Unusual presentation of more common disease/injury

An unusual cause of a mediastinal mass

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Summary

Primary hyperparathyroidism (PHPT) is a disorder resulting in hypercalcaemia due to autonomous over secretion of parathyroid hormone. Mediastinal parathyroid adenoma is a rare disorder which can present with a widened mediastinum on a plain film. It's always important to check calcium level in patients who present with a mediastinal mass to rule out PHPT. Recognition of this disorder is crucial to prevent long-term sequelae. The authors report an interesting case and discuss further about it, which would be of help both to a specialist and a general physician.

BACKGROUND

Primary mediastinal tumours are uncommon. We report an interesting case of a patient who initially presented to urology, was referred to respiratory medicine and eventually to endocrinology.

CASE PRESENTATION

A 63-year-old man was referred to urology in view of a left renal calculus. He was found to have a raised calcium (Ca

corrected 2.87 mmol/l) and a raised parathyroid hormone (PTH 140 ng/l). He had a chest x-ray which showed widening of the superior mediastinum on the right (figure 1), with an ovoid right paratracheal mass indenting the trachea. A CT scan of the chest showed a large well-defined mass with central low attenuation in the right paratracheal region (figure 2). It extended from the thyroid down to the level of carina displacing the trachea to the left without any compression. There was no lymphadenopathy. He was

Figure 1 Chest x-ray showing widening of the mediastinum on the right side.

Figure 2 CT scan of the chest showing a large superior mediastinal mass.

referred to a respiratory physician for consideration of surgical biopsy.

A subsequent ultrasound scan of the neck identified the mediastinal mass, the upper part being deep to the right lobe of the thyroid gland. It was solid with some areas of cystic changes and prominent vascularity. The radiological differential included teratoma and a thymoma. A CT guided biopsy showed a cellular specimen rich in neutrophils, polymorphs and lymphocytes with uniform appearance. This was suggestive of an endocrine or neuroendocrine tumour. A tracheal core biopsy showed small regular islands of cells with bland circular nuclei and a moderate amount of eosinophilic cytoplasm. The tumour marked strongly with chromogranin and very weakly with synaptophysin, suggesting parathyroid origin.

He was then referred for an endocrine opinion. He had no abdominal pain or constipation but has had painful ribs for few years. There was no past or family history of note. He had a bone scan which showed osteoporosis of left forearm (T score -3.0) and osteopenia of the hip (T score -1.1). His 24 h urinary calcium was normal (3.5 mmol/l) as was serum vitamin D level (40 nmol/l). ^{99}Tc Sestamibi scintigraphy scanning also confirmed a large parathyroid adenoma with central necrosis.

He underwent surgery through a standard cervical approach, and the histology was consistent with a parathyroid adenoma. His latest calcium remains normal (2.24 mmol/l) as is the PTH level (68 ng/l).

DISCUSSION

Primary hyperparathyroidism (PHPT) is a common endocrine disorder and is the commonest cause for

hypercalcaemia in the outpatient setting. Intrathoracic masses associated with hypercalcaemia are mostly due to either sarcoidosis or to tumours, which can either be primary or secondary.¹ Mediastinal parathyroid adenomas are an uncommon cause of persistent hyperparathyroidism and rarely cause a discernible mass.² However, in our case the tumour was clearly seen even on a plain radiograph and correctly diagnosed preoperatively.

Ectopic and/or supernumerary parathyroid glands are a major cause of persistent and recurrent hypercalcaemia. These can occur anywhere from the angle of mandible to the mediastinum.³

Patients can either be asymptomatic or present with symptoms associated with hypercalcaemia. Preoperative localisation is the key to successful parathyroid resection.⁴ Preoperative investigation to determine the exact location of an adenoma should include two types of imaging studies, preferably Tc-99m -sestamibi scintigraphy and CT scan to minimise the risk of recurrence of hyperparathyroidism from missed adenomas. Mediastinal parathyroid adenomas are usually not detected with ultrasonography.⁵ Dual-phase, dual-tracer Tc-99m -pertechnetate/ Tc-99m -sestamibi SPECT scintigraphy has a sensitivity of about 90% to detect a parathyroid adenoma.⁶

Surgical resection is the treatment of choice for these tumours, which in the majority of patients is successful through a transcervical approach.⁷ However a small number of patients may need mediastinal exploration. In the case described the patient made a full recovery with normalised calcium and PTH postoperatively.

Learning points

- ▶ This case report illustrates PHPT due to an ectopic mediastinal parathyroid adenoma.
- ▶ This unusual presentation needs to be considered as one of the differential diagnoses when hypercalcemia is associated with an abnormal chest x-ray.
- ▶ Appropriate preoperative localisation is crucial to prevent any future recurrence of this rare unusual tumour.

Competing interests None.

Patient consent Obtained.

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