

Cinacalcet for Primary Hyperparathyroidism in the Third Trimester: A Case Report

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INTRODUCTION

Primary hyperparathyroidism (PHPT) is a rare complication of pregnancy caused by overproduction of parathyroid hormone (PTH) leading to hypercalcemia. Hypercalcemia can be associated with significant morbidities including maternal pancreatitis, nephrolithiasis, and preeclampsia.¹ Neonatal morbidities can include hypocalcemia, seizures, and low birth weight.² Workup includes measurement of calcium and PTH levels as well as imaging to identify PTH secreting adenomas. Diagnostic imaging is restricted, as CT and technetium-99m Sestamibi scans are contraindicated due to their potential teratogenicity risks, so ultrasound is the primary modality for locating adenomas.³ Current management of PHPT during pregnancy involves aggressive hydration to increase renal calcium excretion and parathyroidectomy during the second trimester.¹ Medical therapy is limited, as bisphosphonates are contraindicated during pregnancy due to the possible risks of fetal skeletal abnormalities.³ Cinacalcet has been shown to cross the placenta suggesting a theoretical risk of neonatal hypocalcemia.^{4,5} There is limited data regarding outcomes of cinacalcet use in pregnancy, though case studies have had generally favorable outcomes.^{6,7}

METHODS

- 30-year-old primigravida found to have hypercalcemia when evaluated after motor vehicle collision (MVC) at 32 weeks following limited prenatal care.
- Total calcium 14.3 mg/dL, PTH 772 pg/mL, diagnosed with PHPT.
- Symptoms of constipation and mild confusion. No renal calculi, depression, seizures, or bone pain.
- Initial treatment with aggressive IV fluids.
- Review of previous records revealed diagnosis of PHPT 5 years prior; patient had been lost to follow up.

