

Primary hyperparathyroidism in pregnancy

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Abstract

Primary hyperparathyroidism during pregnancy carries significant risks to both mother and fetus. Parathyroidectomy remains the only definitive treatment for the condition. The timing of surgery remains controversial, with ongoing debate regarding the safety of surgery during the third trimester. A case of symptomatic primary hyperparathyroidism treated by parathyroidectomy in the third trimester is described. The clinical features, investigations and treatment options are discussed.

Key words: Hyperparathyroidism; Pregnancy Complications; Parathyroid Glands; Parathyroid Neoplasms; Haematuria

Introduction

Primary hyperparathyroidism is an uncommon endocrinopathy with a reported incidence of 0.15 per cent in the general population.¹ Primary hyperparathyroidism in the pregnant patient can be associated with considerable morbidity both for mother and fetus. It is therefore important for the ENT surgeon to be aware of this condition and its potential complications as well as having a clear approach to diagnosis and treatment. We present a case of symptomatic primary hyperparathyroidism treated by parathyroidectomy in the third trimester of pregnancy.

Case report

A 25-year-old woman presented to her obstetrician at 20 weeks gestation with frank haematuria and one brief episode of symptoms consistent with renal colic. Urine testing in the clinic confirmed the presence of microscopic haematuria. She had suffered from similar problems during her last pregnancy 5 years before. Investigations at that time had not suggested any significant pathology in the kidneys or urinary tract, and the problem resolved itself following delivery. On this occasion, blood tests revealed a corrected serum calcium level of 3.09 mmol/l and a parathyroid hormone (PTH) level of 50 pg/ml (normal range 12–72 pg/ml).

The patient was referred at 27 weeks gestation to the ENT department with a provisional diagnosis of primary hyperparathyroidism. Physical examination revealed no abnormalities in the neck and indirect laryngoscopy confirmed normal, mobile vocal cords. Subsequently, the patient underwent parathyroid exploration under a general anaesthetic at 29 weeks gestation. At operation an enlarged right inferior parathyroid gland was identified and resected (Figure 1). The right superior parathyroid gland appeared normal but was also resected for histological analysis. The patient made an uneventful recovery. Her serum calcium decreased postoperatively to a physiologically normal level of 2.39 mmol/l.

Histological analysis confirmed a 540 mg right inferior parathyroid adenoma with no evidence of hyperplasia in the right superior parathyroid gland. Follow up of the patient in the obstetric clinic showed resolution of her microscopic haematuria at 30 weeks gestation. The remainder of her pregnancy was uneventful and she gave birth via a normal vaginal delivery at full term.

Discussion

Primary hyperparathyroidism in pregnancy is rare. It was first reported in 1931.² A recent review of the literature showed that only 145 cases of primary hyperparathyroidism in pregnancy had been reported.³ The true level of hypercalcaemia during pregnancy may be unclear. Physiological hypoalbuminaemia and other factors such as



FIG. 1

Operative photograph of parathyroid exploration. P = right inferior parathyroid gland; TTL = thyrothymic ligament; SCM = sternomastoid muscle.

increasing calcium demands of the fetus and increased maternal renal clearance of calcium may mask the problem. However, primary hyperparathyroidism in pregnancy needs to be recognized and surgically treated due to the risks it confers to both mother and fetus. Studies have quoted maternal complication rates as high as 67 per cent,⁴ nephrolithiasis appearing to be the most common maternal complication.⁵ Other complications include bone disease (osteitis fibrosa cystica), pancreatitis⁶ and hyperemesis gravidarum. Potentially, the most serious maternal complication is hypercalcaemic crisis, which classically presents with nausea, vomiting, weakness, dehydration and mental state changes. In cases, there can be rapid progression to uraemia, coma and death. In the postpartum period, maternal hypercalcaemia can worsen due to the removal of fetal demand for calcium.

- **A case of symptomatic primary hyperparathyroidism treated by parathyroidectomy in the third trimester of pregnancy is described**

Fetal complications include neonatal death, intrauterine growth retardation, low birth weight, premature delivery and intrauterine fetal death. In the postpartum period, neonatal tetany has been reported⁷.

Diagnosis of primary hyperparathyroidism should be confirmed by an elevated serum calcium (>2.60 mmol/l) and inappropriate PTH levels. A normal PTH level in the presence of elevated calcium is diagnostic of primary hyperparathyroidism. Although not used in this case due to the excessively high calcium level, preoperative imaging is recommended. The gold standard is Technetium-99m sestamibi and ultrasound, with a combined sensitivity of 94.5 per cent.⁸ However, Technetium-99m sestamibi is contraindicated in pregnancy and ultrasound will suffice. Parathyroid ultrasound has a sensitivity of 69 per cent and a specificity of 94 per cent.⁹

Patients diagnosed in the first trimester, whose symptoms are controlled medically, can initially be followed up conservatively. However, once the patient enters the second trimester, parathyroidectomy is the recommended treatment. Studies suggest that the fetal mortality rate can be reduced by a factor of four if operative cure is achieved.^{3,10}

Conclusions

Primary hyperparathyroidism in pregnancy is a rare condition that can present in a variety of ways. The risks of

this condition to both mother and fetus make prompt diagnosis and appropriate treatment a priority. The only successful treatment modality currently available is parathyroidectomy, which can decrease the risk of fetal mortality by a factor of four^{3,10}. If the patient's symptoms and calcium levels are controllable, surgery after the first trimester appears to be the treatment of choice.

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