

## EP\_A043

### THE CURIOUS CASE OF THE HIDDEN PARATHYROID GLAND: TWO CASE SERIES

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#### INTRODUCTION/BACKGROUND

The main challenge in managing primary hyperparathyroidism is localization of hyperfunctioning parathyroid gland. This step is crucial prior to parathyroidectomy to ensure effectiveness of surgical treatment and reducing the risk of re-operation.

#### CASE

We encountered 2 cases with difficulty in localizing the parathyroid gland. The first case, 34-year-old female, presented with renal colic and noted to have bilateral renal calculi and hypercalcemia (calcium 2.94 mmol/L, phosphate 0.64 mmol/L). The second case, 46-year-old female, presented with body weakness and incidental finding of hypercalcemia (calcium: 2.84 mmol/L, phosphate: 0.52 mmol/L). Both have high serum iPTH of 98.5 pg/ml and 83.9 pg/mL, respectively. Bone mineral density revealed total Z-score of - 0.7 and - 2.1, respectively. Their kidney ultrasound showed bilateral medullary nephrocalcinosis. Both cases were diagnosed with primary hyperparathyroidism.

For the first case, initial neck ultrasound and sestamibi scan failed to localize any parathyroid adenoma. FDG-PET scan showed no evidence of uptake elsewhere. CT of the neck with delayed venous phase revealed single nodule seen at the upper border of left thyroid gland. A repeat neck ultrasound showed a single hyperechoic nodule in concordance with findings in the CT of the neck.

In the second case, neck ultrasound revealed 2 intrathyroidal lesions at bilateral lower pole of the thyroid gland. Sestamibi scan showed no evidence of hyperfunctioning parathyroid tissue. CT of the neck with delay venous phase revealed similar intrathyroidal nodular lesion seen in the ultrasound. However, no hypodensity was seen in delayed venous phase which was not a suggestive feature of parathyroid adenoma.

Left superior parathyroidectomy was planned for the first patient. Meanwhile, an exploratory bilateral inferior neck surgery is scheduled for the second patient.

#### CONCLUSION

There are few reasons contributing to a false-negative sestamibi scan. In addition, neck ultrasound is operator-dependant. Hence, alternative imaging modalities are important to help with parathyroid gland localization.

## EP\_A044

### PARATHYROID CARCINOMA PRESENTING AS PRIMARY HYPERPARATHYROIDISM IN ADOLESCENCE

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#### INTRODUCTION/BACKGROUND

Parathyroid carcinoma is an extremely rare cause of primary hyperparathyroidism in adolescence. Despite being malignant in nature, the diagnosis is often delayed and is already severe at presentation.

#### CASE

We present a 16-year-old male with background of delayed developmental milestones presenting with recurrent seizures. On physical examination, there were no syndromic features, bony deformities or neurological deficits. Laboratory examination revealed severe hypercalcaemia (3.64 mmol/L), low serum phosphate (0.4 mmol/L), elevated serum ALP (2121 U/L), normal range for 16-year-old male: 68-430 U/L) and a normal renal profile. Serum intact parathyroid hormone (iPTH) was elevated (186 pg/ml, normal range: 15-57 pg/ml). The 25-hydroxy vitamin D was normal (75.59 nmol/L). Thyroid function test was also normal. Ultrasound of the neck revealed a hypoechoic lesion posterior to the right thyroid gland measuring 1.6 x 2.5 x 2.9 cm. Neck CT confirmed an enlarged right parathyroid gland measuring 1.9 x 3.0 x 2.6 cm with no evidence of adjacent organ infiltration. The 99mTechnetium (Tc) sestamibi scan was not performed due to patient's poor cooperation. Hypercalcaemia was managed with intravenous saline, iv pamidronate 90 mg and sc denosumab 60 mg. He underwent right parathyroidectomy and hemithyroidectomy with central lymph node dissection. Intra-operatively, the right inferior parathyroid was grossly enlarged and adhered to the right thyroid lobe and distal part of the right recurrent laryngeal nerve. Histopathology examination of the parathyroid gland confirmed a nodular mass weighing 5 g and measuring 30x28x9 mm with central cervical lymph node infiltration. The cytomorphological features with increased mitotic activity (11 per 50 hpf) and the presence of vascular invasion strongly favoured