A Case Report: A Fatal Case of Pregnancy with Primary Hyperparatsshyroidism

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Abstract

Primary hyperparathyroidism is a rare but occasionally life-threatening complication during pregnancy. We reported a 23-year-old gravida who suffered from primary hyperparathyroidism and she died due to severe aspiration pneumonia. Till now, there was no fatal case report about pregnancy with PHT in the English medical literature.

Keywords: Primary Hyperparathyroidism, Pregnancy, Hypercalcemia Crisis, Aspiration Pneumonia

Introduction

A 23-year-old gravida was admitted to our emergency department with complain of severe hyperemesis with choke at 29 weeks of gestation. Her medical history was free excluding fatigue, anorexia, constipation, listlessness and somnolence 1 month ago.

On admission, she was conscious, the pulse rate was 100 pulses/ min and the blood pressure was 120/80 mmHg. The lung, heart, abdomen, and neurological examinations were normal. Detailed gynecological examination was including: abdominal circumference was 90cm, fundus height was 32cm, and the fetal heart rate was 140/min.

The blood investigation reports were as follows: leukocyte 10.8 ×10^9/L, neutrophils 80%, platelets 293×10^9/L, erythrocyte 2.36 ×10^{12}/L, hemoglobin 87g/L, total corrected calcium level 5.7 mmol/L(2.15~2.55 mmol/L), blood phosphate level 0.89 mmol/L(0.97~1.61 mmol/L), alkaline phosphatase 201 U/L(40~150 U/L), and the results of other routine laboratory tests(including kidney function, glucose, amylase, lipase, potassium, sodium, chloride level and urinary routine test) were normal. Abdominal echography showed no evidence of nephrocalcinosis or renal stones and echocardiography showed mitral valve calcification.

The pregnant woman was admitted to the hospital because of severe hyperemesis and her condition clinically improved after treatment of intravenous fluids and antiemetics.

Unfortunately, the patient was complain of fever, cough and sputum, and then appeared chest tightness, suffocation and breathing difficulty on day 2. Her temperature was 39.1°C, pulse rate was 124 pulses/min and SpO2 was 85%. Her leukocyte was 20.9×10^9/L, with neutrophils 93%. Chest X-ray showed large sheet fuzzy shadows. More times sputum culture showed Klebsiella pneumoniae and Pseudomonas aeruginosa. We diagnosed the illness as severe aspiration pneumonia and acute respiratory failure. Although powerful antibiotic therapy and mechanical ventilation (on day 14) were given as soon as possible, the patient’s condition was significant deterioration.

During this period, increased serum calcium and alkaline phosphatase along with decreased serum phosphate were detected many times after hospitalization. Moreover, parathyroid hormone (PTH) levels were up to 76.8 and 147mmol/L respectively(reference range: 0.5~5.6mmol/L).

As a result, we considered pregnant patient as primary hyperparathyroidism with hypercalcemic crisis. After a conservative approach with hydration, cimetidine and corticosteroids, her serum calcium level fell to 2.70 mmol/L. However, cesarean section was carried out due to fetal heart rate gradually slowing under local anesthesia, on day 10, and breathing difficulty had transient improved after operation. However, her condition was still progress. The patient had been in a coma after day 12. At last, multiple organ failure was appeared and the patient died on day 20.
Primary hyperparathyroidism (PHT), which affects mainly middle-aged and elderly women (>37 ages), is a rare complication of pregnancy. The true incidence during pregnancy, however, is not known. To date, less than 200 pregnant patients with PHT have been described [1]. But there was no fatal case report about pregnancy with PHT until now.

PHT in pregnancy is a threat to the health of both mother and fetus. The mothers suffer commonly from nephrolithiasis, bone disease, pancreatitis, hyperemesis, muscle weakness, mental status changes. The gravest of all complication is acute hyperparathyroid crisis or hypercalcemia crisis, which may result from the loss of the placenta, even maternal and fetal death, but it occurs rarely.

Diagnosis of PHT in pregnancy applies the same criteria as in non-pregnant adults namely, an elevated total corrected calcium level (>9.5 mg/dl), hypophosphatemia (<2.5 mg/dl) and an elevated serum PTH level in the absence of other causes of hypercalcemia. It is necessary to exclude familial hypocalcicuric hypercalcemia and other hereditary endocrinopathies [2].

However, because up to 80% of gravid patients with PHT are asymtomatic and different ways in which PHT can present and the barriers to diagnosis in pregnancy. On the other hand, nausea and vomiting are common complaints during pregnancy and are also the main clinical presentations of PHT [3]. Therefore, diagnosing this condition is more difficult and it is very easy to be ignored, and most of the patients were not diagnosed until after the complication had occurred, as our case mentioned.

Mostly caused by a solitary parathyroid adenoma, parathyroidectomy is optimal treatment for PHT during pregnancy. Surgery in the second trimester or early third trimester of pregnancy is a safe and effective treatment. However, medical therapy may gain popularity for patients with hypercalcemia who cannot undergo surgery or surgery is contraindicated [4]. In fact, in any case, treatment approach should be individualized, estimating both mother and fetus situation and is based on the severity of the disease determined by both symptoms and serum calcium levels.

Although in early third trimester of pregnancy, we took to medical therapy rather than surgery due to severe illness and the blood calcium level gradually decreased to normal. However, her condition was still progress resulting from deteriorating pulmonary infection. Soon after, multiple organ failure was appeared and the patient died.

In our opinion, there are two possible reasons inducing our patient suffering from severe pneumonia: hyperemesis gravidarum and hypercalcemia crisis which leads the pregnant patient unconsciousness. The two reasons both increase the risk of aspiration pneumonia.

From this case, we have learned following points. Firstly, PHT is a rare but occasionally life-threatening complication during pregnancy. Secondly, this disease should be considered and the serum calcium, phosphate and PTH levels should be measured if hyperemesis beyond the first trimester also exists. Finally but most importantly, aspiration pneumonia may lead to the death of pregnant woman with PHT and it should be aroused clinician's attention.

Reference


