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Case Report

A RARE MALIGNANCY IN THE ELDERLY PATIENT: PARATHYROID CARCINOMA

Abstract

Parathyroid carcinoma is a rare neoplasm, accounting for less than 1% of patients with primary hyperparathyroidism. Parathyroid carcinoma usually manifests during the fourth decade. A 77-year old female patient presented with weakness. The patient's laboratory results showed serum calcium (Ca) value of 13.6mg/dl (reference range:8.4-10.2 mg/dl), serum parathormone (PTH) value of 385pg/ml (15-65 pg/ml) and the patient's condition was concluded to be primary hyperparathyroidism. In parathyroid scintigraphy, the late images taken 2 hours after the injection of 25mCiTc-99m MIBI revealed focal sestamibi retention in the zone corresponding to the thyroid left lobe lower pole inferior (Figure 1). Considering parathyroid adenoma, parathyroidectomy was performed. The pathology result was parathyroid carcinoma. Although the disease is most common in the fourth decade, parathyroid carcinoma should be considered as a rare malignancy in the elderly.

Key Words: Hypercalcemia; Parathyroid Neoplasms; Aged.

Olgu Sunumu

YAŞLI HASTADA NADİR BİR MALİGNİTE: PARATİROİD KARSİNOM

Öz

Paratiroid karsinom nadir bir neoplazm olup, primer hiperparatiroidizm saptanan olguların %1'inden azında görülür. Paratiroid karsinom genellikle dördüncü dekadda görülmektedir. 77 yaşında bayan hasta halsizlik yakınmasıyla başvurdu. Hastanın laboratuvar incelemesinde serum kalsiyum değeri 13.6 mg/dl (referans aralık: 8.4-10.2 mg/dl), serum parathormon değeri 385 pg/ml (referans aralık: 15-65 pg/ml)olarak saptandı ve hastada primer hiperparatiroidizm düşünüldü. Paratiroid sintigrafisinde 25mCi Tc-99m MIBI'nin enjeksiyonundan 2 saat sonra alınan geç görüntülerde, tiroid sol lop alt pol inferioruna uyan alanda fokal sestamibi retansiyonu izlendi. Hastada paratiroid adenom düşünülerek paratiroidektomi uygulandı. Patoloji sonucu paratiroid karsinomu olarak değerlendirildi. Paratiroid karsinom en sık dördüncü dekadda görülse de yaşlı hastada nadir bir malignite olarak görülebilmektedir.

Anahtar Sözcükler: Hiperkalsemi; Paratiroid Karsinom; Yaşlı Hasta.

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Introduction

Parathyroid carcinoma is a rare neoplasm, accounting for less than 1% of patients with primary hyperparathyroidism (1). Parathyroid carcinoma is the least common endocrine malignancy, and accounted for only 0.005% of cases reported to the National Cancer Database (NCDB) between 1985 and 1995 (2). Parathyroid carcinoma usually manifests during the fourth decade (3,4). In our 77-year-old patient being investigated for the etiology of hypercalcemia, we identified parathyroid carcinoma, a rare disease in this age group.

Case

A 77-year old female patient presented with weakness, which recently increased in severity. With no significant pathologic findings in her examinations, the patient's laboratory results showed serum calcium (Ca) value of 13.6 mg/dl (reference range: 8.4-10.2) and serum phosphorus value of 2mg/dl (reference range:2.3-4.7). Serum parathormone (PTH) was measured to reveal the etiology of hypercalcemia and was reported as 385pg/ml (15-65pg/ml) and the patient's condition was concluded to be primary hyperparathyroidism. She was hospitalized and underwent forced diuresis. Her parathyroid ultrasonography revealed a well-defined lesion localized at the left lobe inferior pole posterior sized 23x18mm with uniform contours, which could be consistent with heterogeneous parathyroid adenoma. In parathyroid scintigraphy, the late images taken 2 hours after the injection of 25mCiTc-99m MIBI revealed focal sestamibi retention in the zone corresponding to the thyroid left lobe lower pole inferior (Figure 1). Considering parathyroid adenoma, parathyroidectomy was performed. In the surgical material sized 2.5x1 and 5x1cm and weighing 4.5g, tumor cell clusters penetrating into the capsule and within extracapsular blood vessels were identified (Figures 2-3). The pathology result was reported as parathyroid carcinoma. Postoperatively, serum Ca levels decreased to 8.6mg/dl and the PTH level to 25pg/ml. An evaluation for possible metastases was performed. Computerized tomography of the neck, thorax and the full abdomen and the whole body bone scintigraphy did not demonstrate any findings indicative of a metastasis or local expansion. The patient did not receive chemotherapy or radiotherapy postoperatively. At month 20 after surgery, the patient is currently under close Ca and PTH monitoring. At the latest visit, the patient's PTH and serum Ca levels were found to be 42 pg/ml and 9.2mg/dl respectively.

