Thyroid Metastasis from Colon Cancer: a Case Report

Dong-il Kim, Youn Joo Jung, Hyun-june Paik, Jee Yeon Kim, Hyun Yul Kim

1Department of Surgery, Pusan National University Yangsan Hospital, Yangsan, Korea
2Department of Pathology, Pusan National University Yangsan Hospital, Yangsan, Korea
3Research Institute for Convergence of Biomedical Science and Technology, Pusan National University Yangsan Hospital, Yangsan, Korea

ABSTRACT

Thyroid metastasis from colon cancer is very rare and the prognosis is very poor. We present a rare case of thyroid metastasis from descending colon cancer. A 50-year-old man was visited because of palpable neck mass. He was diagnosed stage III colon cancer 51 months before symptom presentation. He has also underwent palliative chemotherapy and radiotherapy for distant metastasis of colon cancer. Imaging study showed a left side deviation of trachea due to 3.3 cm sized right thyroid gland mass which was suspicious of metastasis. The patient underwent right thyroid lobectomy. Histopathologic examination and immunohistochemistry revealed adenocarcinoma which was consistent with a diagnosis of metastases from primary colon cancer to the thyroid gland. Surgeon should consider the operation that distant metastasis to the thyroid gland is possible among the patients who present compression symptom on the neck.

Keywords: Colon cancer; Metastasis; Thyroid gland

INTRODUCTION

A malignant tumor that spread to the thyroid gland is rare. It has been reported that 1.4%–3% of patients who underwent surgery for thyroid tumors are diagnosed as metastasis from other carcinomas (1). It is very rare that especially colorectal cancer is metastasized to the thyroid. When colorectal cancer is metastasized to the thyroid gland, it has more aggressive clinical features than in the kidney or breast. The patient who has colorectal cancer metastasis the thyroid gland does not respond to chemotherapy (CTx) or radiotherapy, so that the prognosis is very poor (2,3).

We report a case of colorectal cancer metastasis to the thyroid gland during follow-up after CTx and radiotherapy due to recurrence of colorectal cancer.

CASE REPORT

A 50-year-old man visited with neck palpable mass and compression symptom for 2 months. He was diagnosed with stage III descending colon adenocarcinoma 51 months ago, which was treated with left hemicolectomy follow by 12 cycles of adjuvant FOLFOX6 CTx. At 13 months
after diagnosis, positron emission tomography (PET)/computed tomography (CT) showed fluorodeoxyglucose (FDG) uptake at the paraaortic lymph nodes (LNs) with increased maximum standardized uptake value (SUVmax) and right neck level VI LNs. It was regarded as distant metastasis, he received palliative 12 cycles of FOLFIRI CTx and radiotherapy on the paraaortic LNs. At 20 months after distant metastasis (33 months from 1st diagnosis), PET/CT showed increased FDG uptake LNs at right neck level IV and right thyroid nodule without FDG uptake. He was treated with XELODA® (capecitabine 1,800 mg bid; Genentech, Inc., South San Francisco, CA, USA) CTx for just 3 months because of side effect. After 51 months from 1st colon cancer, follow-up PET/CT was checked, that showed increased FDG uptake in paraaortic LNs and right thyroid gland and surrounding LN (Fig. 1). He had a compressive symptom and fixed firm mass on his neck for 2 months. The trachea was deviated to left side by the 3.3 cm sized thyroid mass on CT (Fig. 2). He was transferred to general surgery from hemato-oncology for surgical treatment.

Surgery was planned without a biopsy for relief of compression symptoms and histologic confirmation. In the surgical field, there were severe adhesions. Especially, adhesions

Fig. 1. PET/CT shows conglomerated hypermetabolic activity involving right thyroid lobe and paratracheal LNs. PET = positron emission tomography; CT = computed tomography; LN = lymph node.

