Case Report

A Case Report Of Primary Hyperparathyroidism In Pregnant Female: Clinical Diagnostic And Therapeutic Procedures Challenges

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Abstract

Primary hyperparathyroidism (PHPT) is a disease caused by excessive secretion of parathyroid hormone (PTH), and occurs because of individual parathyroid adenomas.in this report we discussed prgnant 25 female who suffered from as weakness, lethargy, nausea and vomiting . Primary experimental results suggested severe hypercalcemia. Ultrasonography of patient's neck revealed a cystic thyroid nodule (12.8mm) in mid of right lube. The observation suggested normal parotid and submandibular glands.Based on ultrasound and MRI results, the patient received protective treatment.
Early diagnosis can helpful to best managament of primary hyperparathyroidism especially during the pregnancy.

Keywords: Primary hyperparathyroidism, pregnancy, hypercalcemia

Introduction

Primary hyperparathyroidism (PHPT) is a disease caused by excessive secretion of parathyroid hormone (PTH), and occurs because of individual parathyroid adenomas. The disease is common and often asymptomatic. Primary hyperparathyroidism is uncommon disease during pregnancy and is not often diagnosed due to physiological changes in pregnancy (1-3).

Although PHP as the cause of hypercalcemia is a kind of benign disease on

the verge of aging, but 8% of the cases of parathyroidism occur in women during childbearing years (1-3), and perhaps this is a rare reason for life-threatening hypercalcemia during pregnancy. The rate of maternal complications associated with PHP during pregnancy has been reported to be over 67% (4, 5), as well as embryonic complications have been seen over 80% (6). The maternal complications include nephrolithiasis, bone disease, pancreatitis, mental status changes and hyprcalcemic crisis. After delivery, the mother is in a hypercalcemia crisis when not being treated.Preeclampsia is another complication of pregnancy that is also unique to this era (7-9). In mothers with hyperparathyroidism, there is a significant risk of abortion. It has also been seen that half of the children whose mothers have parathyroid tumors and whose tumors have not been removed are aborted. However, if the parathyroid tumors are removed in these mothers, they will have 100% successful pregnancy (no abortion) (4).

Hypercalcemia is a very rare condition that occurs during pregnancy, and has been reported in very few cases (10).

Early and timely management of these conditions during pregnancy can dramatically decrease the incidence of fetal, infant and maternal mortality associated with these important situations.

Case Presentation

The patient was a 25-year-old Asian female (G3P2L1Ab1) who was going through her third pregnancy. The patient had a background of two successful pregnancies and one abortion. The female is currently in his 26th week of pregnancy and she reffered to the hospital with certain symptoms such as weakness, lethargy, nausea and vomiting. The patient's lethargy started since first month of pregnancy and the symptom increased in a gradual and daily manner.

The patient suffered from dry mouth, constipation, 9kg weight loss, nausea and vomiting, polydipsia, polyuria, dyspnea FC (1-2), orthopnea, headaches in parietal lobe without tearing, numbness of legs, and dizziness due to orthostatic hypotension. The patient did not conform to any description of dyspepsia, abdominal pain, itching, diarrhea, enuresis, bone pain, arthritis, anxiety, depression, lethargy, fever, and sweating during her pregnancy and she did not have a background of calcium disorders, kidney stones, bone fractures, osteoporosis, and endocrinopathy. The patient's familial records showed no history of calcium disorders, kidney stones, bone fractures, osteoporosis, and endocrinopathy. She had taken no thiazide diuretics, lithium and antacid which contribute to calcium level disturbances.

Physical examination suggested that the patient had no malnutrition and distress. Her blood pressure was 110/70 mm Hg, her heart rate was regular with 75 beats per minute, and her recorded respiratory rate was 14 breaths per minute. Thyroid examination suggests that it has normal size but in its mid right part, a nodule without lymphadenopathy was found. After HEENT examination (i.e. examination of head, eyes, ears, nose, and throat), no signs of

Brudzinski, Kerning and nuchal rigidity were found. Ophthalmoscopic examination of patients' eyes suggested they were normal and symptoms of scleral icterus was found. Heart and lung auscultation showed normal results. Abdominal examination suggested that abdomen was soft (as evidenced by touching). In addition, no distension, tenderness and organomegaly were found. Nervous examination did not result in any vivid focal neurologic signs.

Primary experimental results suggested severe hypercalcemia (i.e. 11.3mg/dl; normal range: 8.5-10.3), normal phosphorus level (normal range: 2.6-4.5), normal albumin level (normal range: 3.5-5.3 gr/dl), normal TSH level (i.e. 1.6mIU/ml; normal range: 0.39-6.16), normal free T4 level (i.e. 1.1 ng/dl; 0.076-2.24 during pregnancy), and abnormal hemoglobin level (i.e. 8.1gr/dl; normal range: 12.3-15.3 gr/dl for female patients).

