Hypercalcemic Crisis: A Case of Primary Hyperparathyroidism During Pregnancy

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Abstract

Primary hyperparathyroidism (PHP) is the third most common endocrine disorder following diabetes and thyroid disease. Women are affected by primary hyperparathyroidism twice as often as men. The first reported case of hyperparathyroidism during pregnancy was in 1931. More recent data suggests that hyperparathyroidism during pregnancy is diagnosed in 0.5-1.4% of women. Symptoms of primary hyperparathyroidism, such as fatigue, lethargy, and proximal muscle weakness are nonspecific and could be mistaken as complaints naturally present during pregnancy; however, maternal complications in patients with hyperparathyroidism can be as high as 67%. We present a case of a pregnant patient who presented in hypercalcemic crisis with a concomitant diagnosis of primary hyperparathyroidism.

Introduction

Primary hyperparathyroidism has a prevalence of 0.15-1.4%. It has been reported that more than 80% of PHP cases remain asymptomatic and are diagnosed incidentally with laboratory data.

The first documented case of PHP in pregnancy was in 1931. It has been theorized that the incidence of PHP is similar in pregnant and nonpregnant patients; however, PHP often is unrecognized during pregnancy due to the physiologic changes that occur during pregnancy. Hypoalbuminemia, active calcium transport across the placenta, and an increased glomerular filtration rate all contribute to lower serum calcium levels during pregnancy.

The risks of PHP to pregnant women and fetuses appears to increase in proportion with serum calcium levels. Important sequelae of unrecognized and/or untreated severe PHP in pregnancy include: pre-eclampsia, miscarriage, intrauterine growth restriction, polyhydramnios, and neonatal tetany.

Case Presentation

The patient is a 43-year-old female, gravida 4, para 2-0-1-2 at 17 weeks gestation, unknown prior to arrival, who presented to the hospital with complaints of 3-4 months of abdominal pain, nausea, vomiting, and malaise.

Physical examination performed revealed a gravid uterus and left-sided fullness upon palpation of the neck.

A neck ultrasound was performed, which identified a 2.2 x 1.2 x 1.4 cm hypoechoic, hypervascular structure at the inferior aspect of the left thyroid lobe, concerning for a parathyroid adenoma.

Admission laboratory values were significant for: serum calcium 14.9 mg/dL, magnesium 1.4 mg/dL, intact PTH 352.0 pg/mL, and vitamin D 29.6 mg/dL.

Operating Room

The patient was subsequently taken to the operating room for a parathyroidectomy with intraoperative neuromonitoring. A 3.5 x 1.2 x 1.5 cm left inferior parathyroid adenoma was resected uneventfully.

Postoperative Course

Her postoperative PTH level dropped to 71.6 pg/mL. Serum calcium level dropped to 11.7 mg/dL immediately after adenoma resection, and her serum calcium level normalized to 9 mg/dL on postoperative day one. The patient and her calcium levels were monitored closely in the intensive care unit; however, her calcium level never dropped below 8.6 mg/dL. She recovered well postoperatively, and she was subsequently discharged home in stable condition on postoperative day four.

Discussion

Patients with PHP often have generalized nonspecific complaints consistent with their level of hypercalcemia. Symptoms associated with calcium levels >12 mg/dL include fatigue, anorexia, vomiting, constipation, depression and blurred vision; however, once levels exceed 13 mg/dL, patient's typically have more profound findings, such as end organ calcification, which manifests as renal impairment, mental status change, cardiac arrhythmias, renal calculi, osteopenia, peptic ulcer disease, pseudogout, and muscle atrophy. Levels of >14 are rare and typically present as a medical emergency with hypercalcemic crisis that can result in uremia, coma, cardiac arrest, or death.

Maternal-fetal complications can occur with hypercalcemia during pregnancy. Maternal complications are reported as high has 67%, and fetal complications are reported to be as high as 80%. Symptoms secondary to hypercalcemia that occur in the nonpregnant patient can occur in the pregnant patient; however, hyperemesis gravidum and maternal hypertension have also been reported. Fetal complications are markedly increased in patients with hypercalcemia. Although there is limited data, one study indicates there is a 1 in 3 chance of miscarriage or stillbirth. Other data reported indicates an increased risk of preterm labor, 50% rate of neonatal tetany, and a 25% chance of neonatal death.

Conclusion

Data is lacking regarding the treatment of PHP during pregnancy because of the rarity of cases. Previous case reports and case series comparing outcomes in pregnant women with expectant management versus surgery demonstrate the surgical candidates who underwent definitive treatment had better outcomes. These patients had a significantly lower risk of pregnancy complications and markedly better neonatal outcomes with a decreased incidence of neonatal tetany. Current data suggests surgery be performed during the second trimester of pregnancy in the presence of severe hypercalcemia to minimize maternal and fetal complications.

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