



Treatment of Difficulty for a Diagnosis of the Parathyroid Cancer

Katsuhisa Enomoto^{1*} and Tetsuyo Maeda²

¹Department of Breast and Endocrine Surgery, Nihon University School of Medicine, Japan

²Department of Pathology, Nihon University School of Medicine, Japan

Abstract

A case was a 69-year-old male, who presented an inferior limb lassitude approximately in January 2009. Biochemical findings showed the following abnormalities: serum calcium, 16.5 mg/dl; urea nitrogen, 2.42 mg/dl; and intact Parathormone (PTH), 2190 pg/ml. Ultrasonographic findings of the neck revealed a cystic lesion with irregularly calcified margins in the left lobe of the thyroid gland, as well as a highly vascularized internally heterogeneous mass with irregular margins located dorsally. We removed a spherical mass that was somewhat adherent to surrounding tissues from the inferior dorsum of the left thyroid gland lobe, as well as the left lobe itself. Intraoperative pathological diagnosis of the mass was an adenoma. After the operation, total thyroidectomy and cervical lymphadenectomy were performed based on a clinical diagnosis of parathyroid cancer. This case presented with a lack of characteristic clinical symptoms, it has re-emphasized the need for detailed preoperative imaging diagnosis and conscientious intraoperative observation.

Keywords: Parathyroid Cancer; iPTH; Tl-Tc Subtraction Scintigraphic; Old Male

Introduction

Parathyroid disorders are seldom observed outside specialized endocrinology facilities. Complications of adult-onset diseases such as hypertension and diabetes have, however, increased the number of patients who require dialysis for renal dysfunction. This may result in secondary hyperparathyroidism which requires surgical removal of the hyper parathyroid glands. Accordingly, while benign parathyroid disorders are increasing, malignant parathyroid cancer is rare. This is a case report of parathyroid cancer, which required a differential diagnosis from a (presumably benign) adenoma.

Case Presentation

Patient: 69-year-old male.

Current medical history

The patient visited his local medical practitioner due to neck pain, which presented around February 2009. Non-enhanced MRI examination in the neck showed a mass in the left lobe of thyroid gland. The patient also presented with lower limb weakness, and was referred to our department.

The local findings showed no clearly palpable mass in the neck. Other physical findings indicated a dry mouth, frequent urination, and lower limb sensory paralysis.

Biochemical findings showed the following abnormalities: Serum calcium, 16.5 mg/dl; urea nitrogen, 2.42 mg/dl; intact Parathormone (PTH), 2190 pg/ml.

The ultrasonographic findings in the neck showed a cystic lesion with irregularly calcified margins in the left lobe of the thyroid gland, as well as a highly vascularized internally heterogeneous mass with irregular margins located dorsally (Figure 1). Non-enhanced CT revealed a mass approximately 18 mm in size in the lower pole of the left thyroid lobe, as well as a mass approximately 11 mm in size with partial calcification in its dorsal side.

The Tl-Tc subtraction scintigraphic findings indicated Tl uptake in the upper and lower dorsal side of the left lobe (Figure 2).

Surgical findings

We removed a spherical mass which was somewhat adherent to surrounding tissue from the

OPEN ACCESS

*Correspondence:

Katsuhisa Enomoto, Department of Breast and Endocrine Surgery, Nihon University School of Medicine, 30-1, Oyaguchi, Kami-machi, Itabashiku, 173-8610, Tokyo, Japan, Tel: +81-3-3972-8111; Fax: +81-3-3554-1371; E-mail: enomoto.katsuhisa@nihon-u.ac.jp

Received Date: 14 Mar 2020

Accepted Date: 04 Apr 2020

Published Date: 08 Apr 2020

Citation:

Enomoto K, Maeda T. Treatment of Difficulty for a Diagnosis of the Parathyroid Cancer. *Ann Clin Case Rep.* 2020; 5: 1822.

ISSN: 2474-1655

Copyright © 2020 Katsuhisa Enomoto. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

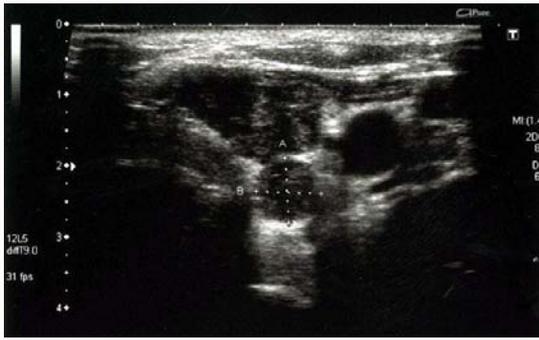


Figure 1: Neck ultrasonographic findings.

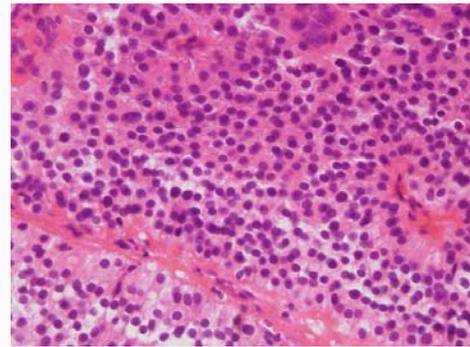


Figure 3: Histopathological findings (parathyroid) (HE x200).

