

Introduction

Primary hyperparathyroidism in pregnancy is rare and guidance on safe management of patients resistant to conservative treatment is scarce. Hypercalcaemia is associated with both maternal and fetal risks including severe hypertension, pre-eclampsia, neonatal permanent hypoparathyroidism and intrauterine death. Parathyroidectomy is the definitive treatment for primary hyperparathyroidism but is preferably performed in the second trimester.

We present a case of medical management of primary hyperparathyroidism presenting in the third trimester with cinacalcet.

Case Timeline

Admitted with hypercalcaemia on routine bloods. Treated with IV fluids

Hypertensive with placental insufficiency, managed as PET

Delivery via emergency caesarean section due to fetal bradycardia

33+0 / 40

34+0 / 40

34+2 / 40

34+3 / 40

3 / 12 PN

Diagnosis of primary hyperparathyroidism secondary to parathyroid adenoma made following biochemistry and imaging

Insufficient response to rehydration and furosemide alone, started cinacalcet

Case

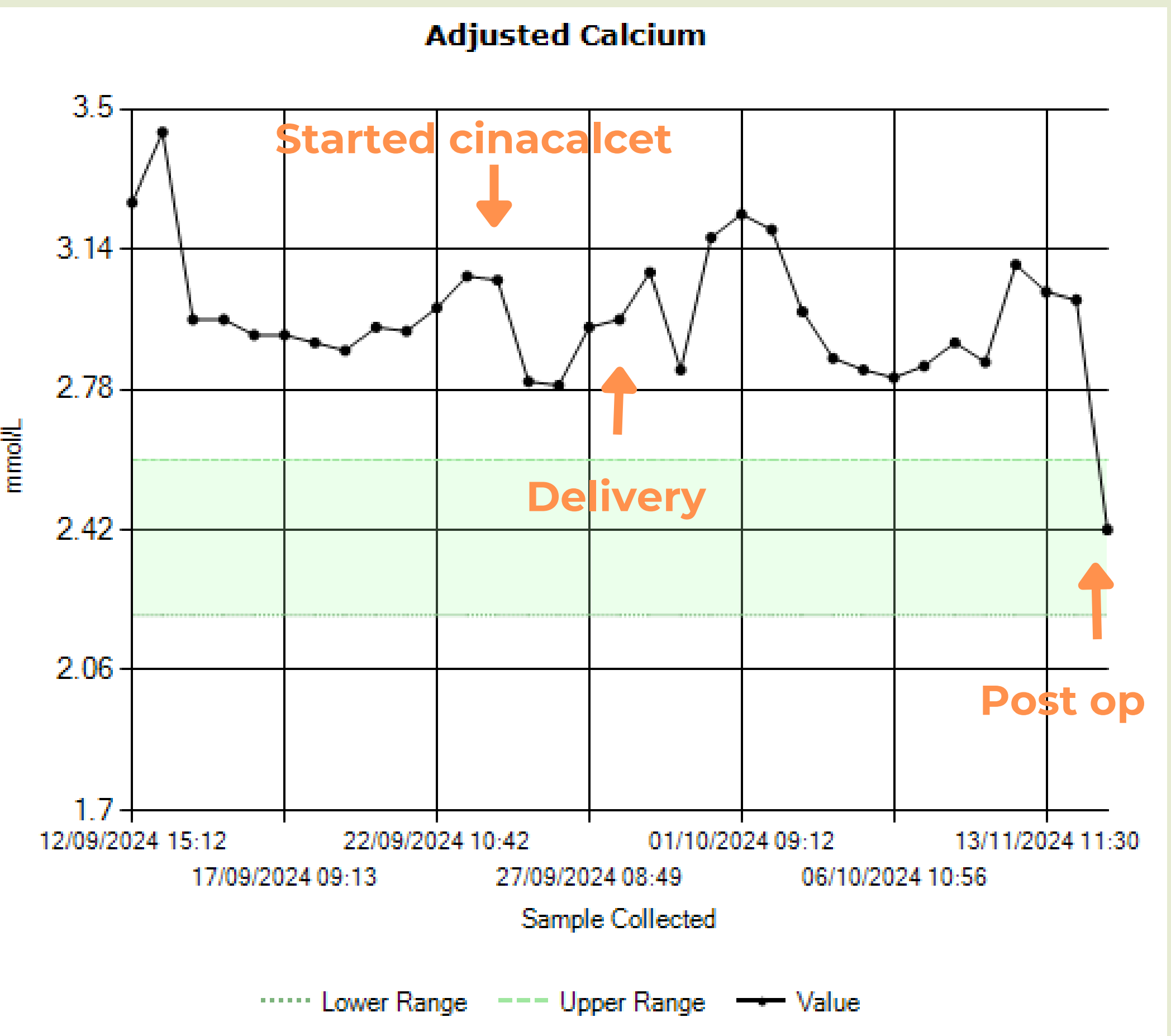
A 29-year-old woman was admitted at 33 weeks gestation with an adjusted calcium of 3.44mmol/L during investigation for constipation. Further investigation revealed a raised parathyroid hormone of 13.2 pmol/L and a normal 24-hour urine calcium/creatinine clearance of 0.0368mmol/mmol, ruling out Familial Hypocalciuric Hypercalcaemia and confirming a diagnosis of primary hyperparathyroidism. A neck ultrasound revealed a 18mm parathyroid nodule (see below).

