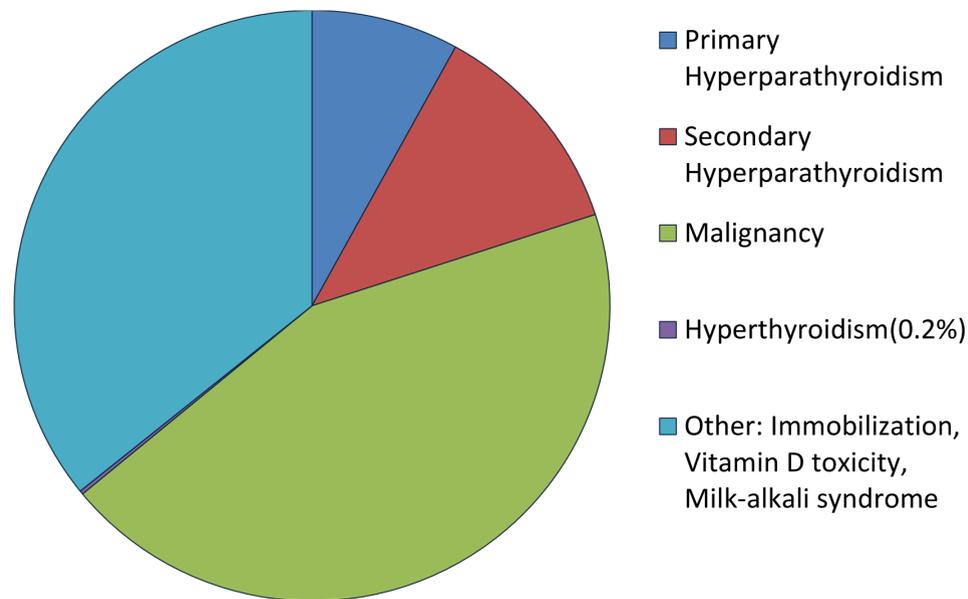


# Inappropriately Elevated Calcium Associated with Thyrotoxicosis

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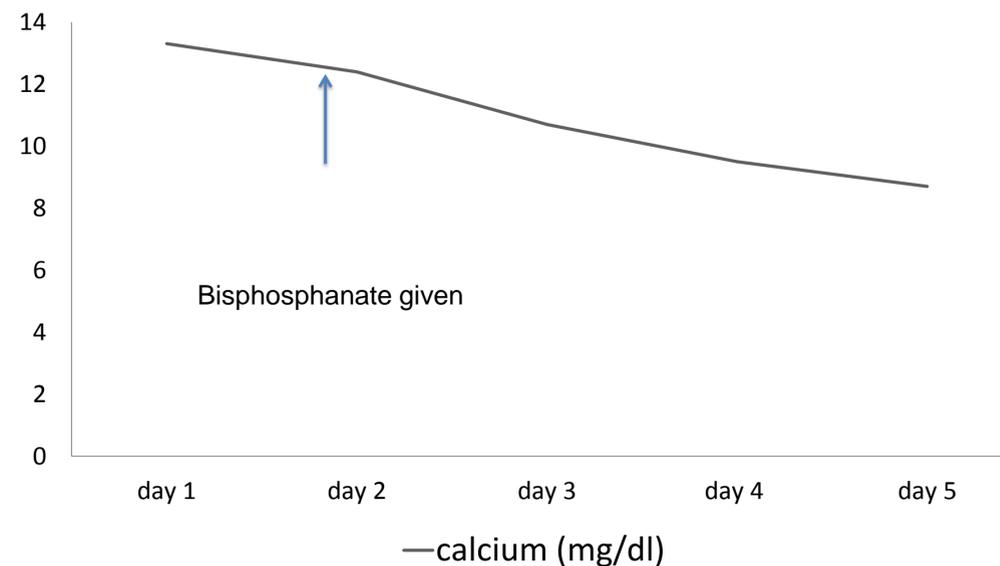
## Introduction :

Elevated serum calcium is commonly associated with primary hyperparathyroidism, malignancy, kidney disease, and as a side effect of diuretics. Hyperthyroidism can cause disturbances in calcium metabolism in about 0.2 % of individuals, which are mild in most cases. In rare instances, this condition can lead to surprisingly high levels of serum calcium.



## Case Presentation :

A 54-year-old female with a history of HIV on HAART presented with a palpitations, diaphoresis, anxiety, insomnia, and unintentional weight loss of 40 pounds over several weeks. On examination, she was anxious, tachycardic, and had a thyroid that was nodular and triple the normal size. TSH was  $<0.05$  (0.47 - 4.70 uIU/ml), free T4 6.82 (0.80 - 2.20 ng/dl), and T3  $>22.8$  (2.77 - 5.27 Pg/mL). Calcium level was 13.3 mg/dl (8.4 - 10.2 mg/dL), phosphorus 3.4 (2.5-4.5 mg/dl), creatinine 1.2 (0.5-1.0 mg/dl), hemoglobin 10.7 mg/dl (12.0-16 mg/dl). Intact parathyroid hormone and PTHrP were low and Vitamin D 25 was 21.3 (30-100 ng/ml).



Thyroid stimulating immunoglobulin was elevated. Methimazole 30 mg BID, calcitonin, and pamidronate infusion were given. Patient was also hydrated with normal saline and started on metoprolol. HTLV1 was negative and no malignancy was evident. With the intervention the patient improved symptomatically. Calcium level came down to 8.7 mg/dL within 6 days as the patient became markedly less hyperthyroid.

## Discussion :

In cases of very high calcium, primary hyperparathyroidism, as well as other common causes, should be ruled out. During work-up, hyperthyroidism should be explored as it is a rare cause of hypercalcemia. A review of the literature suggests that elevated calcium in hyperthyroidism is not usually more than 11 mg/dL. Excessive bone remodeling, due to stimulation of osteoclasts by T3 is known to cause osteoporosis in the long term. In some cases, parathyroid hormone and vitamin D 1, 25 are suppressed as a result of the hypercalcemia. As demonstrated in the case above, calcium returns to normal when thyroid status is controlled.

## References :

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