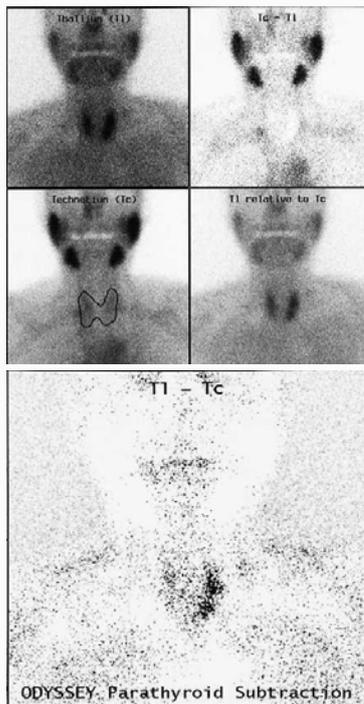


Figure 2: The Tl-Tc subtraction scintigraphic findings indicated Tl uptake in the upper and lower dorsal side of the left lobe.

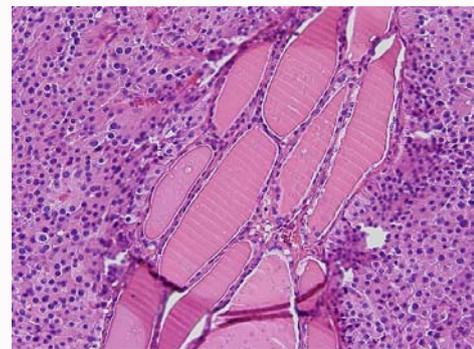


Figure 4: Histopathological findings (thyroid) (HE x200).

inferior dorsum of the left thyroid gland lobe, as well as the left lobe itself. Intraoperative pathological diagnosis of the mass was an adenoma. The weight of the parathyroid gland was 1200 mg.

Histopathological findings

The parathyroid tissue contained a nodule covered by a fibrous capsule. Various cells were observed, which contained round bodies and acidophilic or clear vacuoles, in the background of an angiofibromatous intersitium, which formed the solid structure of the mass. Capsular invasion was also observed (Figure 3).

An invasive, proliferative tumor, comprised of round cells similar to those observed in the parathyroid tissue, was observed in the thyroid tissue (Figure 4). Immunostaining showed Parathormone (PTH) to be positive in both parathyroid and thyroid tissue.

After the operation, total thyroidectomy and cervical lymphadenectomy were performed based on a clinical diagnosis of parathyroid cancer. Postoperative follow-up continues with no recurrence or metastasis observed to date.

Discussion

Primary hyperparathyroidism is almost always caused by an adenoma, followed by hyperplasia, cancer, and parathyroid cancer, which is rare [1]. Parathyroid cancer, however, is believed to present with characteristic clinical symptoms. According to reports by Okamoto et al. [2], these signs are as follows:

- 1) Palpable cervical mass
- 2) Development of Osteitis Fibrosa Cystica (OFC).
- 3) Serum calcium levels above 12 mg/dl.
- 4) Presentation with life-threatening conditions, including hypercalcemic crisis and acute pancreatitis.
- 5) Extremely high serum parathyroid hormone levels.
- 6) Ultrasonography showing a spherical rather than flattened mass, or with thyroid invasion.

In addition, they report the following intraoperative findings:

- 1) Parathyroid cancer is commonly spherical and indurated, exhibits a gray color and tends to be surrounded by a thick capsule.
- 2) There is a high likelihood of fibrous adhesion to the surrounding tissue or infiltrative growth.

This case showed no mass on palpation and no generalized metabolic derangements, such as osteitis. The serum calcium level was, however, high and ultrasonography showed a spherical rather than flat shape. The case thus warranted taking into consideration disorders other than an adenoma. There is a risk of disseminating cancerous cells to the surrounding tissues, and accordingly fine

needle aspiration is contraindicated. As a rule, the tumor must be excised en bloc with the surrounding tissues.

In the present case, we are a possibility of thyroid cancer; we were total thyroidectomy and neck lymph node dissection. Radiotherapy for parathyroid cancer was not done for effectively [3,4]. Concerted follow up is required in this case for this reason, as the likelihood of reoccurrence or metastasis is higher.

Although this case presented with a lack of characteristic clinical symptoms, it has reemphasized the need for detailed preoperative imaging diagnosis and conscientious intraoperative observation. Rapid intraoperative pathology diagnosis and rapid serum iPTH measurements are thought to contribute positively to making a discretionary diagnosis.

References

1. Hara H, Igarashi A, Yano Y, Yashiro T, Ueno E, Aiyoshi Y, et al. Ultrasonographic features of parathyroid carcinoma. *Endocr J.* 2001;48(2):213-7.
2. Anderson BJ, Samaan NA, Vassilopoulos R, Ordonez NG, Hickey RC. Parathyroid carcinoma: Features and difficulties in diagnosis and management. *Surgery.* 1983;94(6):906-15.
3. Wei CH, Harari A. Parathyroid carcinoma: Update and guidelines for management. *Curr Treat Options Oncol.* 2012;13:11-23.
4. Silverberg SJ, Rubin MR, Faiman C, Peacock M, Shoback DM, Smallridge RC, et al. Cinacalcet hydrochloride reduces the serum calcium concentration in inoperable parathyroid carcinoma. *J Clin Endocrinol Metab.* 2007;92(10):3803-8.