

Hyperparathyroidism Jaw Tumour Syndrome in Pregnancy

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Background

Hyperparathyroidism is a rare disease in pregnancy, occurring in 0.05% of women of reproductive age. (1) The most common cause of hyperparathyroidism is a parathyroid adenoma. (2) A rare cause is hyperparathyroidism Jaw Tumour Syndrome which is associated with a higher risk of carcinoma and higher calcium concentrations. (3)

During pregnancy, hypercalcaemia poses increased risks including hyperemesis gravidarum, nephrolithiasis, miscarriage, pre-eclampsia and fetal growth restriction. (1) Rates of miscarriage increase in proportion to the calcium concentration. (1) The diagnosis remains challenging due to the non-specific presentation and overlap of hypercalcaemia symptoms with those of a normal pregnancy, such as nausea, vomiting, and fatigue. (4)

An accurate history will provide a high level of suspicion allowing for timely diagnosis and management to reduce adverse outcomes.

Case

A 35-year-old G1P0 woman presented at 6/40 and at 13/40 with hyperemesis gravidarum. She was found to have an elevated corrected calcium 3.6mmol/L (reference range 2.15-2.55mmol/L) and parathyroid hormone (PTH) 196ng/L (RR 15-68ng/L).

She received aggressive fluid resuscitation; however her calcium remained elevated at 3.38mmol/L. She was commenced on oral calcitonin and prednisone to limited effect. An ultrasound of the neck showed a lesion of the parathyroid gland and she underwent parathyroidectomy with subsequent normalisation of calcium levels (Figure 1).

Histopathology showed a parafibromin deficient parathyroid tumour, consistent with hyperparathyroidism Jaw Tumour Syndrome. Genetic testing did not identify a known mutation in CDC73.

At 30/40 she represented with pre-eclampsia. She had hypertension (160/100mmHg), hyperreflexia, proteinuria (urine Pr:Cr 52mg/mmol, reference <30) and intrauterine growth restriction (EFW 950g, <5th centile). A caesarean section at 30+1/40 for maternal concern resulted in a live male infant weighing 897g, APGAR 7¹9⁵. He had normal calcium (Ca 2.78mmol/L) however required a 9 week NICU admission due to low birth weight, jaundice, hypoglycaemia and retinopathy of prematurity.

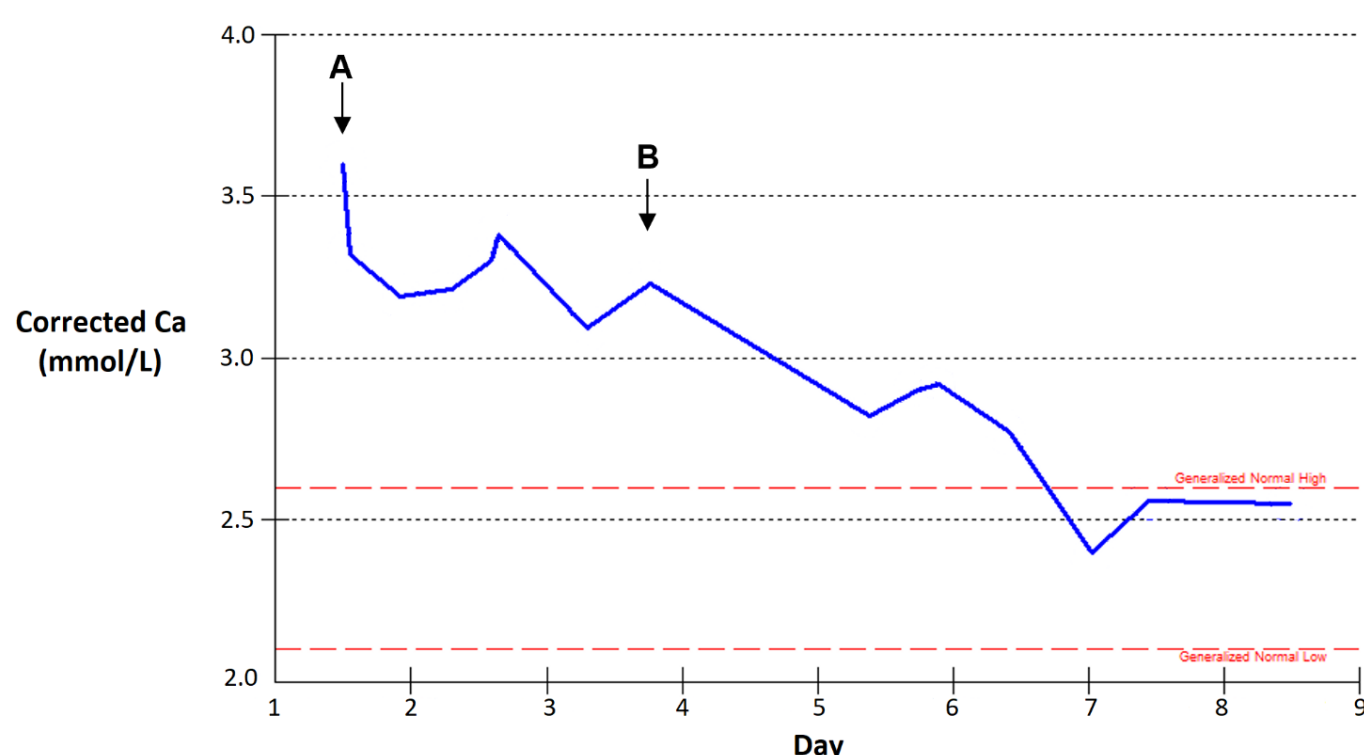


Figure 1. Corrected calcium concentration (mmol/L) at days of presentation. Ca is critically elevated on day 1 (A). Medical therapy was of little benefit (A to B). Parathyroidectomy (B) resulted in normalisation of calcium levels. Dashed red lines indicate upper and lower limits of normal range for serum calcium

Discussion

- Primary hyperparathyroidism (HPT) is a rare disease during pregnancy but with serious complications for mother and fetus
- As seen in this case, complications for the mother include fatigue, vomiting, abdominal pain, nephrolithiasis and pre-eclampsia, with the risk of the latter still persistent after resolution of hypercalcaemia (1)
- Complications for the fetus include miscarriage, low birth weight, prematurity, hypocalcaemia, hypoparathyroidism, and tetany (1)
- On review of medical records for our patient, over the preceding two years she had suffered chronic constipation and nephrolithiasis. Serum calcium during these admissions were elevated (2.82mmol/L); unfortunately, she was not further investigated for her hypercalcaemia.
- Diagnosis of hypercalcaemia is frequently missed or delayed as symptoms are non-specific and are within the spectrum of a normal pregnancy
- If detected prior to pregnancy, many of these complications may have been avoided
- Management of HPT is challenging in pregnancy due to contraindications of pharmacotherapy
- Surgery remains the only cure for HPT and is safe to perform in the 2nd trimester in women with uncontrolled hypercalcaemia. It also enables a histological analysis which is essential for the diagnosis of HPT Jaw Tumour Syndrome (3)

Conclusion

- **A thorough history and high clinical suspicion is essential in the diagnosis of hyperparathyroidism**
- **There is a high morbidity of complications to both mother and fetus**
- **Women of childbearing age with a finding of hypercalcaemia should be investigated thoroughly**

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