Diffuse Polyarthralgia Secondary to Oncogenic Osteomalacia

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Case Description

- 32Y previously healthy male presenting with four months of weakness and diffuse joint pain, including bilateral ankle and dorsal midfoot areas
- Aggravated by standing and walking
- Tenderness diffusely throughout feet, pain with resisted range of motion
- Prior radiographs unremarkable, MRI showed multiple stress fractures throughout right foot
- Endocrinology workup revealed refractory hypophosphatemia and elevated bone specific alkaline phosphatase
- Started on calcitriol and neutra-phos, resulting in mild symptomatic and lab improvement
- PET scan identified mesenchymal tumor in right proximal thigh
- Tumor resection resulted in normalization of lab abnormalities and resolution of symptoms

References

1. Chong, William H, et al. "Tumor-Induced. Osteomalacia" *Society for Endocrinology*, vol. 18, no. 3, June 2011, pp. 1–7., doi:10.1530/ERC-11-0006.
2. Collins, Michael T., et al. "Tumor-Induced Osteomalacia." *Principles of Bone Biology*, 20 Sept. 2017, pp. 90–97., doi:10.1016/b978-0-12-814841-9.00064-6.

Figures

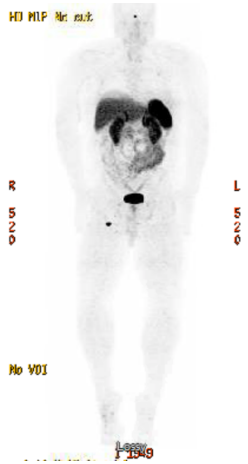

Figure 1. PET scan revealing GaTate avid soft tissue nodule (1.3 x 1 cm) in the medial compartment of the right proximal thigh

Table 1. Pre-surgery lab values

Component	Patient Value	Reference Value
Phosphorus (mg/dL)	1.9	2.5-4.5
Alk Phos, Bone Specific (ug/L)	25.1	6.5-20.1
Vitamin D, 1,25-diydroxy (pg/mL)	<5	19.9-79.3
FGF 23 (RU/mL)	</= 180	337

Table 2. Post-surgery lab values (4 months post-op)

Component	Patient Value	Reference Value
Phosphorus (mg/dL)	4.6	2.5-4.5

Table 3. Post-surgery lab values (18 months post-op)

Component	Patient Value	Reference Value
Phosphorus (mg/dL)	3.7	2.5-4.5

Case Discussion

- Rare metabolic disorder involving inappropriate mesenchymal tumor expression of fibroblast growth factor (FGF) 23 → impaired phosphate reabsorption and decreased renal conversion of 25-hydroxyvitamin D to active form[1]
- Mean age of 40-45 years, no sex predominance[2]
- Tumors are typically benign[1]
- Signs/Symptoms: pain, weakness, fatigue, stress fractures
- Diagnosis: lab work to assess phosphorus, vitamin D, and alkaline phosphatase, and imaging to identify tumor source
- Treatment: surgical removal of tumor and/or phosphorus replacement therapy

Conclusions

- This case adds to the growing body of literature describing oncogenic, or tumor-induced, osteomalacia