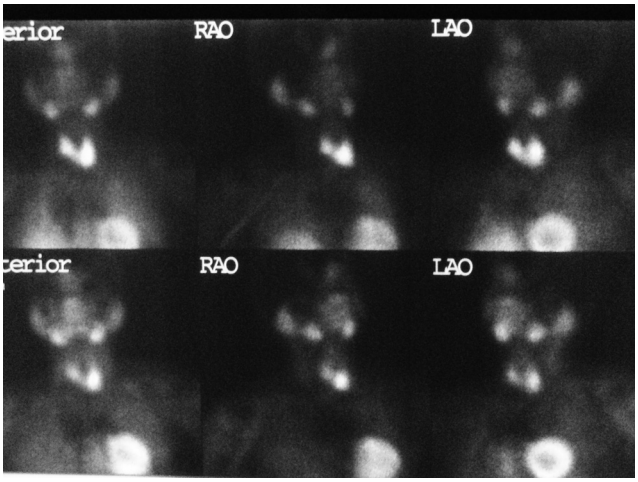

Figure 1— In parathyroid scintigraphy, the late images taken 2 hours after the injection of 25mCiTc-99m MIBI revealed focal sestamibi retention in the zone corresponding to the thyroid left lobe lower pole inferior.

Discussion

This 77-year-old female patient, presented with severe hypercalcemia. Parathyroid carcinoma was, diagnosed postoperatively based on the pathology result.

Of the 86 patients with primary hyperparathyroidism operated for this condition between 2007 and 2011 in our healthcare center, parathyroid carcinoma was diagnosed in only one. The incidence of parathyroid carcinoma in our

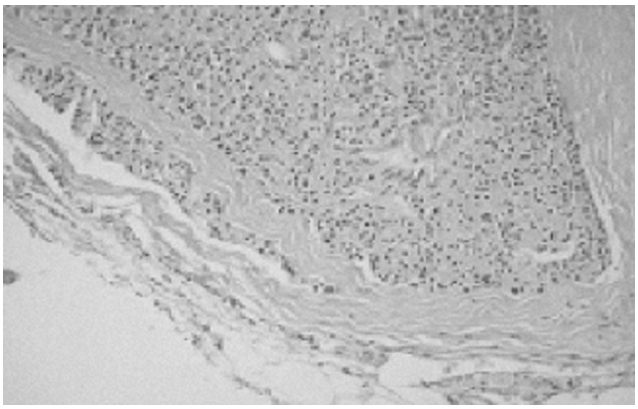

Figure 2— Tumor cell clusters penetrating into the capsule.

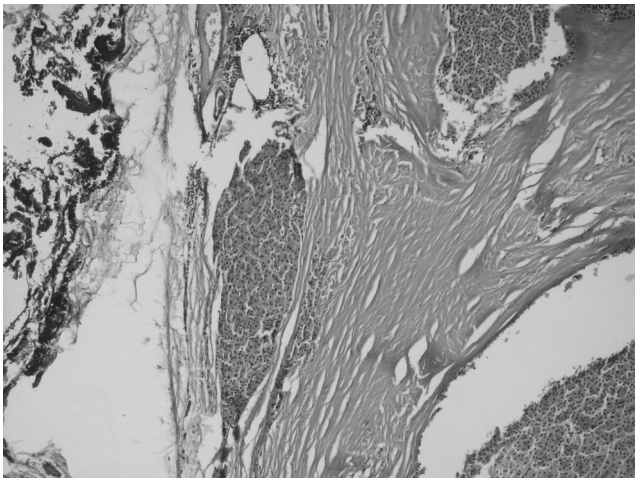

Figure 3— Tumor cell clusters penetrating iwithin extracapsular blood vessels.

healthcare center during a period of 5 years was 1.16% of primary hyperparathyroidism cases, consistent with the incidence reported in the literature.

Parathyroid carcinoma usually manifests during the fourth decade (3,4). In the cases reported to the NCDB, roughly half of cases are diagnosed between ages 45 and 60 years (2). In the series of Lee et al. with 7 patients with parathyroid carcinoma, the mean age of the disease was 43.3 (range:23-60 years) (4). Although the age of onset in the elderly is not exactly known, Talat N et al. in their meta-analysis of 330 patients with parathyroid carcinoma demonstrated a mean age of 49, with 8% of the patients older than 70 years old (5).

