

## A Report of a Rare Case of Hurthle Cell Carcinoma of Thyroid with Metachronous Renal Metastasis

### Abstract

Renal metastasis from Hurthle cell thyroid carcinoma is an extremely rare phenomenon which when present usually indicates widely disseminated disease. Herein, we present a case of Hurthle cell carcinoma of thyroid in a 58-year-old gentle lady, with metachronous renal metastasis which happens to be the fourth reported case in English literature.

**Keywords:** Follicular carcinoma, Hurthle cell, renal metastasis, thyroid malignancies

### Introduction

Hurthle cell carcinoma is a rare variant of follicular carcinoma of thyroid, accounting for about 3% of all thyroid malignancies.<sup>[1]</sup> These tumors tend to recur locoregionally, and distant metastases are rather uncommon.<sup>[2]</sup> However, distant failure represents the most frequent cause of thyroid cancer-related death in these patients. The most common sites of metastases encountered are lungs and bones.<sup>[3]</sup> Renal metastasis is extremely rare. Herein, we present a case of Hurthle cell carcinoma of thyroid with metachronous renal metastasis. Extensive literature search suggests it to be the fourth reported case.<sup>[2,4,5]</sup>

### Case Report

An otherwise well, 58-year-old lady presented with swelling in the right side of the neck for 3 years in December 2014 which was rapidly progressing for the past 3 months. Contrast-enhanced computed tomography (CECT) scan of the neck, thorax, and abdomen revealed a large heterogeneous mass in the right lobe of thyroid with no evidence of distant metastasis. Fine-needle aspiration cytology from swelling showed predominantly Hurthle cells. She underwent total thyroidectomy in January 2015. Histopathologic examination of postoperative specimen showed features of

Hurthle cell carcinoma [Figure 1]. Tumor was seen involving capsule, surrounding soft tissue, skeletal muscle, and skin. Six lymph nodes (two each from paratracheal, Level III, and central lymph nodes) were dissected which were all involved by tumor. She was started on levothyroxine and underwent Iodine-131 whole-body scan, 6-week postsurgery, which showed thyroid remnant, left cervical Level VI lymph node, and bilateral pulmonary nodules. Hence, she was administered 150 mCi radioiodine (RAI) therapy thrice at 6-month intervals till April 2016. Post-third session therapy and Iodine-131 whole-body scan showed faint uptake in the right neck node. In December 2016, she developed a right cervical swelling in the neck, and on Iodine-131 whole-body scan, there was no uptake. CECT scan of the neck, thorax, and abdomen was done which showed multiple right cervical lymph nodes at Level II, III, IV and supraclavicular region, bilateral pulmonary nodules, and lytic destruction of left transverse process of D8 vertebra [Figure 2]. A large exophytic lesion (40 mm × 29 mm) was seen arising from the posterior interpolar region of the right kidney suggestive of renal metastasis [Figure 3]. Thyroglobulin was measured 2625 ng/ml. She was administered palliative radiotherapy of 20 gray (Gy) in five fractions over 1 week to the neck and 8 Gy in single fraction to D7–D9 vertebrae. Subsequently, she was started on oral sorafenib in view of progressive disease.

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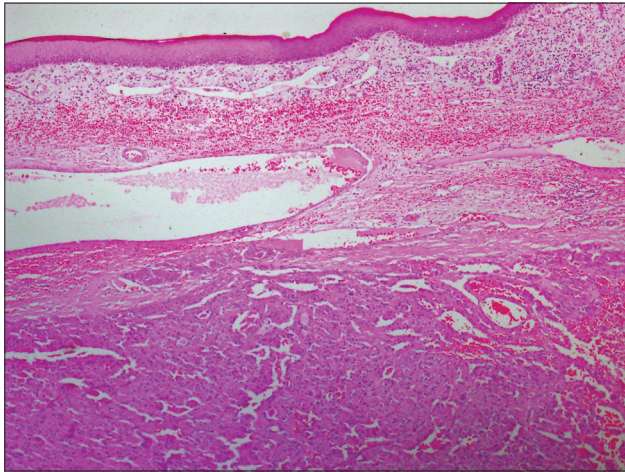
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**Table 1: Previous published reports of Hurthle cell carcinoma of thyroid with renal metastases**

Authors	Age (years)	Sex	Renal metastasis diagnosed by	Treatment received
Djekidel <i>et al.</i> <sup>[2]</sup>	75	Male	FDG positron emission tomography-CT scan, magnetic resonance imaging	Thyroidectomy, RAI therapy, radical nephrectomy, and palliative radiotherapy to vertebral metastasis
Claimon <i>et al.</i> <sup>[4]</sup>	62	Female	SPECT/CT imaging	Thyroidectomy and RAI therapy
Kushchayeva <i>et al.</i> <sup>[6]</sup>	70	Unknown	Unknown	Thyroidectomy, RAI therapy, and radical nephrectomy

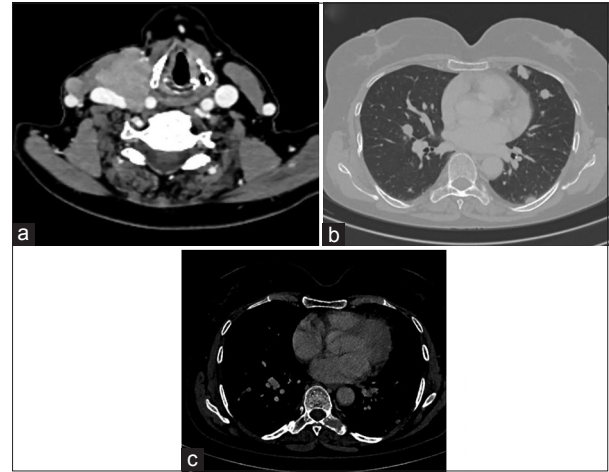
CT – Computed tomography; RAI – Radioiodine; SPECT – Single-photon emission computed tomography; FDG – Fluoro-deoxyglucose



**Figure 1: Histopathologic examination showing features of Hurthle cell carcinoma**

## Discussion

According to the World Health Organization classification, Hurthle cell thyroid carcinoma (HCTC) is considered to be an oxyphilic variant of follicular thyroid carcinoma (FTC).<sup>[6]</sup> Although earlier studies reported inferior survival of these patients with HCTC,<sup>[7]</sup> a recent study by Bhattacharyya<sup>[1]</sup> showed similar outcome as compared with patients of FTC. However, it has been seen that HCTC is associated with higher rates of metastases compared to other subtypes. Lung and bone are the most common sites of distant metastases.<sup>[3]</sup> Renal metastasis is a rare occurrence. Exhaustive search of English literature revealed that our presented case is the fourth case reported [Table 1]. In general, metastatic kidney lesion should ideally be proven by biopsy, but the diagnosis by imaging may also be acceptable in cases where the lesion is too small to be biopsied or biopsy is not possible due to medical comorbidities.<sup>[4]</sup> In the index case, biopsy from the renal lesion was not done in view of strong clinicoradiological correlation. Treatment of metastatic HCTC is not well defined owing to its low incidence and hence fewer extensive experience. The management of distant metastases includes levothyroxine replacement, focal therapy, and systemic treatment (including RAI), and in patients with RAI-refractory disease, it includes the use of kinase inhibitors. Focal treatment is indicated in local tumor palliation and orthopedic or neurologic sequelae, for example, external beam radiotherapy (EBRT) for palliation of the bone and brain metastasis or surgical



**Figure 2: Contrast-enhanced computed tomography scan showing right cervical lymph nodes (a), bilateral pulmonary nodules (b), and lytic destruction of left transverse process of D8 vertebra (c)**

fixation for fractures. RAI ablation is difficult in HCTC as most of them do not uptake RAI, and some of the tumors which show faint uptake is probably due to the follicular component.<sup>[3]</sup> Chemotherapy is usually not effective.<sup>[8]</sup> Among kinase inhibitors, sorafenib is approved by the US Food and Drug Administration for advanced differentiated thyroid cancer.<sup>[9]</sup> Similarly, our patient was managed by sorafenib and local EBRT to the neck and D8 vertebrae.

## Conclusion

Renal metastasis from HCTC is a rare occurrence which tends to be overlooked and usually occurs in the setting of extensive multiple organ metastases.

## Declaration of patient consent

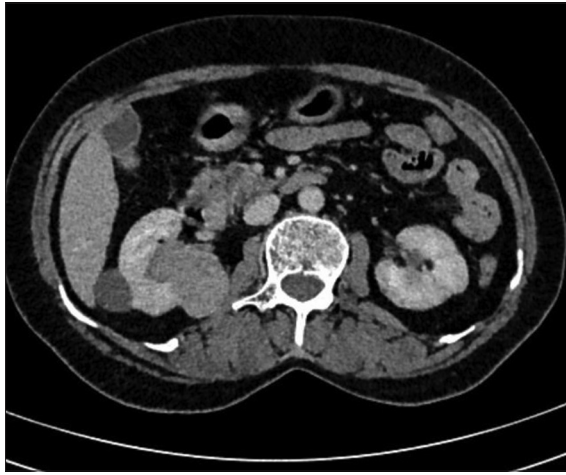
The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

## Conflicts of interest

There are no conflicts of interest.



**Figure 3: Contrast-enhanced computed tomography scan showing right renal metastasis**

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