A Case of Thyroid Follicular Carcinoma Presented with Skin Metastasis

Ugur Ergun[1] and Mustafa Eroglu[2]

[1]Department of Internal Medicine, Faculty of Medicine, Balıkesir University, Balıkesir, Turkey
[2]Department of Internal Medicine, Faculty of Medicine, Endocrinology and Metabolic Diseases, Balıkesir University, Balıkesir, Turkey

ABSTRACT

Skin metastases due to thyroid carcinomas are extremely rare and represent advanced disease and poor prognosis. Diagnosing a skin nodule, which may appear as the first clinical symptom of latent malignancy with low metastatic potential, is likely to be challenging. Distant metastases of thyroid carcinomas need to be identified accurately and quickly; late diagnosis and treatment will lead to increased mortality in patients. A case of thyroid follicular carcinoma presenting with skin metastasis is very rare. Herein, we present a case of a nodular skin lesion in the left lumbar region of a 66-year female due to thyroid follicular carcinoma metastasis and discuss it in the light of existing literature.

Key Words: *Follicular thyroid carcinoma, Pulmonary nodule, Metastasis, skin.*

How to cite this article: Ergun U, Eroglu M. A Case of Thyroid Follicular Carcinoma Presented with Skin Metastasis. *J Coll Physicians Surg Pak* 2022; **32(07)**:941-943.

INTRODUCTION

Carcinomas that arise from thyroid follicular epithelium are classified into three main groups papillary, follicular, and poorly differentiated. Follicular cancers show hematogenous spread and have more potential for forming distant metastases. The approximate incidence of these tumors, which most commonly cause lung and bone metastases, is between 5-20%. Skin metastasis is very rare in follicular cancers.[1,2] Herein, a case presenting with a nodular skin lesion of the left lumbar region and subsequently diagnosed with primary thyroid follicular carcinoma, is reported. This is a distinctly rare phenomenon.

CASE REPORT

A 66-year female presented with a slowly enlarging and painless nodular lesion in the left lumbar region with a diametre of about 16×11 cm without ulceration and vascularity. There was no feature in the patient's medical history except for hypertension. No pathological findings were observed in laboratory tests, hemograms, or biochemistry tests. An excisionl biopsy was done. Microscopy showed tubular structures and solid islands of tumor cells in the dermis, in places leading to ulceration of the epidermis.

Correspondence to: Dr. Ugur Ergun, Department of Internal Medicine, Faculty of Medicine, Balıkesir University, Balıkesir, Turkey
E-mail: mdbalkes10@gmail.com

Received: September 09, 2020; Revised: May 21, 2021; Accepted: June 05, 2021
DOI: https://doi.org/10.29271/jcpsp.2022.07.941

Immunohistochemical staining showed vimentin (+), RCC (+), PAX8 (+), Keratin (+), PHN (+), Ki-67 proliferation index of 8% and EMA (-), CEA (-), Actin (-), S-100 (-), Melan-A (-), CD10 (-), p63 (-), inhibin (-), GATA-3 (-), and GCDFP (-). Due to the absence of specific staining, skin tumor diagnosis was ruled out, and the diagnosis was made as metastatic carcinoma. In addition, considering the immunohistochemical staining characteristics, systemic screening was recommended for primary focus detection, especially in the kidney.

No pathological findings were observed in the upper abdominal magnetic resonance imaging (MRI) and pelvic MRI imaging performed for malignancy screening. Thorax computed tomography (CT) showed multiple nodules, the largest being the pleural-based nodule with approximately 2 cm diametre in the right lung upper lobe apical region, and a nodule of approximately 3 cm diametre in the superior portion of the right lobe of the thyroid gland. Positron emission tomography (PET) imaging performed by intravenous administration of F-18 fluoro-2-deoxy-glucose (FDG) was reported as “no pathological F-18 FDG uptake in multiple millimetric nodules observed in both lungs. The sizes of the nodules were under the detection limits. Increased F-18 FDG uptake (SUV max: 4.7) was observed in the right lobe of the thyroid gland. It was recommended to assess it with ultrasonography (US) concerning possible thyroid incidentaloma. Then, the patient was lost to follow-up.

