An Intra-thyroid parathyroid adenoma

Clinical History:

A 58 year old female presented with tiredness, muscle aches, constipation, and depression.

Imaging Findings:

A 58 year old woman initially presented with tiredness, muscle aches, occasional constipation and mild depression and subsequently suffered two episodes of renal colic. At this time serum chemical analysis revealed hypercalcaemia, hypophospataemia, and elevated PTH levels. In addition 24hour urinary calcium levels were also elevated. These results were in keeping with a diagnosis of primary hyperparathyroidism. Investigation with US demonstrated a clearly defined hypoechoic subcentimetre nodule lying in the lower pole of the left lobe of thyroid gland which appeared partly intrathyroid on longitudinal view but on transverse view appeared to lie posteriorly. Further imaging with dual phase Tc-99m sestamibi parathyroid scintigraphy was performed. On the initial image there was increased uptake within the lower pole of the left lobe of thyroid. Subsequently on delayed imaging a faint focus of increased uptake remained in this region and appeared to correspond with the hypoechoic focal lesion identified on ultrasound. The lesion appeared partly intrathyroid. Overall imaging appearances were felt to represent a left lower inferior pole parathyroid adenoma rather than a thyroid nodule. The patient subsequently underwent surgical exploration. A parathyroid adenoma enveloped by the thyroid gland was found in relation to its left lower pole. The diagnosis of an intrathyroid parathyroid adenoma was confirmed histologically.

Discussion:

Intrathyroid parathyroid adenoma is a rare cause of primary hyperparathyroidism. About one-quarter of patients with primary hyperparathyroidism have ectopic parathyroid tissue. Ectopic glands exist in the mediastinum, intrathyroid, carotid sheath, post-pharynx, para-oesophagus, and other regions. Approximately 5 to 10% of parathyroid adenomas are located within the thin, fibrous capsule of the thyroid gland. It is believed that the intrathyroid parathyroid evolves as the lateral lobe of thyroid fuses with the isthmus in the early development of the thyroid. Embryologically an intrathyroid parathyroid is thus more likely to be the superior gland. Non-invasive investigations including ultrasonography, scintigraphy, and MRI are of assistance in detecting ectopic glands prior to surgical procedures. Preoperative identification of this type of parathyroid adenoma optimises the efficiency of the minimally invasive parathyroidectomy.

Differential Diagnosis List: Intra-thyroid parathyroid adenoma

Final Diagnosis: Intra-thyroid parathyroid adenoma
References:

Figure 1

Description: us:transverse Origin:
Figure 2

Description: us:longitudinal Origin:
Figure 3

Description: late sestamibi

Origin:
Figure 4

Description: early sestamibi

Origin: