American Journal of Case Reports

e-ISSN 1941-5923
© Am J Case Rep, 2018; 19: 920-923
DOI: 10.12659/AJCR.909349

Received: 2018.02.04
Accepted: 2018.05.10
Published: 2018.08.06

Thyroid Gland Hemorrhage in a Patient with Past Medical History of Renal Clear Cell Carcinoma: Report of a Very Rare Case

Authors' Contribution:
Study Design A
Data Collection B
Statistical Analysis C
Data Interpretation D
Manuscript Preparation E
Literature Search F
Funds Collection G

ABCDEFG Ziad Abbassi
ABCE Francesco Strano
CDE Evangelos Koliakos
ACDEF Théodoros Thomopoulos
CD Michel Christodoulou

Division of General Surgery, Hospital of Valais (CHVR), Sion, Switzerland

Corresponding Author: Ziad Abbassi, e-mail: Ziad.abbassi@hopitalvs.ch
Conflict of interest: None declared

Patient: Male, 68
Final Diagnosis: Metastasis of renal clear cell carcinoma
Symptoms: Chest pain irradiating in the left shoulder • tachycardia • increased dysphonia
Medication: —
Clinical Procedure: Total thyroïdectomy
Specialty: Surgery

Objective: Rare disease

Background: The incidence of metastasis to the thyroid gland is extremely rare, with hemorrhage being a particularly uncommon manifestation of metastatic thyroid disease.

Case Report: A 68-year-old man who underwent a right nephrectomy for RCC 8 years ago was referred to the Emergency Department (ED) complaining of upper-chest pain radiating to the left shoulder, tachycardia, and increased dysphonia. An enhanced computed tomography (CT) scan suggested a thyroid mass originating from both thyroid lobes, with right deviation of the trachea due to active bleeding. The patient underwent an emergency total thyroidectomy. The postoperative course was uneventful. The histopathological analysis of the surgical specimen revealed metastasis of an RCC.

Conclusions: Active bleeding of the thyroid gland is a formal indication for emergency surgical management. In patients with a history of cancer, especially in cases of RCC, metastatic disease should be suspected, although in most cases the final diagnosis can only be made after surgery.

MeSH Keywords: Carcinoma, Renal Cell • Goiter • Neoplasm Metastasis • Thyroid Neoplasms • Thyroidectomy

Full-text PDF: https://www.amjcaserep.com/abstract/index/idArt/909349

Indexed in: [PMC] [PubMed] [Emerging Sources Citation Index (ESCI)] [Web of Science by Clarivate]

Background

The incidence of solitary metastasis from renal cell carcinoma (RCC) is about 1–4%, with only 1% occurring in the thyroid gland. The most common metastases of the thyroid gland originate from RCC (48.1%), followed by colorectal cancer (10.4%), lung cancer (8.3%), breast carcinoma (7.8%), and sarcoma (4%) [1,2].

In cases of RCC, secondary involvement of the thyroid gland is uncommon and can occur more than 20 years after a curative nephrectomy. We report the case of a patient with metastatic thyroid carcinoma that originated from renal clear cell carcinoma 8 years after a nephrectomy. As well as describing this case, we discuss the management of thyroid metastasis.

To the best of our knowledge, this is the first published case report of solitary thyroid metastasis with spontaneous bleeding after RCC, and fewer than 50 similar cases of thyroid lesions presenting other symptoms have been reported. Our report emphasizes the rarity of this condition.

Case Report

A 68-year-old white man presented to the Emergency Department (ED) with a 24-h history of chest pain radiating to the left shoulder, palpitations, and worsening dysphonia.

His past medical history was marked by a right nephrectomy 8 years prior for RCC classified as pT1b N0, Fuhrman 2/4 without adjuvant or neo-adjuvant treatment.

On admission to the ED, the patient was hemodynamically stable and fully conscious. He reported dysphagia and odynophagia. The physical examination revealed a non-painful, soft, and mobile multinodular goiter without cervical lymph nodes. Blood tests showed a subclinical hypothyroidism with TSH levels of 0.01 µIU/mL, and T3 and T4 levels at 7.1 and 21.8 respectively. A chest X-ray revealed mediastinal widening with right deviation of the trachea.

Further investigations in the form of an injected chest CT scan revealed a thyroid mass arising from both lobes of the thyroid gland, with active bleeding within the goiter (Figure 1).

The patient underwent an emergency total thyroidectomy. The surgical resection proved challenging due to the size and the retrosternal extension of the goiter. The right and left laryngeal recurrent nerves were identified and preserved. There was no apparent extra-thyroidal extension or lymphatic involvement and no active bleeding was found. The postoperative course was uneventful.

The specimen weighed 404 g with a well-defined multinodular goiter and cystic and soft hemorrhagic nodules measuring 0.5–4 cm in diameter. The left lobe was 13.55×7.5×5.5 cm and the right lobe was 12×7.9×5.5 cm (Figure 2). The histological examination confirmed a metastatic tumor of renal origin and, more specifically, an RCC.

In light of the histological result, a positron emission tomography (PET) scan was performed, which revealed the presence of micronodules in the right lung and left kidney and in the mesenteric axis, considered as atypical. Our multidisciplinary radio-oncological team concluded that adjuvant treatment was not necessary and suggested a follow-up postoperative CT scan of the chest at 6 weeks after surgery.

Discussion

RCC accounts for approximately 3% of all adult malignancies and is associated with approximately 13 000 deaths annually [1,2]. The most frequent subtype of RCC is clear renal cell cancer, which accounts for about 70–80% of all RCCs [2].

Typical metastatic sites for RCC include the lungs, adrenal glands, intestinal tract, brain, and intra-abdominal organs. Atypical localizations of metastases include the orbit, parotid gland, nasal and paranasal cavities, tongue, tonsils, heart, skin, muscles, and joints, as well as the thyroid gland [1].

RCC accounts for most cases of metastatic thyroid disease, with no significant difference in sex distribution [3,4]. Recurrence remains possible even 20 years after curative nephrectomy, with an average interval of 7.5 years [1].

There have been several reports of late metastases from RCC even decades after potentially curative surgical excision of the primary tumor. Metastatic disease develops in 30% of patients with RCC, for whom the prognosis is extremely poor [1].

The incidence of solitary metastases from RCC is estimated at 4%, and 1% occur in the thyroid gland. Metastatic disease to the thyroid shows no difference in sex distribution. Common manifestations include dyspnea due to airway obstruction, as a consequence of the gland's increased size or because of acute tumor bleeding, as was the case with our patient. Other symptoms include changes in voice pitch, hoarseness, cough, and dysphagia, which are usually due to a mass effect [1,5].

There are many theories explaining the pattern of metastases from RCC to the thyroid gland. According to the current literature, the incidence of metastasis in a normal thyroid gland is low due to high oxygen tension, the absence of significant carbohydrate concentrations, the presence of large quantities

Indexed in: [PMC] [PubMed] [Emerging Sources Citation Index (ESCI)] [Web of Science by Clarivate]