One year after skin lesion excision, the patient presented to the Department of Chest Diseases due to complaints of cough that was consistent for about two months. CT thorax of the patient showed pleural-based multiple nodules, the largest being 23×17 mm with heterogeneous contrast enhancement in the right upper lobe apical region of the lung. PET scan was

performed. Imaging showed irregularly increased FDG (SUV max: 7,83) uptake in approximately 32×35 mm, heterogeneous density, nodule filling the upper-middle part of the right lobe of the thyroid and FDG (SUV max: 4.34) uptake in the 18×25 mm nodule originating from anterior pleura in the upper lobe of the right lung. Fine needle aspiration cytology (FNAC) was performed from the nodule with the largest diameter. Immunohistochemical examination showed thyroid transcription factor-1 (TTF1) was positive, while Napsin A (-), Synaptophysin (-), CD56 (-), and Chromogranin were (-) and it was compatible with primary follicular carcinoma. The Ki-67 index was approximately 10%. Tumor cells of the metastatic focus in the skin removed by excisional biopsy one year ago were again examined retrospectively with TTF-1 and the tumor cells reacted positively. Thus, skin lesions were also found to be compatible with thyroid primary follicular carcinoma metastasis. Afterward, the patient presented to the endocrinology and metabolic diseases outpatient clinic due to thyroid nodule. In the clinical evaluation, it was observed that no interventional procedure was performed for the nodule, which had a local uptake in the thyroid right lobe in the previous PET and fine-needle aspiration biopsy (FNAB) was advised. Thus, the patient underwent FNAB accompanied by US (Figure 1A&B) and a histopathological examination revealed follicular neoplasia (Figure 2). The patient was referred to surgery for a total thyroidectomy. No residual disease or recurrence was detected in the patient who received high dose radioactive iodine therapy after the surgery.

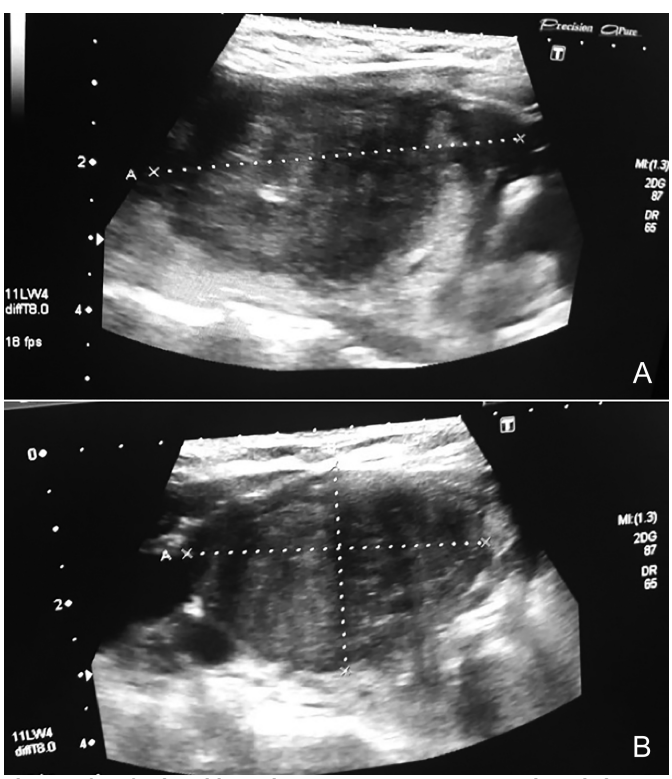

Figure 1 (A, B): Thyroid USG image, 42×29×51 mm prominently hypoechoic, malignant nodule showing capsule irregularities compatible with anterior and posterior extrathyroidal extension localised in the right lobe upper pole.

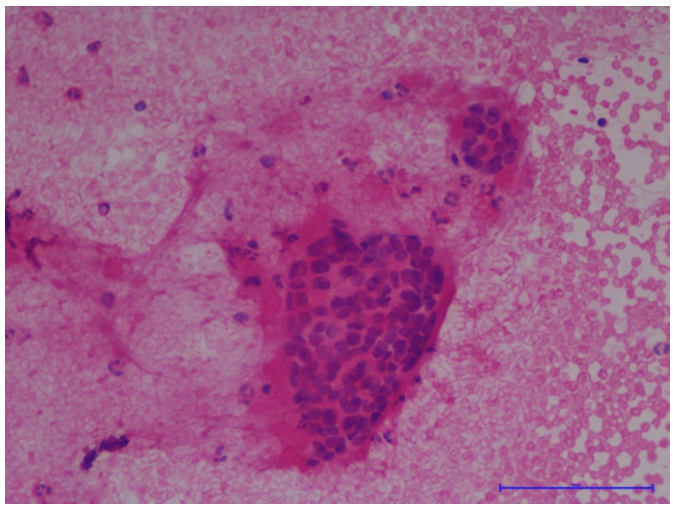

Figure 2: Histological image of the follicular thyroid carcinoma showing clusters of follicular cells in hemorrhagic background (HE, ×100).