Clinically, a patient with primary hyperparathyroidism is most likely to have a parathyroid adenoma (6). Most patients (90%) present with symptoms, including severe hypercalcemia, an elevated serum PTH level, nephrolithiasis or nephrocalcinosis, osteopenia, osteoporosis, pathologic fractures, bone pain, gastrointestinal disturbances, depression, fatigue, or memory disturbance (2). On physical examination, although patients with parathyroid adenoma rarely present with neck masses, up to 50% of patients with parathyroid carcinoma present with palpable neck masses due to locally advanced disease (7).

Most of these tumors are functioning, and their clinical presentation is that of severe hypercalcemia, with serum calcium levels usually 3 to 4 mg/dL above the upper normal limit and PTH levels 3 to 10 times above normal (1,2). Our patient presented with severe hypercalcemia. Her examinations, however, did not demonstrate a palpable mass at the neck. The total T scores of the vertebrae and femur by dual energy X-ray absorptiometry were respectively- 2.9 and -3.4 in our case.

Preoperative imaging modalities including ultrasonography, computed tomography, magnetic resonance imaging, thallium-technetium subtraction scans and technechium-99m-sestamibi scans cannot differentiate between parathyroid adenoma and parathyroid carcinoma (4). Her preoperative parathyroid USG and scintigraphy images revealed enlarged parathyroid gland. However, there were no findings to differentiate parathyroid carcinoma from adenoma.

Although several clinical and biochemical features may differentiate parathyroid carcinoma from benign forms of hyperparathyroidism, pre- or intraoperative diagnosis is not easy. The histological criteria for the diagnosis of parathyroid carcinoma were published by Schantz and Castleman in 1973, and are still valid today. They include: sheets or lobules of tumor cells separated by dense fibrous bands, mitotic figures, necrosis, capsular invasion, or vascular invasion (8). Surgery is the only curative treatment. The cure rate is reported as being as high as 98% (9).

There is not much information in the literature on the postoperative complementary chemotherapy treatment of the disease. Some recent publications reported that recurrence rates may be decreased with RT but have no effect on prognosis (6). There is uncertainty with the treatment and management of parathyroid carcinoma due to the low occurrence of the disease. Since local recurrence is more often than and prior to distant metastases, postoperative close monitoring of PTH and serum Ca levels is an important part of its management.

Conclusion

Parathyroid carcinoma which is a rare tumor difficult to diagnose pre- or intra-operatively, is observed in 1% of patients with primary hyperparathyroidism,. Although the disease is most common during the fourth decade, parathyroid carcinoma should be considered as a rare malignancy also in the elderly. We beleive that, to withdraw a surgical option is not necessary because of patient's age, in an old patient who is diagnosed as primary hyperparathyroidism.

References

1. Shane E. Clinical review 122. Parathyroid carcinoma. J Clin Endocrinol Metab 2001;86(2):485–93. (PMID:11157996).

2. Hundahl SA, Fleming ID, Fremgen AM, Menck HR. Two hundred eighty-six cases of parathyroid carcinoma treated in the U.S. between 1985–1995: A National Cancer Data Base Report. Cancer 1999;86(3):538–44. (PMID:10430265).
3. Kay S, Hume DM. Carcinoma of the parathyroid gland. How reliable are the clinical and histologic features? Arch Pathol 1973;96(5):316-9. (PMID:4741903).
4. Lee YS, Hong SW, Jeong JJ, Nam KH, Chung WY, Chang HS, Park CS. Parathyroid carcinoma: a 16-year experience in a single institution. Endocr J 2010;57(6):493-7. (PMID:4741903).
5. Talat N, Schulte KM. Clinical presentation, staging and long-term evolution of parathyroid cancer. Ann Surg Oncol 2010;17(8):2156-74. (PMID:20221704).
6. Rodgers SE, Perrier ND. Parathyroid carcinoma. Curr Opin Oncol. 2006;18(1):16–22 (PMID:16357559).
7. Koea JB, Shaw JH. Parathyroid cancer: biology and management. Surg Oncol 1999;8(3):155-65. (PMID:11113666).
8. Schantz A, Castleman B. Parathyroid carcinoma: A study of 70 cases. Cancer 1973;31(3):600-5. (PMID:4693587).
9. Udelsman R. Six hundred and fifty-six consecutive explorations for primary hyperparathyroidism. Ann Surg 2002;235(5):665-70. (PMID:11981212).