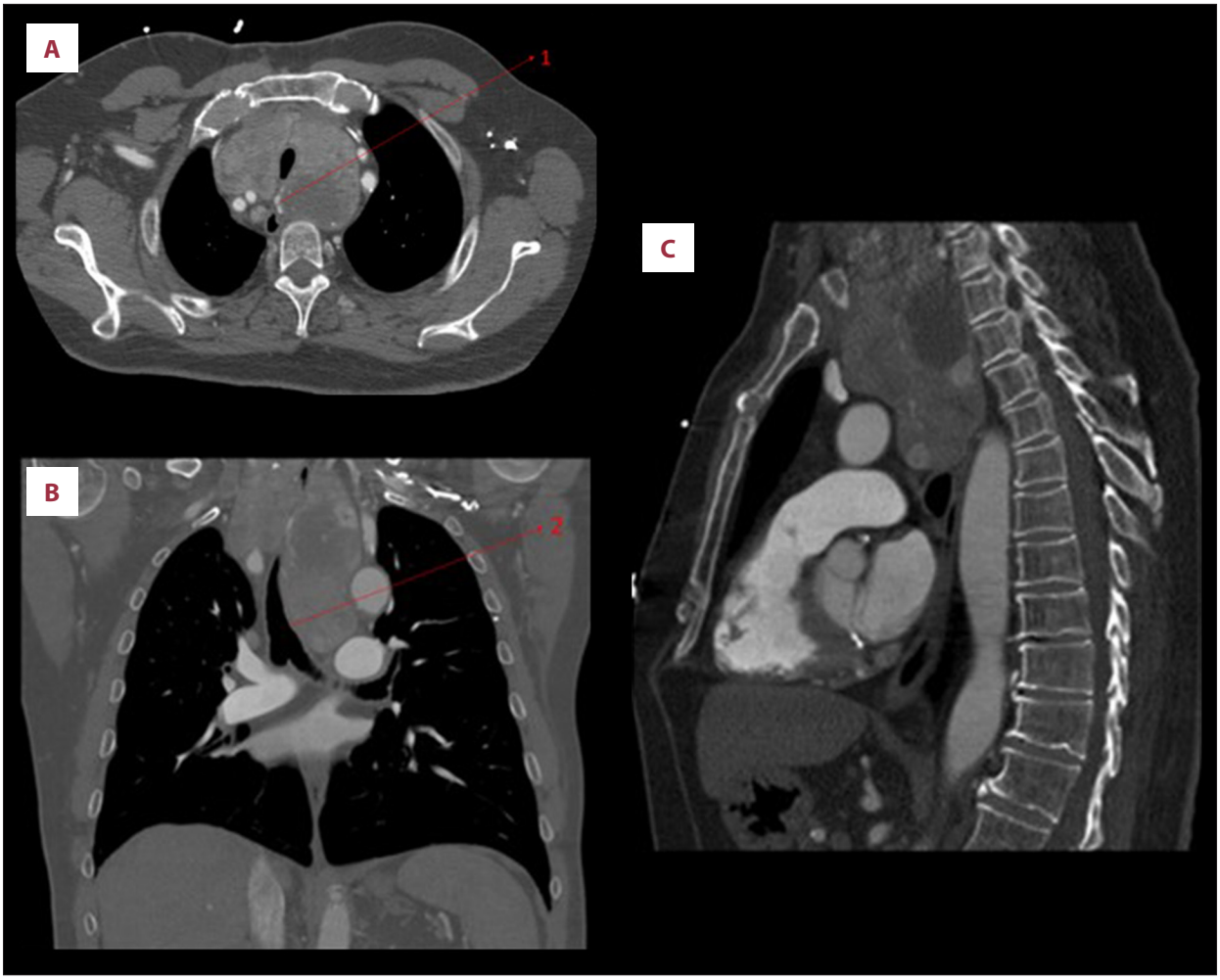

Figure 1. Intravenous contrast-enhanced CT of the abdomen. (**A**) Axial CT image shows a thyroid mass originating from both lobes with an intralesional vascular extravasation of contrast medium, suggesting active bleeding (1). (**B**) Coronal CT image shows a right deviation of the larynx and trachea caused by the mass (2). (**C**) Sagittal CT image shows the voluminous goiter and its plunging characteristic.

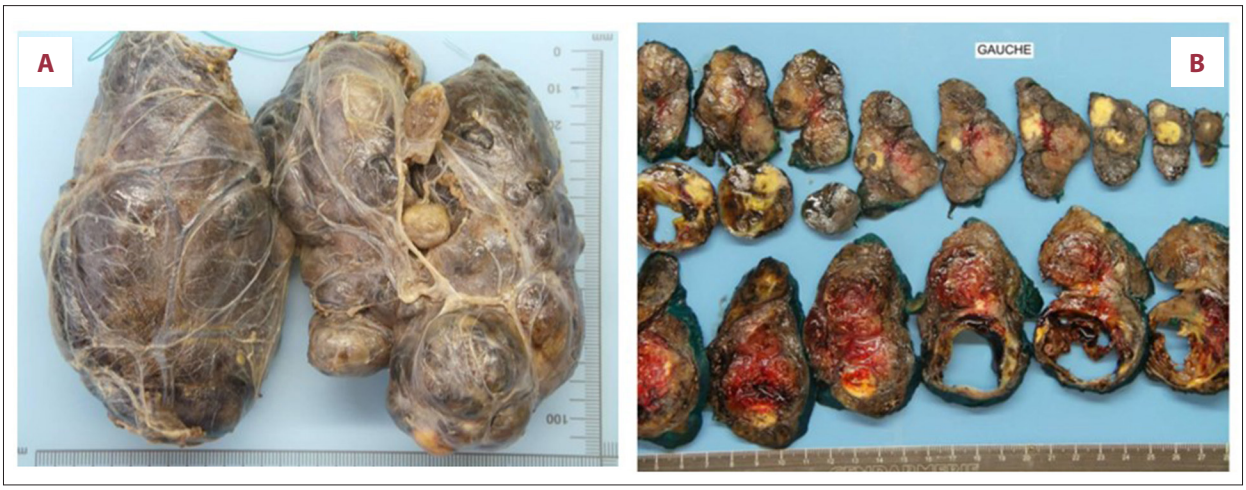

Figure 2. Histopathological images. (**A**) Macroscopic image of the specimen. (**B**) Histological section revealed metastasis of clear cell carcinoma.

