

A pregnant woman with primary hyperparathyroidism: a case report

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ABSTRACT

Primary hyperparathyroidism is diagnosed with an increase of calcium levels and a decrease in phosphorus levels. Primary hyperparathyroidism is a rare condition in pregnancy. Calcium levels tend to be low in pregnant women, and high levels of calcium can point a primary hyperparathyroidism. Here, we report an original case of a pregnant woman with primary hyperparathyroidism who was fully healed after the surgery. A 30-year-old pregnant women (10th gestational week), admitted to the endocrinology department for management of thyrotoxicosis, when high calcium levels (11.8 mg/dL) were found in the laboratory tests. The parathyroid hormone level was 135 pg/ml. Ultrasound imaging revealed a parathyroid adenoma (12x7x27mm). She had maintained high calcium levels despite the medical treatment, for this reason, she had surgery in the second trimester. Our case was diagnosed early due to early recognition of calcium elevation. The mother and the foetus had not any complication. Pregnant women tend to have low calcium levels hence if a hypercalcemia situation appears in pregnant women; primary hyperparathroidism has to be suspected.

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Introduction

Parathyroid hormone (PTH) is a peptide hormone that regulates the calcium levels in blood and extracellular fluid in the human body. Primary hyperparathyroidism (PHP) is diagnosed with the increase of the calcium levels and the decrease of the phosphorus levels. The PTH measurement shows high levels in this situation. Urinary calcium excretion is also increased. Adenoma is detected in 85% of cases [1,2]. Calcium levels are detected low in pregnant

women due to hypoalbuminemia, passage of the calcium to the placenta and increased glomerular filtration rate [3]. High levels of calcium can point a PHP in pregnant women. PHP is a rare condition in pregnancy but causes complications for the mother and the foetus. Maternal complications include hyperemesis, muscle weakness, mental status changes, hypercalcemic crisis, bone disease, nephrolithiasis, and pancreatitis. Reported foetal complications

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include intrauterine growth retardation, low birth weight, preterm delivery, intrauterine foetal demise, neonatal postpartum tetany, and permanent hypoparathyroidism [4]. Fortunately, prompt diagnosis and effective management can improve outcomes for both. Here, we report an original case of pregnancy with primary hyperparathyroidism that was diagnosed in the course of routine laboratory examination and healed completely after the surgery.

Case Presentation

A 30-year-old pregnant women (10th gestational week) admitted to the endocrinology department for management the thyrotoxicosis that was determined during the routine laboratory tests that were performed by her gynaecologist. She had been diagnosed with hyperemesis gravidarum and was considered to have gestational thyrotoxicosis in the first step of the medical procedure, but high calcium levels (11.8 mg/dL) were noticed in the laboratory tests. There was no history of hypercalcemia and her family history also did not reveal any case of hypercalcemia or any endocrine tumours. The PTH and the calcium levels were tested again, but the results were high as same as the first test results. The results were 135 pg/ml and 11.6mg/dl respectively. Urinary calcium excretion rate was 456 mg/per day. Tubular phosphorus reabsorption rate was 91%, and the chlor-phosphorus ratio was 41.3. In the light of all these data, primary hyperparathyroidism was diagnosed.

Ultrasound imaging revealed a parathyroid adenoma (12x7x27mm) at the inferior of the right thyroid lobe (Figure 1).



Figure 1. Ultrasound imaging revealed a parathyroid adenoma (12x7x27mm) at the inferior of the right thyroid lobe

The patient was treated with calcitonin and hydration during the first trimester. She had maintained high calcium levels despite the medical treatment, and underwent surgery for the parathyroid adenoma in the second trimester. Histopathological examination confirmed the diagnosis of a parathyroid adenoma (Figure 2-3).

