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A Rare Case Of Hypercalcemia: Mycobacterium Avium Complex Induced Hypercalcemia

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Background: Primary hyperparathyroidism and malignancy accounts for 90% of cases of hypercalcemia. Other causes of hypercalcemia are granulomatous diseases of which tuberculosis and sarcoidosis account for most. We report on a patient with acquired immunodeficiency syndrome (AIDS) presenting with new-onset hypercalcemia secondary to mycobacterium avium complex (MAC) infection.

Clinical Case: A 36-year-old man diagnosed with HIV-1/AIDS on ART presented to the hospital 3 months after initial diagnosis with worsening abdominal pain, nausea and vomiting, cough, weight loss and night sweats. He had presented to an outside facility with similar complaints, he had EGD done, was started on Augmentin and Azithromycin, and was awaiting biopsy results. On arrival he was afebrile and without palpable lymphadenopathy. He was found to have a high serum calcium (12.4 mg/dL, n 8.6-10.2 mg/dL) and acute kidney injury (AKI) (creatinine 1.7 mg/dL, n 0.6-1.3 mg/dL). His CD4 count had increased from 17 at time of diagnosis to 80 cells/μL (n 443-1,471 cells/μL). Workup for hypercalcemia revealed an elevated phosphorus (5.2 mg/dL, n 2.5-5.0 mg/dL), low PTH (<1 pg/mL, n 12-88 pg/mL), elevated 1,25 Vit D level (112 pg/ml, n 20-79 pg/ml), low PTHrP (8 pg/ml, n 14-27 pg/ml). TSH was mildly elevated (8 uIU/ml, n 0.35-5.50 uIU/ml) with normal free T4 levels. CT scan done on admission revealed bulky retroperitoneal and mesenteric root adenopathy with hepatosplenomegaly initially concerning for lymphoma. Patient was started on intravenous hydration and bisphosphonate was administered. He underwent laparoscopic lymph node biopsy and bronchoscopy with pathology report showing numerous acid-fast organisms, negative for malignancy. AFB culture was positive for
MAC. Prednisone was started after biopsy with improvement in serum calcium (calcium 9.4 mg/dL). He was treated with Azithromycin and Ethambutol and discharged home a week after. **Conclusion:** Granulomatous diseases like MAC, an AIDS-defining illness, cause hypercalcemia via activation of macrophages which express extrarenal 1- alpha-hydroxylase. It converts vitamin D to its active form 1,25(OH)2 vitamin D causing its excess, leading to hypercalcemia. Other potential causes of hypercalcemia such as malignancy must be ruled out as seen in our patient who had classic B symptoms with imaging suggestive of lymphoma. Treatment of hypercalcemia in granulomatous disease is aimed at treatment of the underlying disorder. It responds well to glucocorticoids and bisphosphonates.  
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