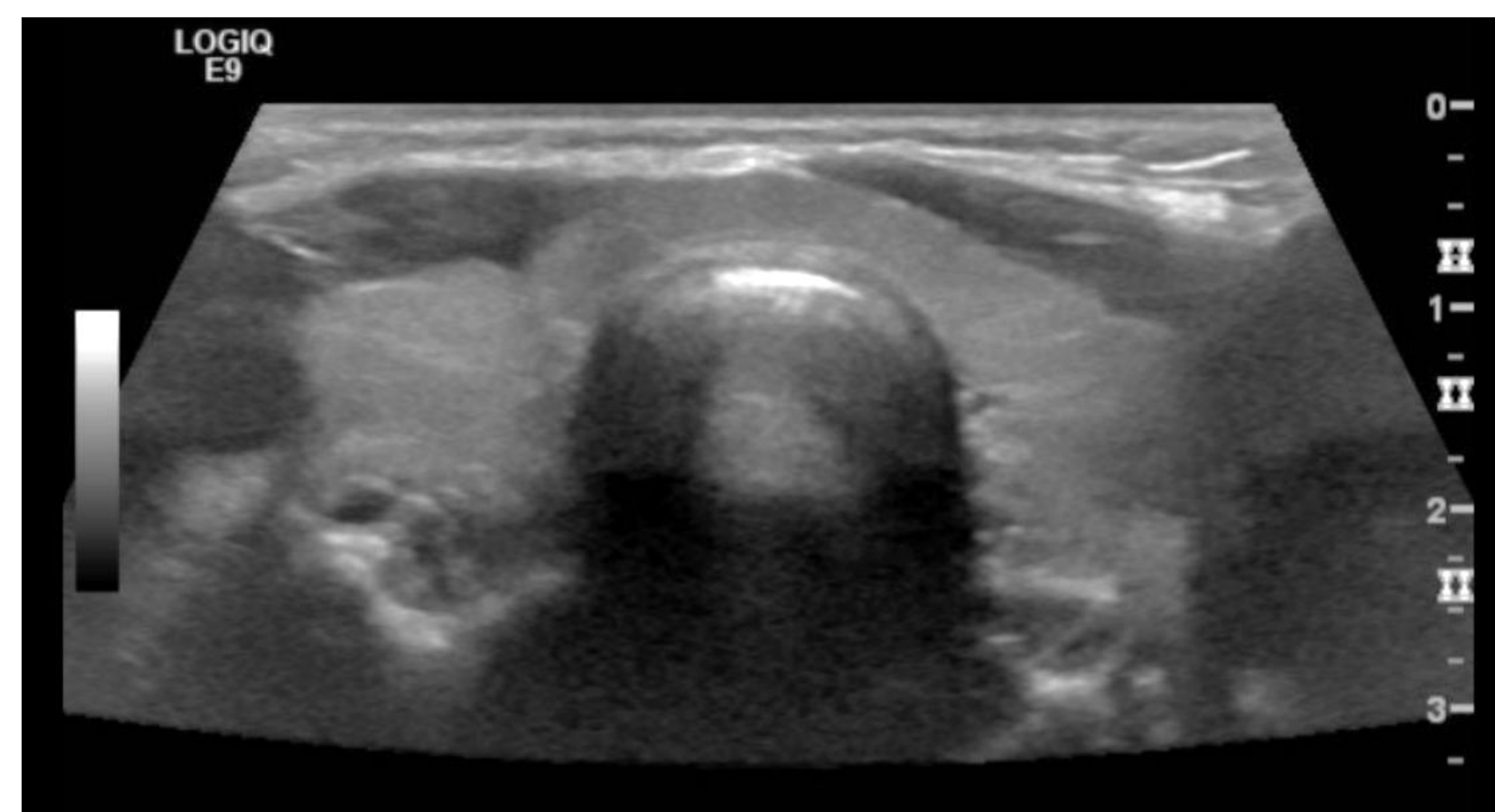


Figure 1. Ultrasound of thyroid and parathyroid glands. The ultrasound showed an unremarkable thyroid gland without nodules or adenomas.