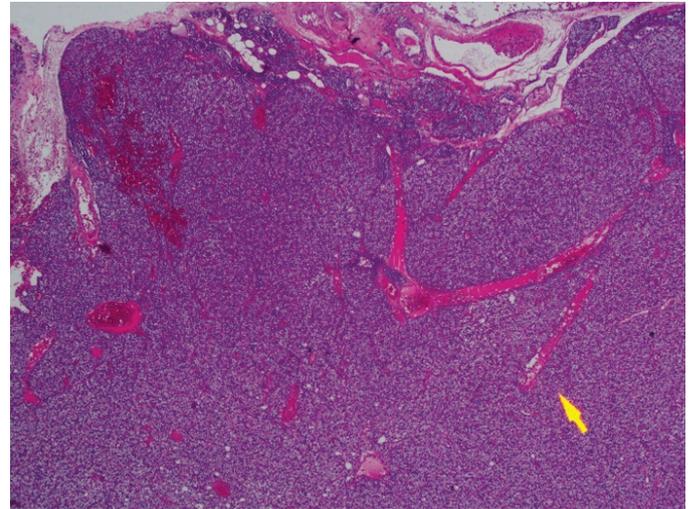


Figure 2. This parathyroid adenoma shows a rim of atrophic parenchyma at he periphery with only an attenuated capsule noted (H&E, x40)

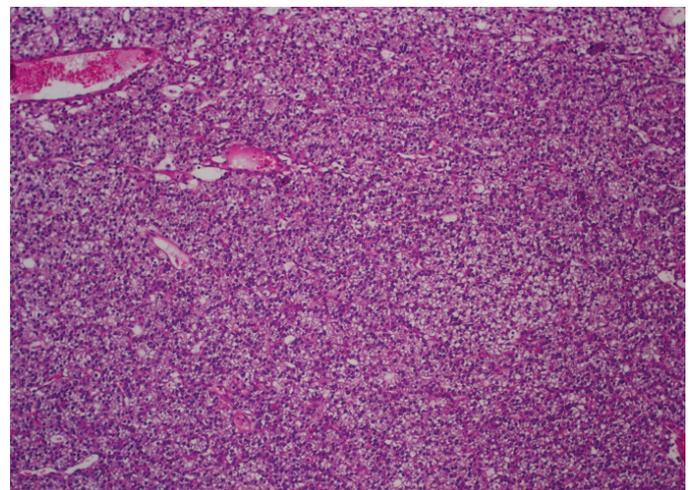


Figure 3. Chief cells compose this adenoma without any fat cells present. (H&E, x100)

The calcium levels turned to normal after the surgery, and the results were normal during the pregnancy. Similarly, the mother and the new-born did not have any complication associated with hypercalcemia after the birth.

Discussion

Primary hyperparathyroidism may cause complications for the mother and the foetus, because of this early intervention is vital during the pregnancy. The miscarriage rate is increased by 3.5-fold associated with this disease [5]. The abortions generally occur in the 2nd trimester. Surgical intervention is recommended in the 2nd trimester for patients whose calcium levels more than 11.4 mg/dL [5, 6]. If the patient approaches the 3rd trimester and has mild hypercalcemia, medical treatment is recommendable [7]. If severe hypercalcemia exists, diuretic therapy can be used [8]. Magnesium sulphate was reported to be effective in pregnant women with acute pancreatitis [9]. Phosphate was used to treat hypercalcemia in the past, but it is not suggested anymore [4, 10, 11]. Currently, there are case studies showing benefit from the calcitonin and cinacalcet. Both drugs are group C for pregnancy. Calcitonin therapy has limited efficacy and has a risk of tachyphylaxis [11-14]. Medical treatment that can be given to patients limited and we do not know all the adverse events. Therefore, early detection and surgical removal of adenoma in the second trimester is critical if it is necessary.

Calcium levels tend to be low during pregnancy. Unusually high levels of calcium can become an alert symptom in a pregnant patient. Thus, there will be a chance to prevent the development of complications for the mother and the foetus. Ultrasonography is a valuable imaging modality for detecting the parathyroid lesions when primary hyperparathyroidism is diagnosed. Our patient had her diagnose at early stages before the complications. She had no benefit from hydration and calcitonin. Surgery was performed in the second trimester. The abnormalities of calcium were not detected after the surgery during pregnancy and after the birth.

Conclusion

Our case is a patient who was diagnosed in time thanks to early recognition elevated calcium levels. The mother and the foetus had not any complication. Pregnant women tend to have low calcium levels

hence if a hypercalcemia situation appears in pregnant women, primary hyperparathyroidism has to be suspected.

Informed Consent

Written informed consent was obtained from the patient for the publication of this case report.

Conflict of interest

The authors declared that there are no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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