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Endoscopic Disappearance of a Metastatic Colon Tumor from Primary Lung Cancer after Chemotherapy: A Case Report

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Abstract

A 70-year-old man visited our hospital complaining of a cough. Chest computed tomography（CT）showed a large mass in the right middle lobe. Abdominal CT showed an obvious intraluminal soft tissue mass in the ascending colon. Small cell lung carcinoma was diagnosed by expectoration cytology examination. Colonoscopy showed a sessile lesion resembling a submucosal tumor in the ascending colon. Pathological diagnosis of the biopsy specimen demonstrated metastatic small cell carcinoma in the ascending colon. The patient was diagnosed with primary small cell lung cancer（T2 N3 M1b, stage IV）, and he was treated with chemotherapy. After the first treatment, colonoscopy showed that the metastatic colon tumor had disappeared. This is the first case in which colonoscopy demonstrated that a metastatic colonic tumor from lung cancer had disappeared after chemotherapy.

Key words: metastatic colon cancer, lung cancer

Introduction

Lung cancer is the most frequent cause of cancer death [1)]. The brain, liver, adrenal glands, and bone are the most common metastatic sites disease in patients with lung cancer [2)]. Gastrointestinal（GI）metastases from lung cancer are rare with a reported incidence of ~0.5%, depending on the evaluation used, which includes endoscopy, surgical specimens, or autopsy [3)]. Within the GI tract, the small bowel is the most common site of metastases from primary lung cancer [4)]. The clinical prevalence of symptomatic colonic metastases is extremely rare [5)]. This report describes a rare clinical case of endoscopic disappearance of a metastatic colon tumor from primary lung cancer after chemotherapy.

Case Report

A 70-year-old man visited our hospital complaining of a cough. Chest radiography showed a 65-mm round mass in the right middle lung field. Chest computed tomography（CT）showed a large mass in the right middle lobe with infiltration of the lateral segment（B4）, medial segment（B5）, and superior segment（B6）, with bilaterally enlarged mediastinal lymph nodes and pleural dissemination（Fig.1）. Measurement of the tumor markers levels showed a neuron-specific enolase level of 34 ng/mL and a progastrin-releasing peptide level of 136 pg/mL. Cytological appearance of sputum smears demonstrated small cell carcinoma（Fig.2）. Abdominal CT showed an obvious intraluminal soft tissue mass in the ascending colon. In addition, positron emission tomography（PET）CT demonstrated increased ^{18}F-fluorodeoxyglucose

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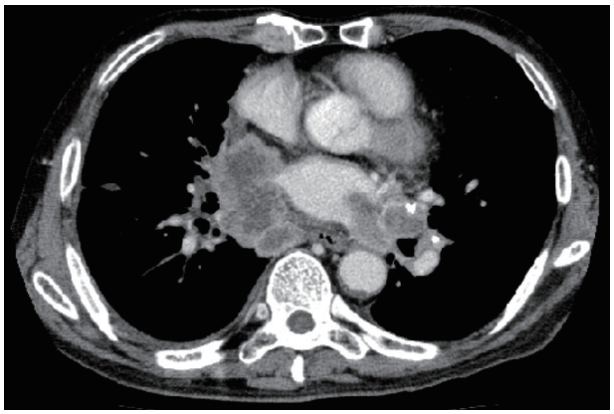

Fig.1 Chest computed tomography showing a large mass in the right middle lobe of the lung.

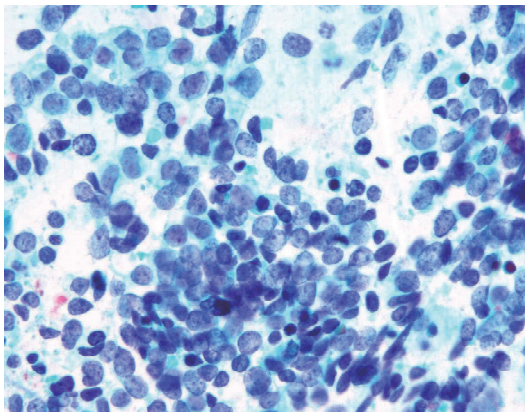

Fig.2 Papanicolaou-stained smears show loosely sheets of piled-up cells and singly dispersed bare nuclei. Individual cells are small with round or oval-shaped nuclei, where chromatin is uniformly finely divided and nucleoli are not prominent. Original magnification ×400.

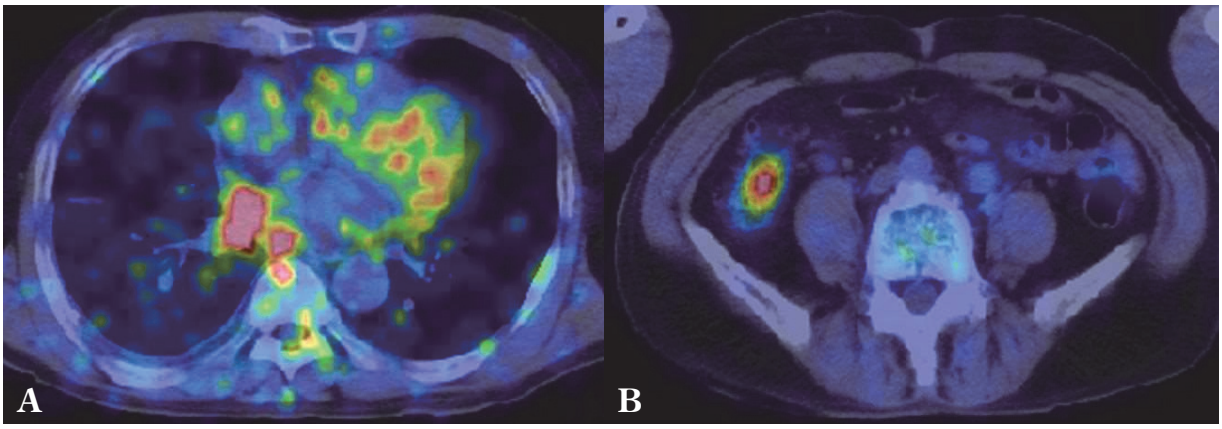

Fig.3 A) Positron emission tomography-computed tomography demonstrating increased ^{18}F-fluorodeoxyglucose uptake in the right lung and B) focally increased uptake in the ascending colon.

