS, Rodriguez RA, et al. Guidelines for the management of chronic kidney disease in HIV-infected patients: Recommendations of the HIV medicine association of the infectious diseases society of America. Clin Infect Dis 2005;40:1559-85.
3. Karras A, Lafaurie M, Furco A, Bourgarit A, Droz D, Sereni D, et al. Tenofovir-related nephrotoxicity in human immunodeficiency virus-infected patients: Three cases of renal failure, Fanconi syndrome, and nephrogenic diabetes insipidus. Clin Infect Dis 2003;36:1070-3.

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