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Case Study

A case of a giant ectopic parathyroid adenoma diagnosed on 99mTc-MIBI scintigram

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ABSTRACT

We report a case of a 26-year-old man who presented 3 years back with signs and symptoms of severe hypercalcemia and osteoporosis, including muscle spasm and bone deformity and was admitted to hospital several times. Laboratory investigations were consistent with primary hyperparathyroidism (PHPT). 99m Tc-MIBI scintigraphy demonstrated a very big parathyroid adenoma in the mediastinum. Neck and chest computerized tomography scanning confirmed the diagnosis and showed the anatomical details.

Keywords: Hypercalcemia, Tc-MIBI and Osteoporosis

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INTRODUCTION

Primary hyperparathyroidism (PHPT) is a common endocrine disorder characterized by hypercalcemia and excessive secretion of parathyroid hormone (PTH) [1]. PHPT is most commonly caused by a single adenoma of the parathyroid gland. Patients with PHPT tend to develop complications such as reduction of bone mineral density, nephrolithiasis, and gastric ulcer, which may impair quality of life [1, 2]. In the management of PHPT, parathyroidectomy of the abnormal gland is the gold standard for effective treatment. Generally, most parathyroid adenomas remain relatively small, measuring under a few centimeters and weighing less than 1 g [3]. Large or giant parathyroid adenomas are seldom seen in patients with PHPT [4], and in such cases differential diagnosis is necessary to rule out malignancy.

Here, we report a case of hyperparathyroidism due to a giant ectopic parathyroid adenoma with complication of chronic hyperparathyroidism and hypercalcemia.

CASE REPORT

A 26-year-old man who had a long history of muscle spasm in hands followed by abnormal gait and was admitted several times to hospital. investigations revealed hypercalcemia. Computed tomography (CT) to skull had shown the presence of multiple osteolytic changes (Fig1). Bone scan and bone densitometry show vertebral scoliosis, generally reduced bone radiotracer uptake and osteoporosis. Nuclear Medicine parathyroid scintigraphy was done using ^{99m}Tc -sestamibi (single isotope method). It showed a very big parathyroid adenoma in the mediastinum (Fig4). Chest CT showed a big elongated retrosternal mass sized 34x 40 mm, positioned in the superior mediastinum below sternum and just to the right of the manubrio-sternal junction (Fig 2 & 3).

DISCUSSION

This is an unusual case of hyperparathyroidism due to a large parathyroid adenoma. This patient presented with signs and symptoms of hypercalcaemia long time back. and was admitted several times to hospital due to complications. Unfortunately this young man suffered for a quite long time before being diagnosed, and this possibly due to absence of a visible neck swelling on clinical examination. An ectopic parathyroid adenoma should always be considered in such cases especially on the ground of an evident hyperparathyroidism proved by laboratory findings. Parathyroid adenomas usually measure less than 2 cm and weigh less than 1 g. Parathyroid carcinomas should always be considered in cases of giant parathyroid adenomas measuring more than 2 cm[7].

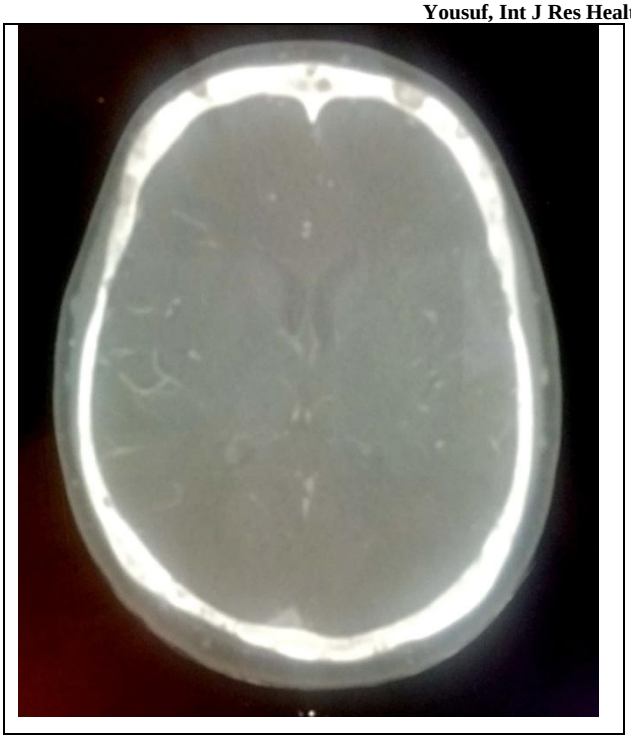
Parathyroid cysts or cystic adenomas often show large parathyroid ones. In our case, no signs of malignancy, such as presence of capsular invasion, angioinvasion, and invasion of the surrounding structures, were observed by morphological analysis. In our case, the weight or size of the adenoma are correlated with the functional status of the gland and the severity of biochemical abnormalities, i.e. his large adenoma was associated with a severe form of primary hyperparathyroidism [9]. However, in one reported case of giant adenoma, there was no correlation between size and functional status [10].

As demonstrated in our case, ^{99m}Tc-MIBI-radionuclide imaging has been used in the detection and localization of the parathyroid adenoma, however in the rare occasions of intrathyroid parathyroid adenoma (Incidence: true one is 0.7%, and partial one is 1.9% [12]), radionuclide imaging may miss the pathologic gland [13]. Generally, other different imaging techniques, such as high resolution ultrasonography, CT, arteriography, venous sampling, and magnetic resonance imaging, have been used for detection of the abnormal parathyroid glands [14, 15].

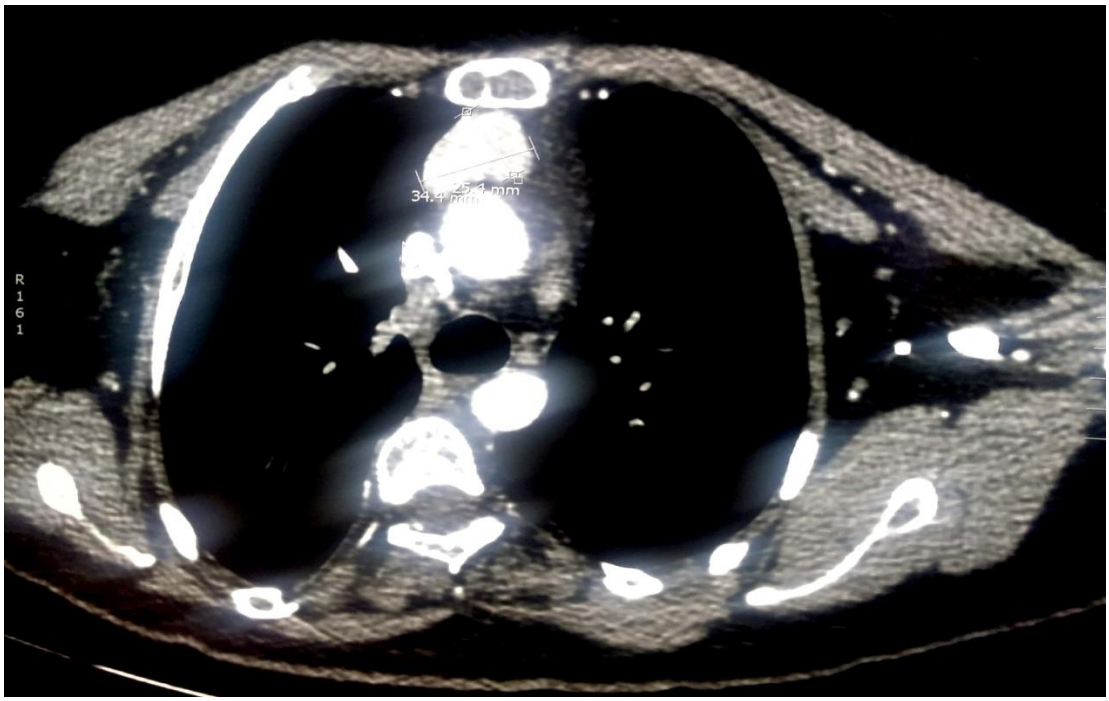
In summary, we report an unusual case of hyperparathyroidism due to a large ectopic parathyroid adenoma positioned in the superior mediastinum.

