

Inusual carcinoma paratiroideo intratiroideo

Natalia O. Elías⁽¹⁾, Mónica G. Loto⁽¹⁾, Alejandro Iotti⁽²⁾, Marta Hevia⁽¹⁾, Adrián Cameron⁽³⁾, Marcela V. Morán⁽¹⁾, Andrea Lemma⁽¹⁾, Alejandro L. Misiunas⁽¹⁾

1) Endocrinology Division; 2) Pathology Division; 3) Head&Neck Surgery Division, Hospital Británico de Buenos Aires

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Resumen

El carcinoma paratiroideo es una enfermedad rara. Su localización intratiroidea es aún más infrecuente, y ha sido descrita en pocos casos. Se presenta una mujer de 48 años que había sido tratada 15 años antes con hemitiroidectomía izquierda por un nódulo coloide, y consultó por recurrencia de bocio nodular derecho. La paciente estaba asintomática. El examen clínico era normal salvo por la presencia de un nódulo tiroideo no doloroso en el lóbulo tiroideo derecho. Fue evaluada y se encontró todo normal salvo por osteopenia lumbar y femoral, y por niveles levemente elevados de calcio y PTH séricos. El centellograma paratiroideo era consistente con un adenoma paratiroideo en el polo inferior del lóbulo tiroideo derecho. Se realizó la lobectomía derecha y se halló un carcinoma paratiroideo rodeado por tejido tiroideo normal. En el postoperatorio, los niveles séricos de calcio y PTH se normalizaron. Se concluye que el carcinoma paratiroideo es una causa rara de hipercalcemia sintomática. La paciente comentada estaba asintomática y tenía hipercalcemia leve, lo que la hace un raro ejemplo de carcinoma paratiroideo intratiroideo asintomático.

Palabras clave: carcinoma paratiroideo intratiroideo, hiperparatiroidismo, hipercalcemia.

Summary

AN UNUSUAL PRESENTATION OF INTRATHYROIDAL PARATHYROID CARCINOMA

Background: Parathyroid carcinoma (PC) is a rare disease. Intrathyroidal localization is even more infrequent, as it is described in few cases.

Methods & Results: A 48-year-old woman, who had undergone left lobectomy because due to a nodular resection of a colloid nodule performed 15 years ago. She went to the hospital because of a right thyroid nodule. Clinical examination was unremarkable, except for the presence of a right painless thyroid nodule. She was screened for osteopenia and apart from mildly elevated calcium and intact PTH, she was asymptomatic. The Parathyroid scan was consistent with scintigraphic features of a parathyroid adenoma in the right lower thyroid lobe. Total thyroidectomy was completed and a PC inside the benign thyroid tissue was revealed on the pathology analysis. Postoperatively, calcium and PTH levels returned to normal values.

Conclusion: PC is an infrequent cause of symptomatic hypercalcemia. This patient was asymptomatic and with mild hypercalcemia, leading to the conclusion that this is a rare case of asymptomatic intrathyroidal PC.

Key words: Intrathyroidal parathyroid carcinoma, hyperparathyroidism, hypercalcemia.

Introduction

Parathyroid carcinoma (PC) is a rare disease, accounting for less than 1% of primary hyperparathyroidism among caucasian patients¹. Intrathyroidal localization is even more infrequent: Only a few cases have been described.

Concurrent elevations in PTH and calcium levels are diagnostic of hyperparathyroidism. These levels are thought to be somewhat higher in patients with parathyroid cancer, although it is also possible to find high levels in benign disease, as well as unremarkable elevated levels in patients with cancer².

Even when some clinical and pathological features are more frequent in malignant neoplasm, the differential diagnosis represents a considerable challenge³. Therefore, to make

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Correspondencia: Natalia O. Elías - Perdriel 74 C1280AEB - Ciudad Autónoma de Buenos Aires - Argentina
nataliaelias24@yahoo.com.ar

the diagnosis of cancer until the time of surgery.

The present case is about a female patient with an intrathyroidal parathyroid carcinoma presenting as an asymptomatic hyperparathyroidism with mild hypercalcemia discovered during a screening evaluation for osteopenia.

Methods

A 48-year-old caucasian woman, who had undergone a left lobectomy for a colloid nodule 15 years ago, went to the hospital due to a recurrence of thyroid nodule.

There was no history of psychiatric complaints, hypertension, nephrolithiasis, nor recent bone fractures.

She refused having any neck pain or compressive symptoms. Chest and cardiovascular examinations revealed no abnormalities. Neurological examination was normal.

