Primary hyperparathyroidism in pregnancy: surgical or conservative management?

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Overview

• Primary hyperparathyroidism uncommonly presents during pregnancy; initially the diagnosis may not be considered due to overlap between the symptoms of hypercalcaemia and “normal pregnancy”.
• It can be associated with maternal and foetal complications (see Figure 1)
• There are particular challenges for both diagnosis and treatment: the usual imaging sequence for adenoma localization cannot be used and there is little evidence base to guide decisions on treatment.
• We present 2 cases, comparing surgical versus conservative management strategies.

Key points:

• Avoid radioisotope scanning during pregnancy.
• Screen for MEN and exclude FHH.
• Minimally invasive parathyroid surgery may be possible with pre-operative ultrasound adenoma localisation.
• Surgical treatment if symptomatic/marked hypercalcaemia.
• An association between primary hyperparathyroidism and preeclampsia has been reported in few cases.
• If surgery is planned, this should be preferably be carried out during second trimester. Reports of successful surgery in 3rd trimester too.
• Conservative management may be safe as long as serum calcium is not markedly elevated (<3mmol/l).
• Multidisciplinary discussion and patient counselling is important for successful outcome.

Potential complications of Primary Hyperparathyroidism during pregnancy

Maternal:
• Miscarriage
• Hyperemesis
• Hypercalcaemic crisis
• Nephrolithiasis
• Pancreatitis
• Pre-eclampsia

Foetal / Neonatal:
• Intrauterine growth retardation
• Stillbirth
• Low birth weight
• Preterm delivery
• Neonatal tetany and hypocalcaemic seizures

Case 1:

32 yr old woman with morbid obesity (BMI 50) presented with hyperemesis gravidarum at 17/40.

• Investigation revealed unexpected marked hypercalcaemia: cCa 3.3mmol/l (NR 2.1 - 2.55mmol/l), inappropriately elevated PTH at 10.4 pmol/l (NR 1.6-6.9pmol/l) and elevated urinary calcium:16.3mmol/24hrs (NR 2.5-7.5).
• MEN1 and RET genetic testing: no mutation found

Management:

• She was admitted for IV rehydration; cCa fell to <3mmol/l.
• Ultrasound localised a right inferior parathyroid adenoma.
• Given cCa>3mmol/l and extreme symptoms, surgical treatment was preferred.
• She had parathyroidectomy in the 2nd trimester with perioperative frozen section confirming parathyroid tissue.
• Postoperatively, calcium fell to 2.35mmol/l and has remained in the normal range and PTH fell to 0.8 pmol/l
• Due to the development of hypertension and proteinuria, she was delivered by caesarean section at 36/40 of a healthy male infant weighing 3.19kg.
• Postnatal cCa 2.25mmol/l, PTH 1.2 pmol/l.

Case 2:

33 year old woman with well controlled type 1 diabetes (HbA1c 36mmol/mol) presented at 33/40 feeling excessively tired, with polyuria and polydipsia.

• On investigation: raised serum calcium 2.78mmol/l (NR 2.05 - 2.55), inappropriately raised PTH 9.1 pmol/l (1.6 - 6.9) and elevated urinary calcium 16.5mmol/24 hrs (2.5 - 7.5) Low Vitamin D 13 nmol/l.
• Diagnosed with primary hyperparathyroidism & Vit D deficiency
• No parathyroid adenoma found on neck ultrasound
• No nephrolithiasis on renal tract ultrasound

Management:

• After multidisciplinary discussion, conservative management was planned for the duration of pregnancy
• Vitamin D replacement was started, and she was advised to keep well hydrated.
• Serum calcium varied between 2.69 – 3.0 mmol/l
• She delivered a healthy baby boy: his serum calcium was initially high but asymptomatic, and normalised by day 2.
• Postnatal Sestamibi scan showed increased uptake in right lower pole (Fig.2)
• Successful parathyroidectomy was carried out post-partum with normal post-operative serum calcium and PTH.
• Genetic testing for MEN1 negative

Further reading: