Case Report

Two Case Reports of Metastases from Colon Carcinoma to the Thyroid

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Abstract

Introduction: Secondary malignancy of the thyroid gland is uncommon, but it is a problem requiring ongoing recognition. As it is more common than primary thyroid malignancy, metastatic disease involving the thyroid gland should be actively excluded in a patient with enlarging or abnormal thyroid gland and a previously known primary tumour. Clinical Picture: We report 2 cases of primary colon carcinoma with metastasis to the thyroid gland that mimicked thyroid anaplastic carcinoma. In both cases, airway compromise was evident. Treatment and Outcome: Emergency tracheostomy was necessary in the first case with subsequent oxaliplatin-based chemotherapy providing palliation of symptom of breathlessness, with significant reduction in size of thyroidal metastasis. Palliative thyroidectomy relieved airway compromise in the second case. Conclusion: Our case report highlights the importance of early recognition of thyroidal metastases from a colonic primary as life-threatening airway compromise may otherwise rapidly ensue.

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Key words: Airway compromise, Colon carcinoma, Metastasis to the thyroid, Oxaliplatin

Introduction

Metastases to the thyroid are not as rare as previously believed and have been shown, in autopsy series, to be more common than primary thyroid malignancy.[1,2] The overall incidence, not surprisingly, varies from 1.25% in unselected patient autopsy series to 24% in autopsy of patients[3,4] with widespread malignant neoplasms. As a result of the lack of awareness among clinicians of the above fact, clinical diagnosis of metastatic disease to the thyroid is expected to be less common than post-mortem findings. In both clinical and autopsy series, renal cell, breast and lung carcinomas are the most frequent sources of metastases to the thyroid.[3,5,6] We report 2 cases of thyroid metastases from colon cancer with interesting clinical features.

Case Report

Case 1

A 64-year-old Chinese man presented with a 10-day history of constipation, abdominal pain and distension. Abdominal X-ray revealed dilated small bowel loops suggestive of intestinal obstruction. A right hemicolectomy was performed to resect the 4 cm x 3 cm tumour of the ascending colon that was found during laparotomy. Histology revealed moderately differentiated adenocarcinoma infiltrating the serosal fat, but not breaching the visceral peritoneum. Four out of 26 regional lymph nodes also showed metastases. No distant metastases were evident on computed tomography (CT) scan of the thorax and abdomen. Preoperative and postoperative carcino-embryonic antigen (CEA) levels were 1.7 μg/L and 1 μg/L, respectively.

He commenced on adjuvant 5-fluorouracil with leucovorin, following the Mayo Clinic regimen, for 6 months. A year after diagnosis, he complained of an enlarging neck mass associated with dyspnoea and dysphagia for 2 weeks. Physical examination revealed a moderately large multinodular goitre, with the left lobe being larger than the right. CEA was noted to have risen to 8.9 μg/L. Thyroid function and thyroglobulin levels were normal. There was poor tracer uptake in the pertechnetate thyroid scan and a thyroid ultrasound scan showed features that may be consistent with simple multinodular goitre. The clinical diagnosis then was multinodular goitre and no attempt was made to obtain a pathological diagnosis.

Our patient's thyroid mass was monitored for about 2 months. He was then admitted to the hospital because of severe

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difficulty in breathing. The admitting doctor documented that he had stridor. A flexible laryngoscopy revealed severe airway narrowing at the level of the larynx and an emergency tracheostomy was created to maintain the airway. CT scan of the thorax and abdomen revealed a large thyroid mass from the level of the neck extending inferiorly to surround the upper trachea (Figs. 1a and 1b). Multiple concomitant bilateral lung metastases were noted in the same radiological study, but the liver was free of metastases. Fine needle aspiration biopsy of the thyroid mass confirmed metastases from the colonic primary tumour.