CONCLUSION

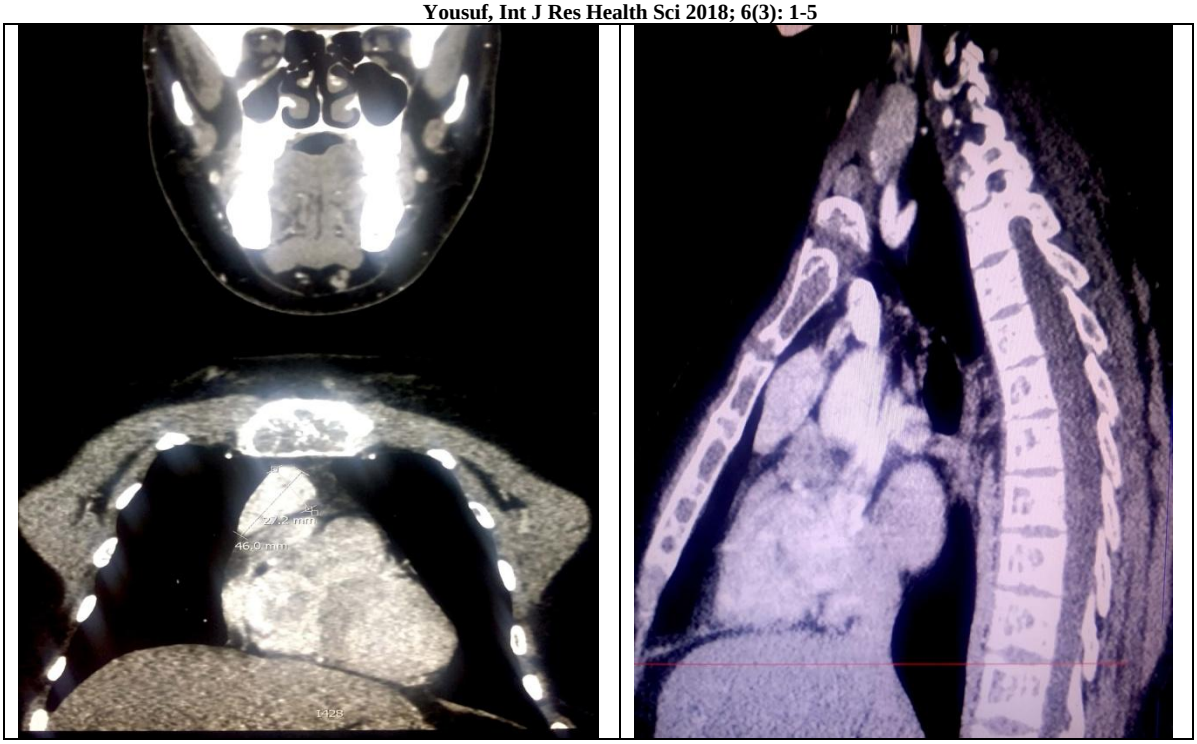
Ectopic parathyroid adenomas can reach a very big size and this could be strongly correlated with the functional status, mostly; as in our case.



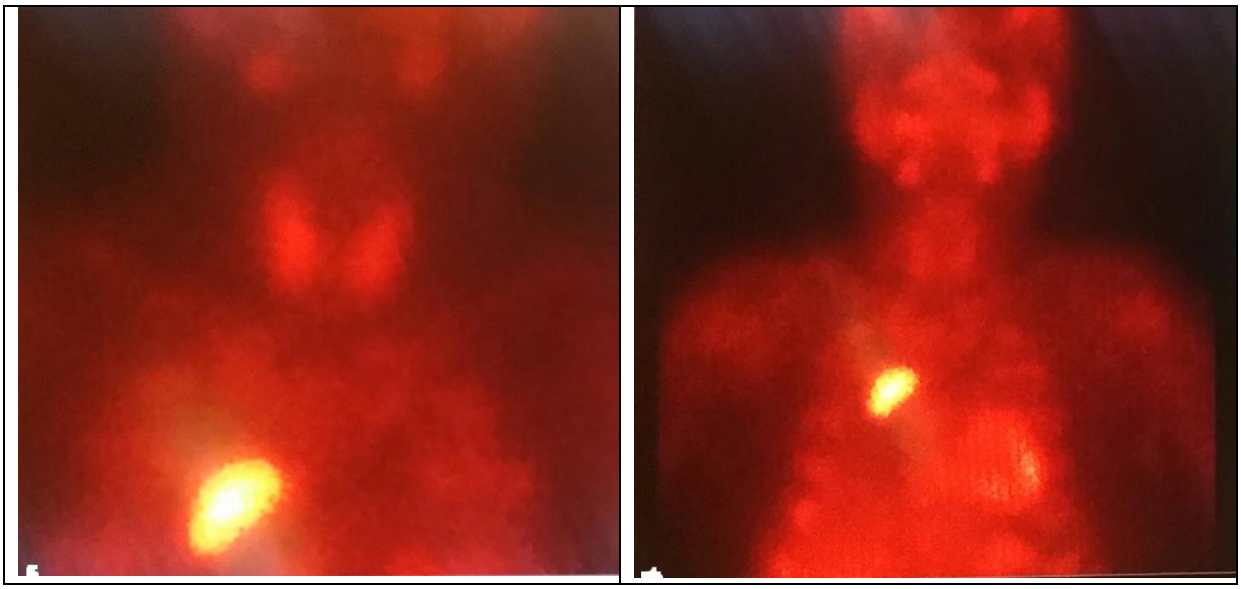
(Fig.1)



(fig. 2)



(fig. 3)



(Fig. 4)

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