



Book Supplement

Table 1. Differential Diagnosis for Osteoporosis

Disease	Notes
Hypophosphatasia	A rare genetic disease of impaired bone mineralization due to ↓ alkaline phosphatase activity, leading to bone deformities and frequent fractures.
Osteogenesis imperfecta	A rare genetic condition of deficient or abnormal formation of type 1 collagen, resulting in brittle bone disease and blue sclera.
Paget's disease	An idiopathic disorder of bone remodeling, with ↑ osteoclast bone resorption and disorganized bone formation, resulting in bone deformities and ↑ risk of fracture. The diagnosis is often suspected from radiographs obtained for other reasons or from an isolated ↑ of the serum alkaline phosphatase.
Primary or metastatic bone malignancy	Presenting as a pathological fracture.
Rickets/osteomalacia	Poorly mineralized bone due to vitamin D deficiency or resistance, calcium deficiency, or renal phosphate leaks, resulting in bone pain and deformities, proximal muscle weakness, and an ↑ risk of fracture. Hypocalcemia and hypophosphatemia are seen, except in renal osteodystrophy in which the phosphorus level is invariably ↑ and the calcium level ↓. The alkaline phosphatase is usually ↑ in all forms of osteomalacia (except hypophosphatasia).

Table from *Physicians Information and Education Resource (PIER)*, Osteoporosis module.