Neck examination revealed a right lower cer-

vical mass, consistent with thyroid enlargement. Ultrasonography showed an enlarged right lobe with a nodule of 2.8 cm x 1.8 cm x 1.4 cm in the anterior-inferior area.

Thyroid function tests were normal under 100mcg of thyroxin. Fine needle aspiration of the thyroid nodule was consistent with colloid nodule.

X-ray confirmed diffuse osteopenia and Dual Energy X ray absorptiometry (DXA) showed a T-score of -2.0 and -2.1 at the lumbar spine and the right femoral neck, respectively.

An elevated calcium level of 2.8 mmol/L, (normal 2.1-2.6 mmol/L), confirmed by a second determination, with a concomitant increase in intact PTH level (150.1 ng/L; normal 10-65 ng/L) was detected in the laboratory testing for osteopenia.

Parathyroid scan using ^{99m}Tc -SestaMIBI-99c-Pertechnetate was consistent with scintigraphic features of a parathyroid adenoma in the right lower thyroid lobe (Figure 1).

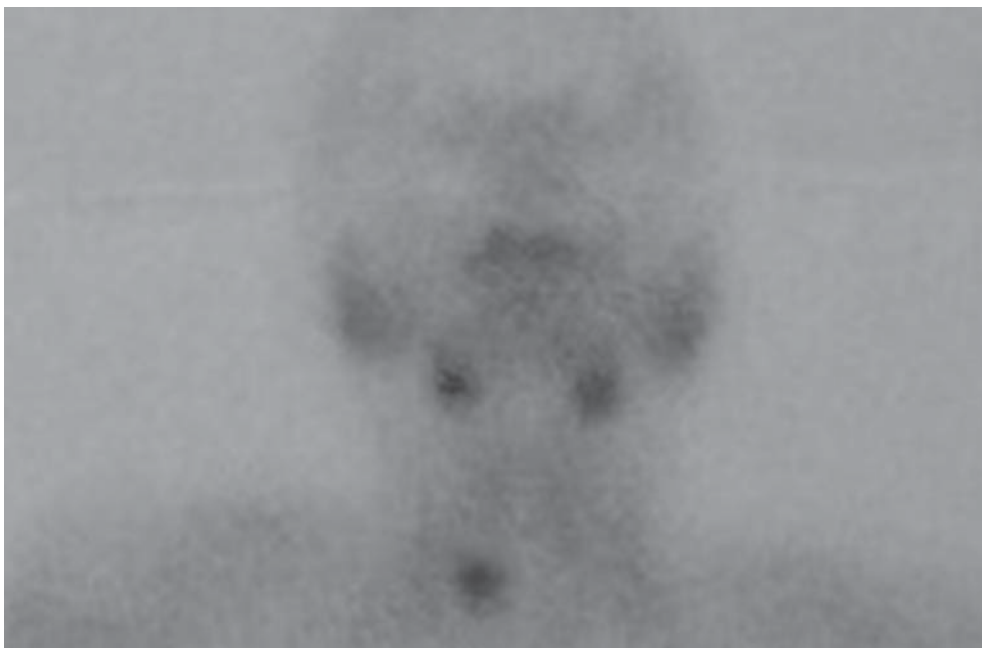


Figure 1. Parathyroid adenoma in the right lower lobe imaging scan with SestaMIBI- ^{99m}Tc -Pertechnetate

Results

Total thyroidectomy was completed, and a large intrathyroid parathyroid gland was found in the right thyroid lobe with local invasion of surrounding tissues.

Final histopathologic study revealed a 2.2 cm X 2.0 cm, hard nodule within the right thy-

roid lobe. It was surrounded by a dense, fibrous capsule that adhered tenaciously to adjacent tissues. Histology showed that chief cells, the predominant cell type, were arranged in solid sheets and trabecular pattern. There was discrete cellular atypia. Scattered foci of necrosis and hemorrhage occurred at the periphery of the

tumor. There was vascular invasion (Figure 2). Immunocytochemical stained positive for the cell cycle-associated antigen Ki-67 (labeling index 7%). The diagnosis was compatible with parathyroid carcinoma.

Postoperatively, calcium level dropped to 2.4 mmol/L, and PTH level returned to normal values (19 nl/L).

The Patient has not shown evidence of recurrence of the carcinoma after four years of follow up tests. Serum calcium levels, as well as PTH levels, persist within normal ranges.

Bone mineral density by DXA improved in both areas, showing a T-score of -1.3 at the lumbar spine, and -1.0 at the right femoral neck.