Soon after treating the acute airway compromise, he was started on palliative chemotherapy with an oxaliplatin/5-fluorouracil/leucovorin-based regimen. After 2 cycles of chemotherapy, good partial response was achieved with significant reduction in the size of the thyroid and lung metastases that resulted in complete resolution of dysphagia and dyspnoea. Good performance status (Eastern Co-operative Oncology Group, ECOG 1) was maintained after 6 cycles of chemotherapy about 8 months after diagnosis of metastatic disease. Unfortunately, the metastases in the lung progressed in size, with the development of new metastases after a 6-month respite. He died peacefully from progressive disease 18 months after diagnosis of metastatic disease to the thyroid and lungs from primary colon carcinoma.

Case 2

A 53-year-old Chinese lady presented with a 4-month history of haematochezia and left-sided abdominal pain. She also complained of a rapidly enlarging neck mass associated with progressive breathlessness and dysphagia over 1 month. A sigmoid colon tumour was detected on colonoscopy and biopsy of this lesion demonstrated moderately differentiated adenocarcinoma. CT scan of the thorax and abdomen revealed bilateral lung metastases, as well as several liver metastases. Palliative sigmoid colectomy and thyroidectomy were performed. At the time of surgery, diagnosis of metastases to the thyroid gland was not expected. The clinical diagnosis was multinodular goitre, with retrosternal extension causing airway compromise. Histology of the thyroid specimen showed

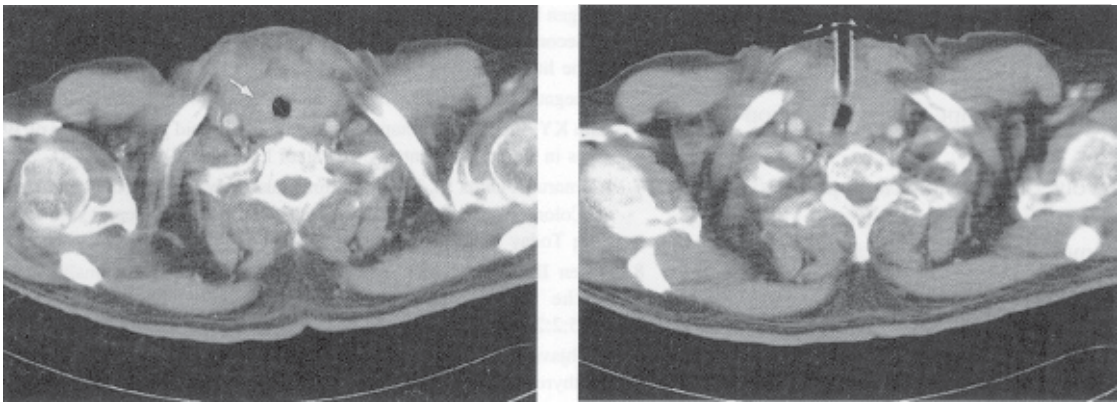

Fig. 1a. A preoperative CT scan image of a large thyroid mass (indicated by arrow) surrounding the trachea resulting in airway compression necessitating tracheostomy. Fig. 1b. A CT scan image after tracheostomy has been performed.

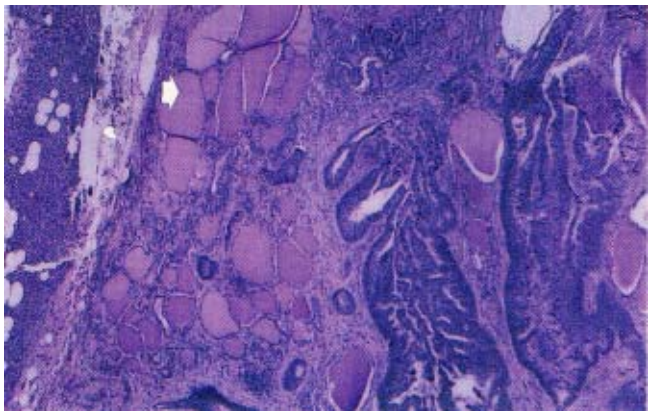

Fig. 2. Several irregular malignant intestinal-type glands infiltrate between normal thyroid follicles. Normal thyroid follicles are indicated by arrow in the photomicrograph (haematoxylin and eosin stain, magnification x40).

