



## Lymphocytic thyroiditis simulating thyroid cancer biochemically, radiologically and pathologically

Ulas Isik <sup>a,\*</sup>, Serkan Gokcay <sup>b</sup>, Melih Simsek <sup>c</sup>, Semra Paydas <sup>b</sup>, Gulgun Buyukdereli <sup>d</sup>, Aysun Uguz <sup>e</sup>

<sup>a</sup> Kocaeli University, Faculty of Medicine, Department of Oncology, Kocaeli, Turkey

<sup>b</sup> Cukurova University, Faculty of Medicine, Department of Oncology, Kocaeli, Turkey

<sup>c</sup> Ataturk University, Faculty of Medicine, Department of Oncology, Kocaeli, Turkey

<sup>d</sup> Cukurova University, Faculty of Medicine, Department of Nuclear Medicine, Kocaeli, Turkey

<sup>e</sup> Cukurova University, Faculty of Medicine, Department of Pathology, Kocaeli, Turkey

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### ABSTRACT

Thyroid cancer is an important cancer with increased incidence in recent years. Widespread use of sophisticated imaging modalities like PET/CT has been increased the detection the chance of asymptomatic and nonpalpable cases. However advanced imaging modalities and even histo-pathologic examinations may simulate thyroid malignant disorders and this may cause unnecessary surgical procedures. Here we reported a case with lymphocytic thyroiditis simulating thyroid cancer.

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### 1. Introduction

Lymphocytic thyroiditis is an autoimmune/inflammatory disorder of thyroid gland. The clinical findings are progressive thyroid failure and/or goiter formation. The underlying mechanism is injury of thyroid gland by autoimmune pathway. Apoptosis of thyroid epithelial cells is also observed in this process. The Hashimoto's thyroiditis has two major forms; these are autoimmune thyroiditis in goitrous form and atrophic form. The common pathologic feature of these two different situations is lymphocytic infiltration.<sup>1</sup> On the other hand autoimmune processes are not rare in lymphomas.<sup>2</sup>

### 2. Case report

68 year-old woman admitted to our unit with dyspeptic complaints. Upper endoscopic examination showed polypoid ulcerated lesion and biopsy taken from this lesion was reported as diffuse large B cell lymphoma (DLBCL). PET/CT was performed for staging and showed 6.3 × 8.7 cm gastric lesion (SUV MAX: 23.3) located at gastric fundus and also increased FDG activity in thyroid bilaterally (SUV MAX: 10.4) (Fig. 1). After comprehensive staging procedure it was found that she had stage I DLBCL. Thyroid sampling was

postponed after systemic chemotherapy. She was treated by 8 cycles of rituximab with 6 cycles of CHOP chemotherapy. PET/CT was repeated for response evaluation on October 2013. There was no evidence of gastric mass but increased FDG activity (SUV MAX: 8.9)

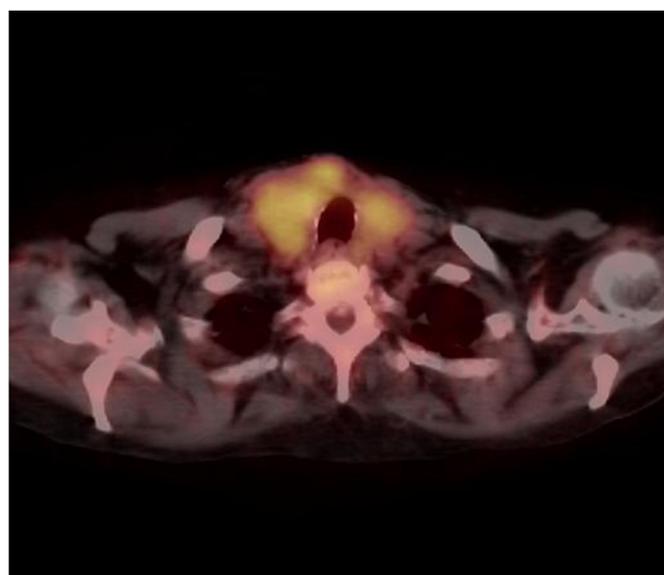


Fig. 1. Thyroid PET CT image.

\* Corresponding author. Tel.: 05334102146.

E-mail address: [ulasisik@yahoo.com](mailto:ulasisik@yahoo.com) (U. Isik).

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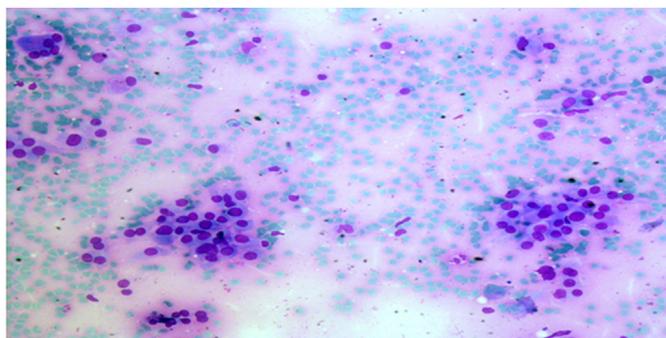


Fig. 2. Fine needle aspiration cytology. May Grünwald Giemsa  $\times 100$ .