Indexed in: [PMC] [PubMed] [Emerging Sources Citation Index (ESCI)] [Web of Science by Clarivate]

of iodine [1,6], and the extensive vascularization network of the thyroid gland that inhibits the embolization of tumor cells. However, in the case of an adenomatous gland, the reduced arterial supply and iodine tissue concentrations have been considered as risk factors for the growth of metastatic malignant cells, which seem to benefit from these favorable conditions in achieving a relatively anaerobic metabolism [7]. Some authors have considered the possibility that RCC metastasizes to the thyroid gland by bypassing the lungs via the paravertebral venous plexus of Batson [8,9].

Further endocrinological investigations are necessary when suspecting metastases of clear RCC, as they can mimic well-differentiated thyroid carcinomas [6]. In these cases, clinical evaluation, biochemical testing (serum TSH levels), fine-needle aspiration biopsy (FNAB), and imaging studies such as high-resolution ultrasonography and CT, should be considered. [10]

Surgical treatment of patients with solitary thyroid gland metastases is recommended because of the unusually good prognosis of patients reported in the literature when they were treated with definitive surgical therapy. A number of factors may be associated with a favorable prognosis after resection of the metastases, including: 1) a long interval between primary tumor resection and development of metastatic disease, 2) evidence of a solitary lesion in the thyroid gland without evidence of widespread metastases, 3) spontaneous regression of metastatic lesions, 4) demonstration of extensive necrosis in the resected specimen, and 5) slow evolution or growth of the tumor and a lack of clinical symptoms [11].

The mean survival rate reported in the literature is variable and limited to case reports or small series with a short follow-up period, making the analysis too unreliable to predict survival. It has been suggested that in the setting of solitary RCC metastasis of any anatomic site, the 5-year survival rate from the date of the nephrectomy is 30–70%, which is much higher than the approximately 5% 5-year survival rate when widespread disease is present [11,12].

To investigate cases similar to ours, we conducted a Medline search using the key words “renal cell carcinoma with thyroid/acute bleeding/emergency surgery, and thyroid metastases with acute bleeding/emergency surgery/emergency treatment” in the title and abstract fields. The present report is to the best of our knowledge the first case of acute thyroid bleeding resulting from thyroid metastatic disease, highlighting the rarity of our case.

Conclusions

Recurrent disease in patients with a history of RCC presenting thyroid lesions should be suspected regardless of the time interval from the resection of primary tumor. Thyroidectomy is recommended for RCC solitary metastatic tumors to the thyroid gland as the treatment of choice.

References:

1. Sountoulides P, Metaxa L, Cindolo L: Atypical presentations and rare metastatic sites of renal cell carcinoma: A review of case reports. J Med Case Rep, 2011; 5: 429
2. Valdair F: Renal cell carcinoma: Histological classification and correlation with imaging findings. Radiol Bras, 2015; 48(3): 166–74
3. Heffess CS, Wenig BM, Thompson LD: Metastatic renal cell carcinoma to the thyroid gland: A clinicopathologic study of 36 cases. Cancer, 2002; 95(9): 1869–78
4. Chung AY, Tran TB, Brumund KT et al: Metastases to the thyroid: A review of the literature from the last decade. THYROID Mary Ann Liebert Publisher Inc., 2012
5. Atilla HC, Tugce O: Metastasis of renal clear cell carcinoma to thyroid gland mimicking adenomatous goiter. Pol J Radiol, 2016; 81: 618–21
6. Astl J, Bahannan AA, Dušková J et al: Solitary metastasis of clear renal cell carcinoma to thyroid gland: Three reported cases with review of the literature. Gulf J Oncolog, 2017; 1: 67–71
7. Willis RA: The spread of tumors in the human body. Butterworth publisher, 1973
8. Batson OV: The function of the vertebral veins and their role in the spread of metastases. Ann Surg, 1940; 112: 138–49
9. Testini M, Lissidini G, Gurrado A et al: Acute airway failure secondary to thyroid metastasis from renal carcinoma. World J Surg Oncol, 2008; 6: 14
10. Hurley DL, Gharib H: Evaluation and management of multinodular goiter. Otolaryngol Clin North Am, 1996; 29: 527–40
11. Kierney PC, van Heerden JA, Segura JW, Weaver LA: Surgeon’s role in the management of solitary renal cell carcinoma metastases occurring subsequent to initial curative nephrectomy: An institutional review. Ann Surg Oncol, 1994; 1: 345–52
12. McNichols DW, Segura JW, DeWeerd JH: Renal cell carcinoma: Long-term survival and late recurrence. J Urol, 1981; 126: 17–23

Indexed in: [PMC] [PubMed] [Emerging Sources Citation Index (ESCI)] [Web of Science by Clarivate]