Ultrasonography of patient's neck revealed a cystic thyroid nodule (12.8mm) in mid of right lube. The thyroid and parathyroid glands were normal and no lymphadenopathy was found. Considering the fact that normal parathyroid adenoma revealed in ultrasound test and impossibility of mibi scan, MRI scan of the neck was done. In MRI report, the fat lines were mentioned to be normal. Glutinosa and Infraglottic areas were normal too. A number of lymph nodes along both of patient's carotids were found the largest one of them was 11mm in size. The observation suggested normal parotid and submandibular glands. (Figure 1).

Based on ultrasound and MRI results, the patient received protective treatment. The patient was followed up to 36 weeks of age and received concomitant therapies such as serum and diuretics in the hospital, then the pregnancy was terminated, and after that, a mibi scan was performed.

Since scan revealed an adenoma and hypercalcemia persisted despite of protective treatment and frequent measurements, elective parathyroidectomy was done on the patient. In addition, right thyroid lobectomy and right parathyroidectomy were done.

Response to treatment was assessed by measuring levels of calcium, phosphorus and PTH. The level of calcium had decremental trend while level of phosphorus had increased. After 1 day passed from date of surgery, level of calcium reduced from 10 to 9mg/dl while level of phosphorus increased from 3.2 to 4.9mg/dl/

After three days from surgery date (i.e. at the day of being discharged from the hospital), levels of calcium and phosphorus were 8mg/dl and 5.2mg/dl respectively.

DISCUSSION

The PTH is one of the main factors in preventing hypocalcemia. It is essential to proper diagnosis of primary hyperparathyroidism during pregnancy. Primary hyperparathyroidism is diagnosed when PTH is increased versus hypercalcemia. Sometimes serum calcium levels rise to higher volatility than the normal range and the test needs to be repeated at this point. Reduction in serum

phosphorus levels is also observed in patients with PHPT.

Primary hyperparathyroidism is a rare disease that should always be recognized as a predominant clinical symptom when having a hypercalcemia patient. In these conditions, osteoporosis can be observed along with loss of bone density. Occasionally, differential diagnoses can lead to other misleading diagnoses, but careful study of data and detailed clinical examination may lead to the final diagnosis. In pregnancy, many pregnancy-related changes are considered as a challenge to diagnose (11). In 2000, Karbowski et al. reported a 33-year-old pregnant woman who had suffered from hypocalcemia two days after childbirth. This woman suffered a frequent urinary tract infection with hydronephrosis on the left, which was treated by the urologist. After delivery, X-rays determined her nephrotilation and then she underwent endoscopic treatment, as well as her parathyroid adenoma was found and resolved successfully. Our patient, however, had no history of urinary tract infection, hydronephrosis or any kidney disease (12).

In a study in 2015, Joanna Rutkowske et al. published a case report of a 33-year-old woman at the 14th week of pregnancy, and her previous pregnancy at week 12 was aborted spontaneously in 2010. The patient, like our patient, came to the hospital with symptoms such as abdominal pain, nausea and vomiting. Nevertheless, despite our patient who had no history of kidney disease, osteoporosis and calcium disease. Their reported case was referred to the hospital in the 12th week due to acute renal disease, and eventually the doctor prescribed NASD. The patient ultrasound revealed ascites, oedematous pancreatitis, medular layers, hyperechogenic cortex, kidney and trace amount of right pleural exudative. As well, cervical ultrasound showed that her thyroid gland was not enlarged and was normoechogenic, but a hypoechogenic tumor with the size of 33*13*21 mm was found in the lower part of the left lobe. In contrast, the ultrasound revealed the lymph node in both carotids of our patients. In addition, a nodule with the size of 12*8mm was seen in the middle part of the right thyroid gland lobe. In addition to the patient being treated with clindamycin and metronidazole antibiotics, intravenous fluid, analgesia and fasting, our patient also had thyroidectomy. Our patient, like the mentioned patient, also had hypercalcemia. The calcium content was 11.3 mg/dl in our patient and 17.5 mg/dl in the patient of Rutkowske et al.; the calcium content was decreased in our patient after treatment eventually by 6.8 mg/dl, and phosphorus content reached 5.2 mg/dl (13).

In 2016, Lara Vera et al. reported a 34-year-old white woman with primary hyperparathyroidism along with symptoms for nephrolithiasis. Her serum calcium content was 3.15mmol/l and her parathyroid hormone was 109.0ng/l. The cervical images did not show any pathologic findings based on parathyroid tissue. Cinacalcet and cholecalciferol started for this woman, who became pregnant after 17 months. Calcimimetic was stopped. Within pregnancy, she was referred to the hospital for two to three times a week for intravenous hydration. During the 24th week of

pregnancy, cinacalcet began again. At the 32th week of pregnancy, she was scheduled to receive cesarean section. Only three cases of primary hyperparathyroidism have been reported in affected women treated with cinacalcet during pregnancy (14). In this case, hydration was also helpful in controlling her serum calcium content and treatment with cinacalcet also contributed to control her serum calcium content.

CONCLUSION

As PHPT represents a significant risk to the mother and the fetus, early surgical treatment should be considered for pregnant patients. Other medical doctors consider surgery in the second quarter after the failure of medical treatment.

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Figure 1. Parathyroid scan with MIBI: The scan finding are suggestive for parathyroid adenoma in right lobe