CASE REPORT

Coexisting adenoma and granuloma involving the right inferior parathyroid gland with adjacent ectopic thymic tissue

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SUMMARY

Inflammatory lesions, particularly granulomas, involving adenoma of the parathyroid gland are rare. Ectopic thymic tissue is commonly associated with the thyroid and/or parathyroid gland due to their close embryonic relationship. We report a rare case of coexisting adenoma and granuloma of the parathyroid gland with adjacent ectopic thymic tissue.

BACKGROUND

Parathyroid adenomas are the most common neoplastic lesions of the parathyroid gland, causing hypercalcaemia. Inflammatory lesions of the parathyroid gland, particularly granulomas involving the parathyroid gland are very rare and seldom described. Hypercalcaemia occurring due to granulomatous disease remains asymptomatic; however, features of chronic hypercalcaemia may occur under long-standing conditions.¹ Although rare, thymic tissue is commonly associated with the thyroid and parathyroid gland due to its faulty descent. We describe a case of adenoma involving the right inferior parathyroid gland and coexisting granulomatous inflammation along with adjacent ectopic thymic tissue.

CASE PRESENTATION

A 55-year-old man presented with a history of recurrent episodes of ureteric colic and muscle cramps over the past 4 months. There was no history of any bone pain and his physical examination was normal. Serum calcium and parathormone levels were elevated while the serum phosphorus level was decreased. Chest X-ray was normal. Ultrasound of the neck revealed an adenoma involving the right inferior parathyroid gland. The patient underwent right inferior parathyroidectomy. Grossly, the specimen of parathyroid gland weighed 1.9 g and measured 2.2×1.4×0.5 cm. Sectioning revealed a yellowish white lobulated soft cut surface. Microscopically, a capsulated and circumscribed tumour arranged in large lobules was evident (figure 1). The lobules comprised of sheets of clear cells and oxyphilic cells displaying a small nucleus and clear to eosinophilic cytoplasm. There was no capsular or vascular invasion. One of the lobules showed granulomas composed of epithelioid histiocytes, occasional Langhans type of multinucleate giant cells,

lymphocytes and few plasma cells (figures 2 and 3). Thymic tissue comprising of Hassal's corpuscles and lymphoid aggregates was also seen adjacent to the tumour and granuloma (figure 4). Special stains for tuberculosis and fungal organisms were negative. After surgery the patient's serum calcium, phosphorus and parathormone levels became normal. He had no symptoms suggestive of tuberculosis, so antitubercular therapy was not prescribed. The possibility of sarcoidosis was ruled out clinically and radiologically. Moreover, his serum ACE levels were normal.

OUTCOME AND FOLLOW-UP

Postoperative period and follow-up in our case were uneventful till date.

DISCUSSION

Inflammatory lesions involving the parathyroid gland are quite rare as compared with other endocrine organs. This may be due to poor antigenicity of the parathyroid gland or some mechanism protecting against the processes that initiate autoimmunity.² Talat *et al* analysed 11 cases of granulomatous inflammation involving the parathyroid gland reported by others, which included six cases of sarcoidosis, three cases of tuberculosis involving the parathyroid gland and two cases of idiopathic granulomatous inflammation of the parathyroid. Nine out of these 11 cases had coexisting parathyroid adenoma.² Our case was similar to the two cases of idiopathic granulomatous inflammation which had coexisting parathyroid adenoma.

In early fetal life the development of thymus occurs high in the neck and after a process of progressive descent it reaches its final destination in the mediastinum. The thymus and inferior parathyroid gland are endodermal derivatives of the third pair of branchial pouch. Ventral wing of the third branchial pouch gives rise to the thymus whereas the dorsal wing of the same pouch gives rise to the inferior parathyroid gland. Rarely, due to failure of its descent, the thymus appears as an implant or nodule anywhere from the angle of mandible to the thyroid gland. Ectopic thymic tissue is most commonly seen at the level of the thyroid gland apart from other rare sites such as the skull base, middle ear, tonsil and submandibular gland. Owing to age-related involution and replacement by fibroadipose tissue, adult cases of ectopic thymus

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Figure 1 A circumscribed and encapsulated tumour (parathyroid adenoma), H&E, 20×.

Figure 4 Adjacent thymic tissue, H&E, 20×.

Figure 2 Tumour on the left and granuloma on the right, H&E, 10×.

Figure 3 Granuloma, H&E, 20×.

are very rare.³ Similarly, in our case ectopic thymic tissue was evident adjacent to the adenoma involving the right parathyroid gland which was due to its faulty descent. It is important to recognise the ectopic thymic tissue as it may undergo neoplastic transformation.

In our case histopathological examination proved valuable, as occult granuloma within the tumour and the adjacent ectopic thymic tissue as well were detected.

Learning points

- ▶ Inflammatory lesions, particularly granulomas involving the parathyroid gland, are very rare and seldom described.
- ▶ Aetiology of granuloma in the parathyroid gland whether tubercular, sarcoidal or idiopathic should be ascertained as their treatments differ.
- ▶ Embryological development of the thymus and parathyroid gland and various sites of ectopic thymic tissue should be noted as it may give rise to various neoplasms.

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Competing interests None.

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