Despite ongoing IV fluids and a trial of loop diuretics, the adjusted calcium remained above 2.90mmol/L. The patient developed hypertension and required three antihypertensive agents. Following MDT discussion medical management was recommended due to risks associated with surgery in the third trimester. She was started on low dose cinacalcet and after 48 hours adjusted calcium fell to 2.80mmol/L.

The patient was monitored as an inpatient and at 35+1 underwent an emergency caesarean section for fetal bradycardia. A live 3050g baby boy was delivered with an adjusted calcium of 3.06mmol/L at birth. He was admitted to NICU for

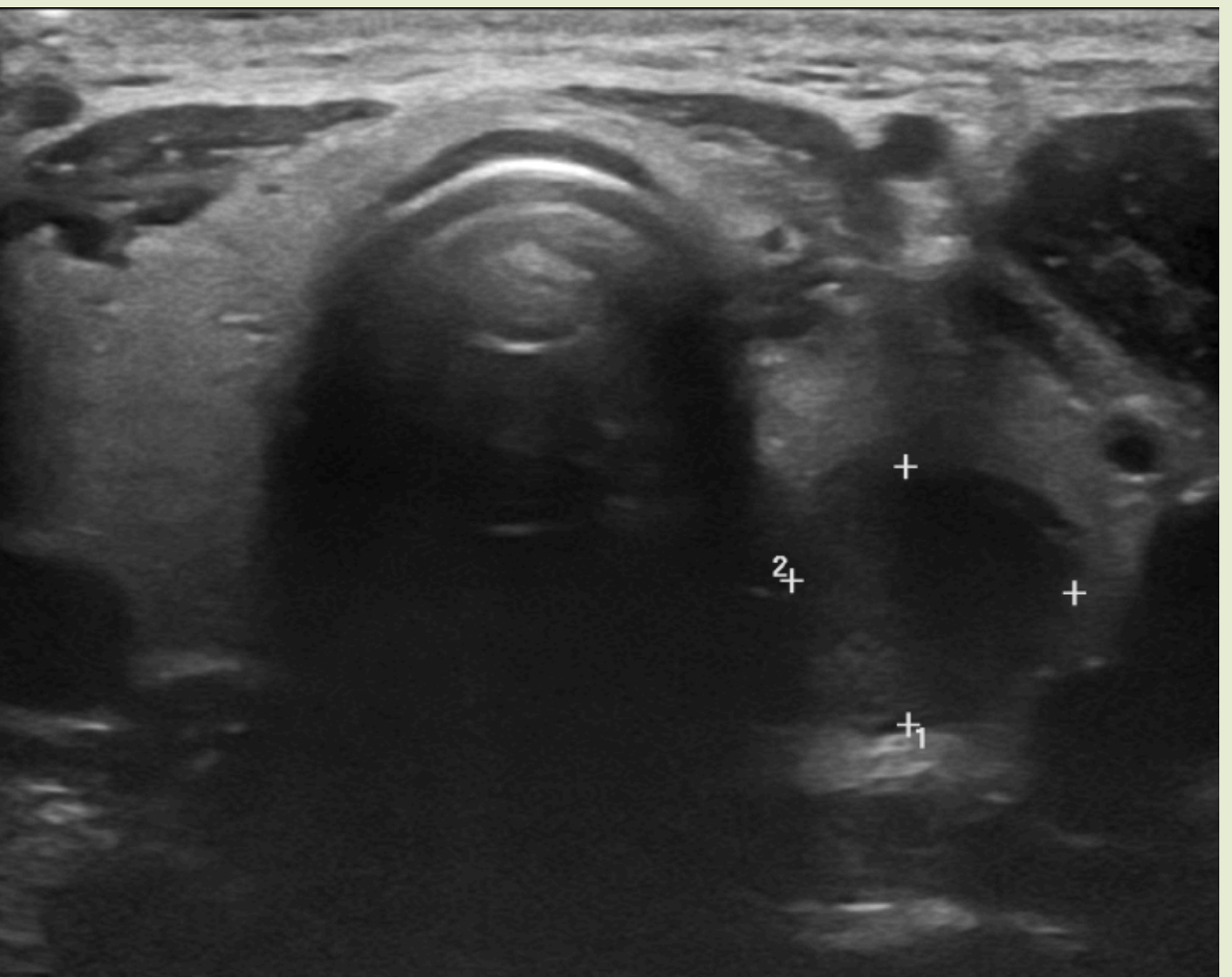
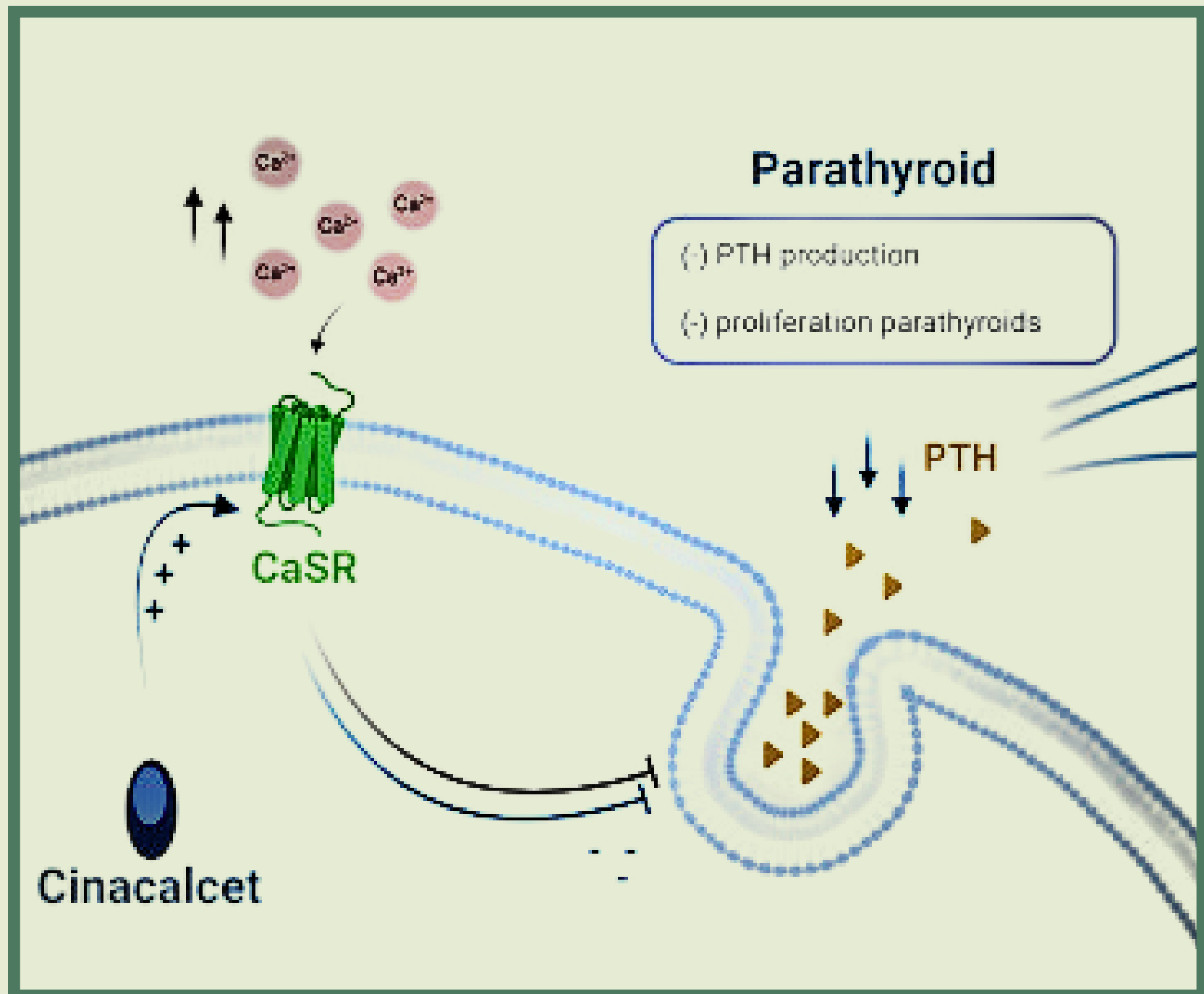
breathing and feeding support secondary to preterm delivery. The next day his calcium normalised but increased again on postnatal day 5. On day 13 mother and baby were well and discharged from the hospital.

The mother remained hypercalcaemic postnatally and her cinacalcet was increased. She underwent an uncomplicated parathyroidectomy 11 weeks postpartum and histopathology confirmed a parathyroid adenoma.



Cinacalcet - Mechanism of Action

Cinacalcet is a calcimimetic and acts on Calcium Sensing Receptors (CaSR) on the parathyroid gland. By enhancing the sensitivity of CaSR, cinacalcet establishes the negative feedback, reducing the secretion of PTH and resulting in a reduction of serum calcium levels.



Above: US neck of patient's parathyroid adenoma

Discussion

Hypercalcaemia over 2.85mmol/L has been associated with high rate of fetal loss and guidance of safe medical management in pregnancy to bridge to postnatal parathyroidectomy is limited. Bisphosphates and cinacalcet both cross the placental barrier with the former contraindicated in pregnancy due to adverse effects on fetal skeletal development. Currently cinacalcet has limited human safety data for its use in pregnancy.

Conclusion

Our case demonstrates a successful outcome for mother and baby after introducing cinacalcet at 34 weeks gestation. We believe there is a case for a national registry of outcomes in this situation in order to gather more robust data for management of hypercalcaemia in pregnancy, particularly in the third trimester.