

Case Report

A report of a giant parathyroid adenoma

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ABSTRACT

Giant parathyroid adenoma is a rare condition characterized by the presence of an abnormally large tumor in the parathyroid gland. A 62-year-old patient diagnosed with primary hyperparathyroidism and severe nephrolithiasis leading to nephrectomy. During workup for etiologic origin of hyperparathyroidism she was found to have a giant parathyroid adenoma with 7,8x3,6x4,3 cm estimated dimensions, located posteriorly to the trachea and extending to the thoracic inlet. She was then submitted to a Kocher cervicotomy and a partial superior sternotomy. The diagnosis is initially made through laboratorial tests that reveal the elevated calcium and PTH levels. After diagnosis, imaging studies are essential to locate the gland in order to safely remove the entire associated adenoma. Management of giant adenoma is surgical with most patients achieving cure after the gland excision.

Keywords: Giant parathyroid adenoma, Hyperparathyroidism, Nephrolithiasis

INTRODUCTION

Giant parathyroid adenoma is a rare condition characterized by the presence of an abnormally large tumor in the parathyroid gland. Parathyroid adenomas (PTAs) are usually small, measuring <2 cm and weighing <1 gm.¹ Giant PTAs (GPTAs), although rare, are most commonly defined as weighing > 3.5 gm, with some reports describing weights up to 110 gm or measuring greater than 3 cm.¹⁻³ All such adenomas are rare accounting for no more than 1.5% of all parathyroid adenomas.² Here we report the case of a 62-year-old woman diagnosed with a parathyroid giant tumor that turned out to be a parathyroid adenoma.

CASE REPORT

A 62-year-old patient was referred to our Endocrine Surgery Department due to a tumor located posteriorly to the left thyroid lobe and extending to the thoracic inlet.

The initial diagnosis was made during investigation of primary hyperparathyroidism with severe nephrolithiasis leading to nephrectomy. The diagnostic workup suggested a giant parathyroid adenoma with 7.8x3.6x4.3 cm estimated dimensions. The patient was submitted to laboratory study and a scintigraphy. The scintigraphy revealed an increased accumulation of radiotracer at the location of the inferior parathyroid. The SPECT/CT revealed the accumulation mostly in the central inferior portion of the gland, located posteriorly to the trachea and extending to the thoracic inlet. The SPECT/CT also revealed a cold nodule in the left thyroid lobe which was also identified in the sonography as a cystic nodule. The patient was then qualified for a left thyroid lobectomy and excision of the adenoma. In the operating room, we performed a Kocher cervicotomy and it was possible to identify the cystic thyroid nodule and the adenoma located in the left inferior parathyroid gland, the adenoma was localized laterally to the carotid intern artery, medially to the trachea and was in close relation with the

left recurrent laryngeal nerve which we had to sacrifice in order to maintain the integrity of the lesion. We also had to perform a partial superior sternotomy to achieve a complete control of the distal part of the lesion and the vascular structures (Figure 1-2). The specimen weighed 19.82 gm and had around 8.5 cm of length (Figure 3).

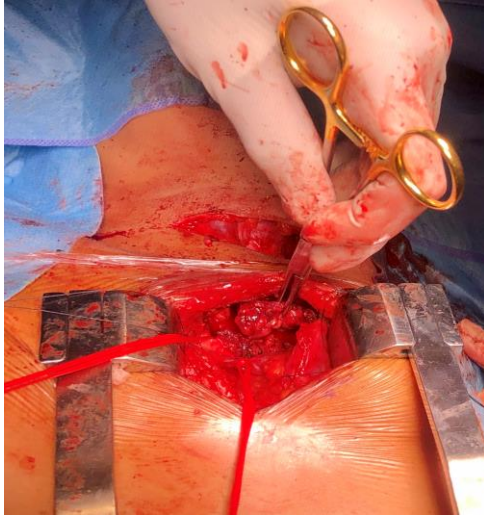


Figure 1: Parathyroid adenoma partially suspended with Babcock forceps, brachiocephalic trunk in red vascular bands.

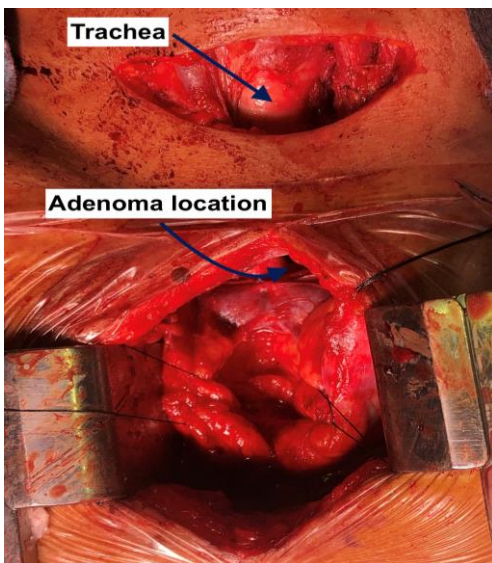


Figure 2: After removal of the specimen.

The patient was then admitted to the intensive care guard and was kept sedated and intubated. At the first postoperative day she was gradually wined of the ventilator and extubated. She then started calcium supplementation and was submitted to daily measurement of PTH, calcium and phosphorus. The postoperative time was uneventful and she was discharged at 11th postoperative day.



Figure 3: Parathyroid adenoma and left thyroid lobe (upper location).

DISCUSSION

Primary hyperparathyroidism is mediated by calcium hypersecretion which is caused by excessive secretion of parathyroid hormone, which leads to an increased concentration of calcium in the blood serum. Symptoms develop slowly and are non-specific. Symptoms may include fatigue, muscle weakness, bone pain, kidney stones, and increased thirst and urination.⁶ The symptoms may aid in an early diagnosis, however once more evident symptoms are present the disease can be already in an advanced state related to complications of hyperparathyroidism. The diagnosis is initially made through laboratorial tests that reveal the elevated calcium and PTH levels.¹ Overall, there is a lack of consensus on the exact association between adenoma weight and PTH level, however, some studies suggest that patients with adenomas weighing more than 750 mg have a significantly lower serum PTH level per mg of adenoma compared to those having adenomas lighter than 750 mg.³ Some authors reported a positive correlation between PTH level and size of the adenoma, this can give some idea of the expected size of the gland.^{1,5,7} After the diagnosis is made, it is necessary to perform imaging studies to localize the affected gland, in the case of giant parathyroid adenomas, it is usually easily identifiable due to its size compared to the normal glands. Several diagnostic localization methods include parathyroid scintigraphy, ultrasound, CT scans and SPECT/TC.⁴ Management of giant adenoma is surgical and is guided by the site of the adenoma. The trans-cervical approach is generally indicated. The surgical approach for an inferior giant parathyroid adenoma extending into the anterior mediastinum can require a median sternotomy.⁴ Parathyroid carcinoma is the primary differential diagnosis for parathyroid adenomas. Histological differentiation between the two is not always easy, and various morphological criteria have been established to identify carcinoma.⁴

CONCLUSION

Giant parathyroid adenomas are underrepresented in the literature due to their rare presentation. Surgical removal of the adenoma is usually curative, with most patients experiencing relief from symptoms and normalization of calcium levels. The surgery can be challenging in order to access a dislocated gland as was our case, highlighting the importance of preoperative imaging studies.

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Ethical approval: Not required

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