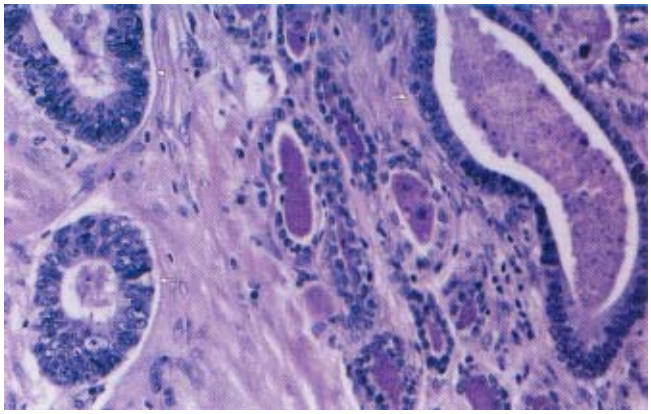

Fig. 3. Three infiltrative and malignant intestinal-type glands (indicated by arrows) are seen surrounding a cluster of atrophied thyroid follicles containing diminished colloid material. There is accompanying fibrosis of the stroma around the malignant glands (haematoxylin and eosin stain, magnification x200).

extensive replacement of the gland by metastatic adenocarcinoma of the colon with paratracheal nodal involvement (Figs. 2 and 3).

Palliative chemotherapy with weekly 5-fluorouracil/leucovorin was started and partial response was evident in repeat CT imaging after 4 doses, but the disease progressed 9 months after diagnosis. Generalised seizures and left hemiparesis declared the presence of right frontal and parietal haemorrhagic cerebral metastases that were treated with cranial radiotherapy. She died from progressive disease 10 months after diagnosis.

Discussion

The fact that our literature search yielded only 2 case reports of thyroid metastases from primary colon tumour[7,8] shows that this diagnostic entity is rare compared to thyroid metastases from renal cell, breast and lung carcinoma. The time to detection of thyroid metastasis after primary tumour diagnosis has been documented to be long in renal cell and breast carcinoma. Reports of detection of thyroid metastases 22 to 24 years after primary tumour diagnosis have been made[9] in the case of breast and renal cell carcinoma. This certainly can pose a diagnostic dilemma to physicians caring for these patients. This may not apply in colon carcinoma as our 2 patients have a comparatively shorter time to detection, even though this did not arouse in us prompt clinical suspicion of metastases to the thyroid.

An interesting aspect in our 2 cases is the rapid progression of the thyroid masses, which caused significant airway compromise within 1 to 2 months of being clinically apparent. This behaviour is similar to the aggressive tempo of thyroid anaplastic carcinoma. Hence, thyroid metastases from primary colon tumour merit serious consideration as an important differential diagnosis in this clinical context. Although thyroid function was normal in both our patients, metastasis to the thyroid has been reported to induce thyrotoxicosis.[10]

Chemotherapy and thyroidectomy proved to be effective in palliating the presenting symptoms of thyroid metastases in our 2 cases. Shorter mean survival in patients who were treated non-surgically (25 months), compared to patients who underwent thyroidectomy alone or thyroidectomy with adjuvant therapy (34 months), was reported in 1 series.[9]

Appearance of metastatic disease in the thyroid gland portends poor prognosis. This represents pre-terminal events in lung carcinoma, melanoma and carcinoma of the oesophagus, with an average survival of 2 months from the time of diagnosis.[11] Fortunately, this finding was not reiterated in our 2 patients.

In conclusion, prompt recognition of metastasis to the thyroid in a patient with previously known colon carcinoma is essential, as airway compromise and dysphagia resulting from the rapid mass effect demonstrated in our 2 cases may be avoided with appropriate treatment.

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