RESULTS

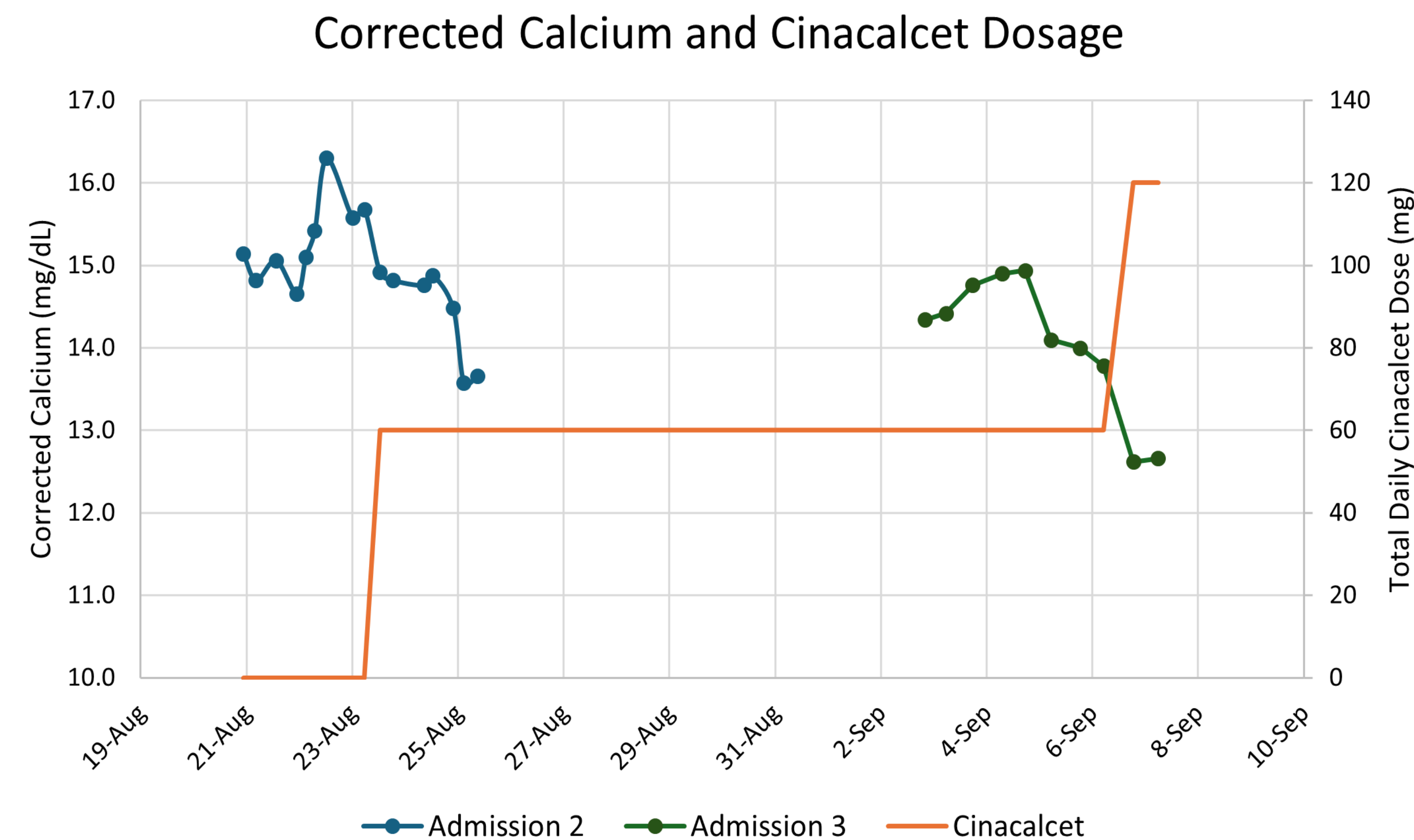


Figure 2. Corrected Calcium and Cinacalcet Dosage. The graph depicts the patient's total calcium corrected for hypoalbuminemia in response to IV fluids and cinacalcet.

- Ultrasound of the thyroid and parathyroid failed to identify an adenoma (Figure 1); ENT deferred any potential surgical treatment to postpartum.
- Admission 1:** 32 weeks for MVC and hypercalcemia. Treated with IV fluids only. Total calcium 13.7 mg/dL at discharge.
- Admission 2:** 35 weeks for hypercalcemia. Aggressive IV fluids failed to reduce serum calcium after 72 hrs, so cinacalcet 30 mg BID was begun. Corrected calcium decreased to 13.7 mg/dL prior to discharge (Figure 2).
 - EKG with diffuse ST elevation determined to be benign repolarization.
 - Creatinine > 1.1mg/dL
- Diagnosed with gestational hypertension at 35 weeks. Induction of labor (IOL) scheduled for 37 weeks.
- Admission 3:** 37 weeks for IOL. Cinacalcet titrated to 60 mg BID one day prior to delivery (Figure 2).
 - Neonatal outcome:** AGA male (3.2 kg) with initial hypercalcemia (14.6 mg/dL) and hypophosphatemia (3.9 mg/dL). Neonate received dextrose for hypoglycemia. Calcium and phosphate normalized by day 5 of life without intervention.
 - Maternal outcome:** Cesarean delivery due to failure to progress. Corrected calcium 12.7 mg/dL prior to discharge. Discharged on cinacalcet 90 mg BID with endocrinology and otolaryngology follow up.

CONCLUSIONS

- Nonspecific symptoms of PHPT (fatigue, confusion, constipation) can be attributed to normal pregnancy physiology, delaying recognition and treatment.
- Cinacalcet provided mild but clinically meaningful biochemical improvement, and both maternal and neonatal outcomes were favorable, suggesting it may serve as a cautiously considered alternative when parathyroidectomy is not feasible in the third trimester.
- Clinical picture was complicated by gestational hypertension and renal dysfunction, which was difficult to differentiate from preeclampsia. sFlt-1/PIGF ratio was low (2), therefore her elevated creatinine was determined to be a likely result of her prolonged, untreated PHPT.
- This case contributes to existing associations between PHPT and hypertensive disorders of pregnancy. Close blood pressure monitoring is warranted, and consideration of low-dose aspirin prophylaxis may be appropriate in selected patients.

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