

## Osteomalacia presenting with multiple vertebral fracture: A Case Report

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**Background:** Osteomalacia is a condition characterized by impaired mineralization of bone, resulting in the accumulation of unmineralized bone matrix, known as osteoids. Common causes of osteomalacia include vitamin D deficiency, inactivity, and hypophosphatemia. Here, we present a case study of a 64-year-old man diagnosed with osteomalacia due to vitamin D deficiency.

**Case report:** The 64-year-old man presented with a few years of leg pain, muscle weakness and gait disturbance with a history of living in a basement for a long period, chronic alcoholics, poor oral intake, and had undergone right total hip replacement arthroplasty ten years ago due to right hip avascular necrosis. He had experienced weakness in both legs and sought medical attention at Neurology and Orthopaedic surgery for a few years. But he didn't get any diagnosed. Physical examination revealed bone tenderness. Pelvis x-rays revealed only old fracture at both inferior pubic rami, T-L spine MRI revealed T4, T7 compression fracture. Laboratory findings revealed low hemoglobin, low calcium level, low serum phosphate, bone mineral density was assessed, revealing T-score of -5.1 on the lumbar vertebra and -4.1 on the femur, elevated alkaline phosphatase, severely low 25-hydroxyvitamin D levels, and elevated intact parathyroid hormone levels. Osteomalacia due to vitamin D deficiency was diagnosed, attributable to long period living in a basement. Treatment started, involving calcium supplementation, cholecalciferol, and calcitriol, leading to an improvement in symptoms after two months.

**Conclusion:** This case highlights the association of dizziness, bone pain, muscle weakness with osteomalacia due to vitamin D deficiency. The delayed diagnosis is mainly attributed to the absence of characteristic radiologic findings or distinguished clinical symptom during initial assessments. General muscle weakness can result from osteomalacia secondary to vitamin D deficiency. Additionally, dizziness accompanied by anemia may be indicative of anemia caused by vitamin D deficiency. Furthermore, It is essential to consider not only physical examination and laboratory findings the patient's social status and lifestyle.



Figure 1. Hip Both AP. There is not any Bone lesion on Femur. Old fracture deformity at both inferior pubic rami.

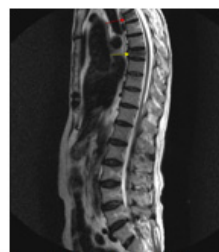


Figure 2. T-L spine MRI. T4 compression fracture is shown on red arrow. T7 compression fracture is shown on yellow arrow.

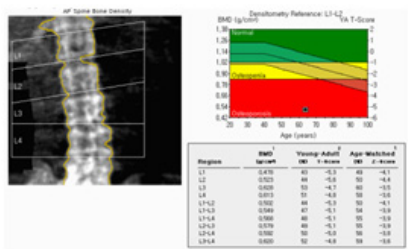


Figure 3. L-spine BMD. T-score revealed -5.1.

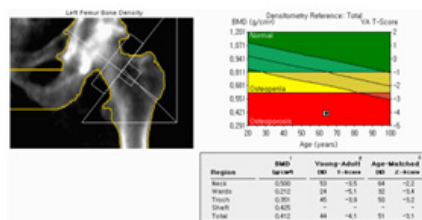


Figure 4. Hip BMD. T-score revealed -4.1.

	2016-9 pre treatment	2016-11 post treatment
Hemoglobin(g/dL)	6.9	11.8
Calcium(mg/dL)	6.4	9.6
Phosphorus(mg/dL)	1.4	3.6
Intact PTH(pg/mL)	399.8	19.4
25-(OH) Vitamin D(ng/mL)	<3	15.3
Serum Cr(mg/dL)	1.4	1.1
Urine Ca(mg/dL)	0.1	1.1
Urine Phosphorus(mg/dL)	3.1	1.1

Table 1. Hb, Ca, P, Intact PTH, 25-(OH) Vitamin D according to the course of treatment. Hb, Ca, P, 25-(OH) improves after treatment. Low Urine Ca level and High FEPO4 (27.6%) corresponds to Vitamin D deficiency.