DISCUSSION

Follicular thyroid cancer occurs at an advanced age compared to other differentiated thyroid cancers. The prevalence of follicular cancer is high in regions with iodine deficiency. Follicular cancers, which typically have hematogenous spread patterns, are more aggressive than papillary cancer and cause distant metastases more frequently, which is mostly due to the high potential of the tumor for vascular invasion. The tumor metastasizes to the lungs and bones most frequently, and to a lesser extent, metastases to various other organs, such as the brain, liver, bladder, and skin, are observed.[3] Isolated skin metastasis is very rare in these tumors. The vast majority of skin metastases are observed on the scalp. Quinn *et al*. reported four cases diagnosed with follicular thyroid cancer with skin metastasis, with two of them to scalp skin.[6] Literature reviews by them revealed scalp metastases in nine out of 14 cases. Li *et al*. found that lymph node metastasis in the anterior wall of the chest was associated with thyroid follicular cancer.[4] Lira *et al*. reported a small papular lesion in the neck area of a patient compatible with follicular thyroid cancer metastasis.[5] In the present case, a metastatic skin lesion of the left lumbar region was detected as originating from primary follicular carcinoma using pathological examination and imaging methods.

In this case, the presence of lung nodules on imaging, in addition to chronic cough, suggested lung malignancy in preliminary diagnosis. Thus, the nodule of the thyroid gland was overlooked. As stated in the 2015 American thyroid association management guidelines (recommendation 5), diffuse uptake of the thyroid gland in PET/CT performed using F-18 FDG usually arises from autoimmune thyroiditis; however, since 1 cm nodules with local uptake, which are ultrasonographically confirmed, increase the possibility of thyroid malignancy, and FNAB should be performed.[5]

In the treatment, total excision of the lesion with skin metastasis followed by ablation treatment is the preferred method. TTF-1 was positive in the biopsy materials taken from the

metastatic focus in the patient's lung and the nodular lesion on the skin, and it was found compatible with primary follicular thyroid carcinoma. Then, thyroid FNAB accompanied by the US was performed and the diagnosis was made as follicular thyroid carcinoma.

In conclusion, follicular thyroid cancer can rarely metastasize to unusual locations. Misdiagnosis and delays in the identification and immunohistochemical analysis, especially in rare skin metastatic lesions, will lead to increased mortality in patients.

FINANCIAL DISCLOSURE:
The authors declared that this study has received no financial support.

PATIENT'S CONSENT:
Written informed consent was obtained from the patient who participated in this case.

COMPETING INTEREST:
The authors declared no competing interest.

AUTHORS' CONTRIBUTIONS:
ME, UE: Concept, design, supervision, resources, materials, data collection and processing, analysis and interpretation, literature search, writing manuscript, and critical review.
Both authors approved the final version of the manuscript to be published.

REFERENCES

1. Haugen BR, Alexander EK, Bible KC, Doherty GM, Mandel SJ, Nikiforov YE, *et al*. 2015 American thyroid association management guidelines for adult patients with thyroid nodules and differentiated thyroid cancer: The American thyroid association guidelines task force on thyroid nodules and differentiated thyroid cancer. *Thyroid* 2016; **26(1)**: 1-133. doi: 10.1089/thy.2015.0020.
2. Bansal A, Kaur M, Narula V. Cutaneous and bone metastasis of follicular thyroid carcinoma: A case report. *Tumori J* 2016; **102(2_suppl)**:S103-S5. doi: 10.5301/tj.5000374.
3. Monti E, Dono M, Gonella E, Spina B, Pitto F, Petrogalli F, *et al*. An H-TERT Mutated skin metastasis as first occurrence in a case of follicular thyroid carcinoma. *Front Endocrinol* 2019; **10**:513. doi: 10.3389/fendo.2019.00513.
4. Li T, Ma Z, Lu C, Zhou Q, Feng Z, Wu X, *et al*. Chest wall lymph node metastasis from follicular thyroid carcinoma: A rare case report. *Diagnostic Pathol* 2019; **14(1)**:130. doi: 10.1186/s13000-019-0907-0.
5. Lira MLA, Almeida MAd, Reis-Feroldi MM, Rocha JA. Follicular thyroid carcinoma metastatic to skin: A small papule and a big diagnostic change. *Anais Brasileiros de Dermatologia* 2019; **94(1)**:76-8.
6. Quinn TR, Duncan LM, Zembowicz A, Faquin WC. Cutaneous metastases of follicular thyroid carcinoma: A report of four cases and a review of the literature. *Am J Dermatopathol* 2005; **27(4)**: 306-312.