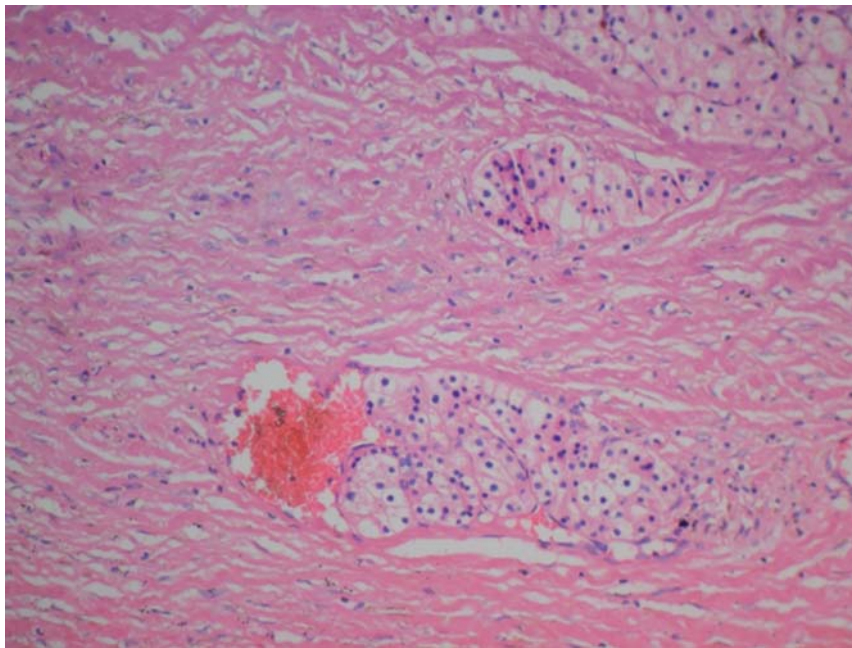


Figure 2. Thick tumor capsule with capsular and vascular invasion. Hematoxylin-Eosin stain, original magnification x400.

Discussion

Parathyroid carcinoma is a rare disease, accounting for 0.5-5% of all patients with primary hyperparathyroidism. The reported incidence is less than 1% in Europe and the US and 5% in Japan^{4, 5}. The chance of an intrathyroidal occurrence of a parathyroid gland is about 1-3%¹. To the best of our knowledge, intrathyroidal PC has been reported in only seven cases^{1, 6, 7}.

Most patients with parathyroid carcinoma present severe hypercalcemia, osteoporosis and nephrolithiasis, but a minority of them are asymptomatic or even normocalcemic^{8, 9}.

Clues that the patient may have PC include: Calcium levels above 3.5 mmol/L, PTH above five times upper normal limit, palpable neck mass, or hoarseness (due to involvement of the recurrent laryngeal nerve)⁸. Renal impairment (nephrolithiasis, nephrocalcinosis, or a decrease in glomerular filtrate) and skeletal abnormalities

(osteitis fibrosa cystica, osteoporosis, subperiosteal bone resorption, salt-and-pepper skull) has been reported in 32-84% and 44-91%, respectively, in patients with PC^{9,10}. These findings are clearly more frequent than in patients with benign hyperparathyroidism.

The patient presented in this case had a slightly increased calcium level, with a PTH level of only 1.8 times above the upper normal limit. Osteopenia was detected at lumbar spine and femoral neck, with no evidence of kidney impairment. She had a palpable neck mass, but according to the results of ultrasonography, a thyroid nodule was confirmed. Therefore, preoperative diagnosis of parathyroid carcinoma was not suspected because her clinical presentation was not typical at all.

The distinction between benign and malignant parathyroid neoplasm is difficult, just like in many other endocrine tumors¹⁰. In 1973, Schantz and

Castleman established a subset of criteria for the pathological diagnosis of this malignancy: Presence of fibrous capsule, sheets of chief cells in a lobular pattern separated by dense fibrous trabeculae, capsular or vascular invasion (all of these were evident in this patient), and mitotic figures in parenchymal cells¹¹. Unfortunately, none of these features is pathognomonic of malignancy, and some of them have also been described in many adenomas^{8,10}. Based on expert opinions, the overall histological pattern with the presence of more than one finding suggestive of malignancy is more useful than any single feature alone for the likelihood of malignancy¹².

In order to improve the accuracy of the diagnosis of malignancy, many molecular techniques have been developed. High labeling index of Ki-67 may be helpful in the differential diagnosis².

Parathyroid carcinoma is an infrequent cause of symptomatic hypercalcemia, and its intrathyroidal localization is even more infrequent. This patient had a mild and asymptomatic hypercalcemia due to an intrathyroidal malignant parathyroid neoplasm, leading to the conclusion that this is a very rare case of malignancy.

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