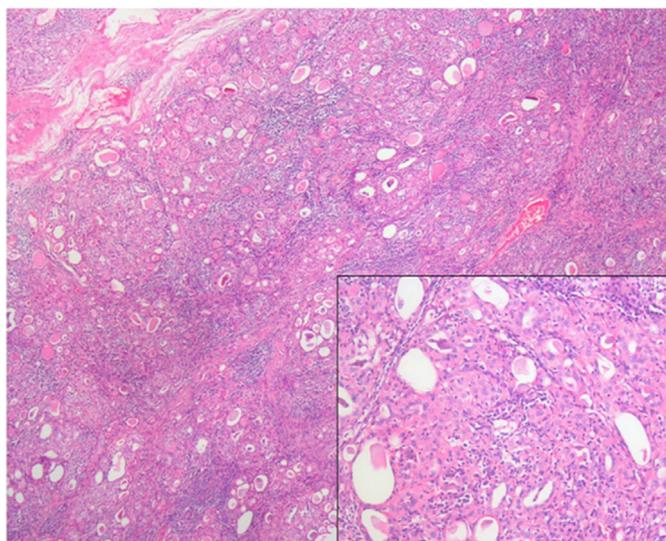


Fig. 3. Biopsy of thyroidectomy sample. Hematoxylin Eosine  $\times 40$ ;  $\times 100$ .

in thyroid was detected again. At this time thyroglobulin (TG) was found to be higher than 500ng/ml. PET/CT repeated on January 2014 showed increased FDG activity in thyroid (SUV MAX: 11.7). TG was 376.6ng/ml. Fine needle aspiration (FNA) from thyroid was reported as suspicion of Hurtle cell neoplasia (Fig. 2). Patient was operated on March 2014 and thyroidectomy specimen was reported as lymphocytic thyroiditis (Fig. 3).

### 3. Discussion

PET/CT is an important imaging modality for evaluation of treatment response and staging of neoplastic disorders, especially to determine the metabolic response which is important in lymphomas.<sup>3</sup> With PET/CT imaging; second and even third neoplasias are found incidentally.<sup>4</sup> One of these simultaneous neoplasias detected in these images is thyroid cancer.<sup>5</sup> PET/CT in our case showed high FDG uptake in thyroid suggesting thyroid neoplasia and FNA cytology was reported as suspicion of Hurtle cell neoplasia. Accompanying increasing levels of TG levels suggested thyroid

**Table 1**  
TG and increased cases of thyroid FDG uptake.

Conditions that increase the level tg	Thyroid Conditions that FDG uptake
Tiroid cancer	Tiroid cancer
Throid fine needle aspiration	Normal variant
Surgery	Chronic thyroiditis
Radioactive iodine therapy	Graves disease
Painful subacute thyroiditis	
Silent thyroiditis	
Renal disease	
Acromegaly	
Amiodorone	

neoplasia again.

It is very well known that highest levels of TG are found in thyroid neoplasia. Additionally high TG levels may be detected after thyroid fine needle aspiration/biopsy, surgery, radioactive iodine therapy. Other causes of high TG levels are painful subacute thyroiditis, silent thyroiditis, renal disease, acromegaly and amiodarone usage.<sup>6</sup> It is very well known that increased FDG uptake may be seen in lymphocytic thyroiditis.<sup>7</sup> Table 1 shows TG and increased cases of thyroid FDG uptake. In our case, increasing levels of TG and FNA cytology suggested thyroid neoplasia. However thyroid resection material was found to be compatible with lymphocytic thyroiditis.

Lymphocytic thyroiditis is an autoimmune/inflammatory disorder of thyroid gland with various symptoms. In general these patients have signs and symptoms of hypothyroidism with or without goitre. Injury of thyroid gland by autoimmune pathway is the mechanism of lymphocytic thyroiditis. In some cases apoptosis of thyroid epithelial cells accompanies this process. The Hashimoto's thyroiditis may come up with autoimmune thyroiditis in goitrous or atrophic form.<sup>1</sup> But autoimmune processes may also occur in the course of lymphomas.<sup>2</sup> So it is not a surprise an accompanying lymphocytic thyroiditis in a case with lymphoma as seen in our case. However; radiologic, biochemical and also cytological results suggested a thyroid neoplasia.

In conclusion lymphocytic thyroiditis may simulate thyroid neoplasia clinically, radiologically and cytologically.

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