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Colon cancer metastasis to the thyroid gland: A case report

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ABSTRACT

INTRODUCTION: Thyroid metastases from colorectal cancer are uncommon and few cases are described in literature.
CASE PRESENTATION: A 64-year-old female patient presented with an asymptomatic right cervical nodule with a rapid growth six years after sigmoidectomy for cancer and two years after resection of colorectal lung metastases. Increased CA 19.9 was identified and a thoracoabdominal CT scan revealed the onset of new metastatic bilateral pulmonary lesions. Neck ultrasonography showed a suspicious nodule in the right thyroid lobe, and Fine-needle Aspiration Cytology (FNAC) of the nodule lead to the diagnosis of colorectal cancer metastasis. A right thyroid lobectomy with right central lymph node dissection was performed. The patient underwent chemotherapy with response, but this was posteriorly suspended due to haematological side effects, and the disease spread.
DISCUSSION: Thyroid metastases from colorectal cancer are rare, but, with the improvement of radiologic exams and the higher survival rate of these patients, more cases are being described. The majority of the cases present pulmonary and hepatic metastases and the prognosis is poor. The decision to operate and the type of operation depend on the extent of the metastatic disease and the patient's overall condition.
CONCLUSION: A low threshold of suspicion is crucial to make a timely diagnosis of thyroid metastases from colorectal cancer. Treatment is controversial, but, without surgery, the need may arise for tracheostomy.

1. Introduction

Colorectal cancer is the second most common cancer worldwide and the second deadliest in Europe. If metastases are present, prognosis is poor [1]. Approximately 20% of patients with colon cancer have metastases at diagnosis, and the most common sites are: liver, lungs and peritoneum [2].

Thyroid metastases are rare. In autopsy series, thyroid metastases are mainly from lung cancer, whereas in clinical series, renal cell carcinoma is the most frequent cause [3]. Thyroid metastases from colorectal cancer are even rarer and occur late in the disease course. Liévre et al. identified 6 cases among 5862 patients with colorectal cancer (0.1%) between 1993 and 2004 [4].

We report a case of a patient with colon cancer with lung metastases who was diagnosed with a thyroid metastasis six years after the first cancer treatment.

This study has been reported in compliance with the SCARE criteria [5].

2. Case presentation

A 64-year-old female patient was submitted to sigmoidectomy in 2009 for sigmoid cancer, followed by adjuvant chemotherapy. The postoperative pathological diagnosis was a moderately differentiated sigmoid adenocarcinoma with regional ganglion metastases pT3 N1 M0, stage IIIB, KRAS wild type. In 2011, a right pulmonary metastasis was diagnosed and pulmonary metastasectomy was conducted. Two years later, a new lung metastasis was found on follow-up CT scan and a right inferior pulmonary lobectomy was performed, followed by adjuvant chemotherapy with FOLFOX. In 2015, an asymptomatic right cervical bump with rapid growth, without apparent cervical adenopathies, was detected. Additionally, an increasing CA 19.9 (57 ng/mL (<37)) with a normal CEA (5.14 ng/mL (<5.4)) was determined. Blood tests revealed no anaemia, but normal liver, renal and thyroid functions. A Thoracoabdominal CT scan was performed, revealing the onset of new metastatic pulmonary lesions in both lungs. No abdominal alterations were observed. In addition to confirming these pulmonary lesions, a PET scan diagnosed an enlargement of the thyroid gland due to a hypodense and hypermetabolic nodule in the right thyroid lobe measuring 38 × 21 × 45 mm. Cervical ultrasonography (US) showed a heterogeneous hypoechoic nodule with calcifications measuring 33 × 27 × 25 mm in the right thyroid lobe (Fig. 1) and a right internal jugular adenopathy (11 × 6 mm). FNAC of the nodule diagnosed a metastasis from colorectal cancer. At this time,

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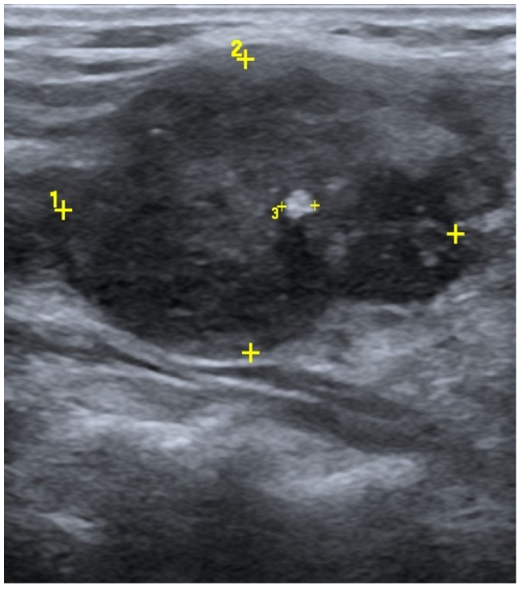

Fig. 1. Cervical Ultrasonography: a heterogeneous hypoechoic nodule with calcifications measuring 33 × 27 × 25 mm in the right thyroid lobe.