Fig. 2. CT neck shows hypodense nodule at right thyroid gland with left side deviation of trachea. CT = computed tomography.
between the right thyroid gland and the carotid sheath was very severe and also between strap muscles. Because of this, only the right thyroid lobectomy was performed and the selective LNs dissection was performed for resectable tissues at the right lateral neck lesion. Fortunately, it was not severe adhesion between the right thyroid gland and the trachea, so we could preserve the right recurrent laryngeal nerve and trachea without any injury. The patient was discharged on the 4th postoperative day without complications. Histopathologic examination showed 3.0×2.8×2.0 cm sized mass that invaded in strap muscle and resection margin. Hematoxylin and eosin staining showed poorly differentiated carcinoma, so an immunohistochemistry was performed for more exact diagnosis. The CDX2 as a marker for gastrointestinal cancer was positive (Fig. 3A). The thyroglobulin (Tg) and thyroid-transcription-factor 1 (TTF-1) were negative (Fig. 3B and C). Thus, we diagnosed a metastatic adenocarcinoma from colon carcinoma. The patient was referred to hemato-oncology for palliative CTx and radiotherapy, but he refused further any treatment. One year after the operation, the patient visited without any other symptom involving neck, but follow-up was lost after that visit.

DISCUSSION

Colorectal cancer is very rarely metastasized to the thyroid gland. It was reported that there were 6 cases of thyroid metastasis among 5,862 patients of colorectal cancer (0.1%). Primary cancers metastasized to the thyroid gland were 48.0% of renal cancer, 10.0% of colorectal cancer, 8.3% of lung cancer, 7.8% of breast cancer, and 4.0% of sarcoma (4). Majority of thyroid metastases (60%–80%) were diagnosed after primary malignancies were treated, just 20%–40% of thyroid metastases were founded with primary tumors at the same time (5). Froylich et al. (6) reviewed 34 cases of metachronous thyroid metastasis from colorectal cancer. The 22 patients were female and the range of age was from 34 to 85 years. The primary site of colorectal cancer was from rectum (41%), sigmoid colon (33%), ascending colon (19%), and descending colon (11%). The stage of colorectal cancer was stage III or IV in 14 of 20 patients who was recorded stage. It took 6 months to 8 years that thyroid metastasis was confirmed. In our case, the primary cancer was descending colon with stage III and thyroid metastasis was diagnosed 51 months after first operation.

Fine-needle aspiration is the easiest and best way to diagnose thyroid nodules. However, the sensitivity is only about 50% in metastatic thyroid cancer, and even if metastatic cancer is diagnosed, it is often difficult to know its origin (7). In this case, there was a previous history of colorectal cancer and an uptake in PET/CT, so we could expect a metastasis from colorectal cancer and performed the operation immediately without fine-needle aspiration biopsy.
Immunohistochemistry may help to confirm whether it is thyroid cancer or metastatic cancer. TTF-1 and Tg is known as a thyroid-specific marker, CDX2 is a tumor marker of gastrointestinal origin adenocarcinomas, especially metastatic colorectal cancer (8). In our case, CDX2 was positive and the patient had colon cancer history, thus it was diagnosed a metastatic adenocarcinoma from colon carcinoma.

When primary cancer and thyroid metastasis were diagnosed simultaneously, surgical treatments were shown good prognosis (9,10). However, when there is metachronous thyroid metastasis or co-existing metastasis to other organs, the goal of surgery to metastatic thyroid cancer is to improve local symptoms rather than to treat metastatic cancer (7).

Surgical extent of metastatic thyroid cancer is also debatable. If there is bilateral metastatic thyroid cancer or tumor size is large, total thyroidectomy is recommended (10). In our case, the size of thyroid nodule was relatively big, but there were other metastatic sites, so we decided to perform a right thyroid lobectomy.

The thyroid metastasis may take years from primary colorectal cancer, so if a patient with past history of other cancers present compression symptom in neck, metastatic thyroid cancer should also be considered. In patients with severe neck compression, surgical treatment may be helpful in symptom relief and diagnosis.

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