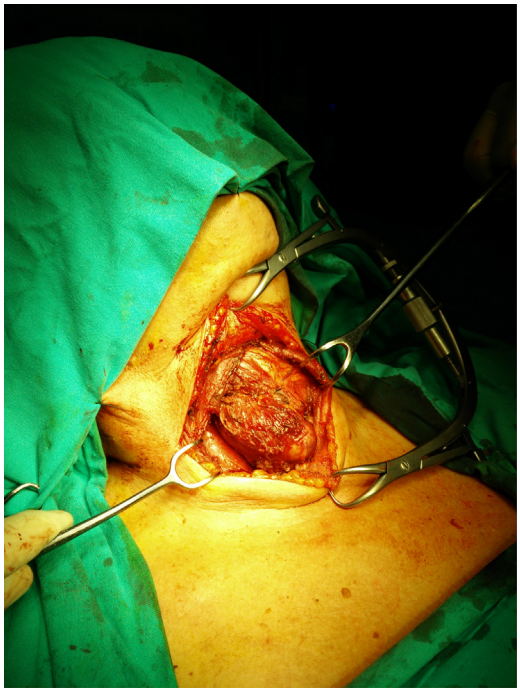

Fig. 2. Intraoperative image from the right thyroid mass showing intense adhesions to the adjacent structures.

CEA was increasing (9.5 ng/dL). Right thyroid lobectomy with right central lymph node dissection was performed (Figs. 2 and 3). Surgical resection was difficult due to the strong adhesions of the tumor to the adjacent structures, namely the cricoid cartilage and cricopharyngeus muscle. No surgical complications occurred and the patient was discharged home 3 days after surgery. The pathology report revealed a tangential excision with the surgical margin of a diffuse carcinoma invasion with uncompleted glandular cell elements and associated necrosis infiltrating the thyroid capsule and surrounding muscular and fibroadipose tissues, as well as three metastatic adenopathies. Immunohistochemistry was positive for gastrointestinal markers CDX2 and CK20 and negative for CK7 and TTF-1, thus confirming colorectal origin. Adjuvant chemotherapy

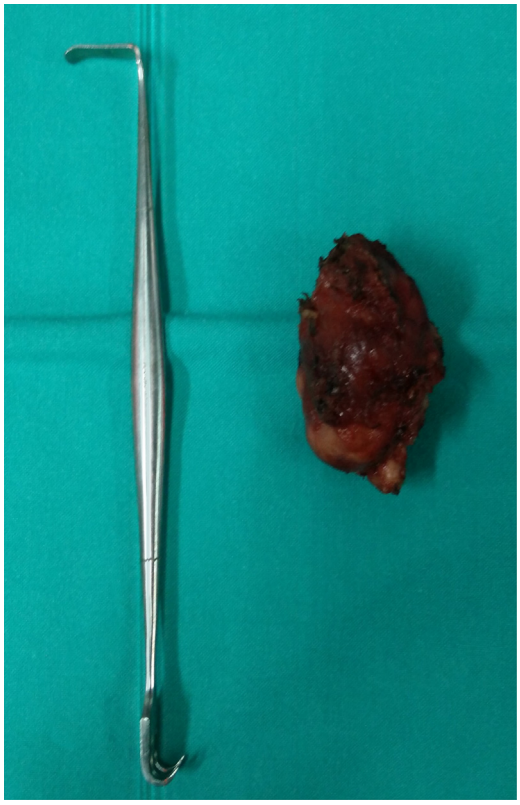

Fig. 3. Macroscopic aspect of the right thyroid lobe after excision.

with FOLFIRI and Cetuximab was initiated. However, therapy was interrupted after six cycles due to haematological side effects and severe asthenia. At this time, the metastatic disease was limited to one right pulmonary nodule, with CEA and CA- 19.9 within normal values. Ten months after surgery and four months after chemotherapy suspension, hoarseness and intermittent dysphagia with recurrence of right cervical mass occurred. CEA and CA 19.9 levels were increased. The CT and PET scan revealed extensive right cervical metastatic disease with compression of the right internal jugular vein (Fig. 4) and bilateral pulmonary metastases (Fig. 5). Palliative cervical radiotherapy was not successful and the disease spread to the pleura, pericardium, liver and peritoneum. Palliative chemotherapy with capecitabine was initiated and fifteen months after thyroid surgery patient is still alive.

3. Discussion

Metastases to the thyroid gland from non-thyroidal sites are an uncommon clinical presentation. In autopsy series, the lung is the most common site of primary tumor metastatic to the thyroid, whereas in clinical series, renal cell carcinoma is the most frequent, followed by breast and gastrointestinal neoplasms [6]. According to Nixon et al., the high oxygen and iodine environment may impair the ability of metastatic cells to settle and develop in the thyroid. Additionally, the fast blood flow could make adhesion and implantation of tumor cells difficult [7].

Although thyroid metastases from colorectal cancer are rare, more cases are being described due to the emergence of more accurate image exams and the higher survival rate of patients. Lievre et al. described 6 cases (0.1%) of thyroid metastases among 5862 patients with colorectal cancer between January 1993 and June 2004 [4]. In 2013, Froylich et al. reviewed metachronous colon metastases to the thyroid and found 34 cases. In this study, two thirds of the patients were female, which suggests hormonal influ-