(FDG) uptake in the right lung mass (Fig.3A) and focally increased uptake in the ascending colon (Fig.3B). The metastasis to brain was not detected by PET-CT. Colonoscopy showed a reddish sessile lesion resembling a submucosal tumor in the ascending colon. Most of its surface was covered with non-neoplastic epithelium, although central erosion was observed on the top of the tumor (Fig.4). Pathological diagnosis was metastatic small cell carcinoma based on the biopsy specimen and because the lesion was cyto histologically similar to primary lung cancer (Fig.5A, B).

Immunohistochemical examination of the specimen demonstrated that the carcinoma cells were positive for CD56, synaptophysin, and MIB-1 (MIB-1 labeling index >98%) (Fig.5C, 5D, 5E). Based on these findings, the patient was determined to have primary small cell lung cancer with metastasis to the ascending colon (stage IV).

The patient initially received cisplatin (100 mg/m^2)

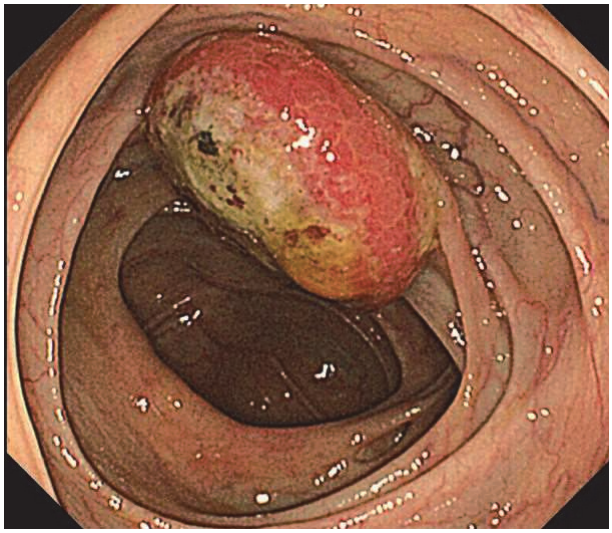

Fig.4 Colonoscopy showing a sessile lesion resembling a submucosal tumor in the ascending colon.

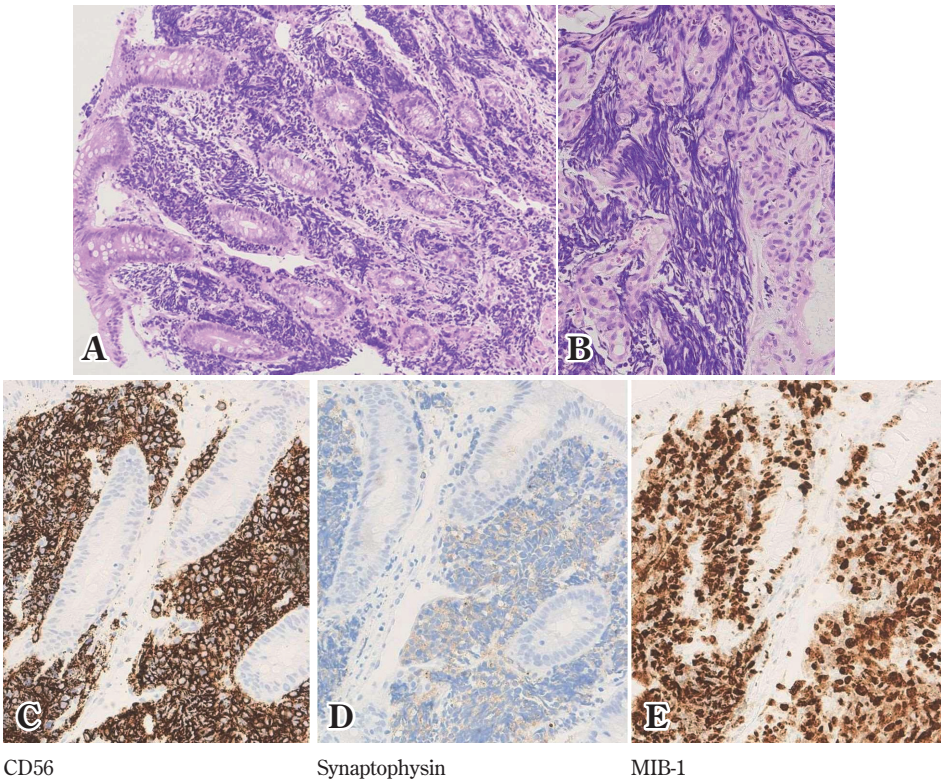

Fig.5 A, B）Pathological diagnosis of the biopsy specimen demonstrating small cell carcinoma in the ascending colon, which is histologically similar to that in primary lung cancer. C, D, E）Immunohistochemical examination of the specimen in the ascending colon showing that the carcinoma cells were positive for CD56, synaptophysin, and MIB-1（MIB-1 labeling index >98%）.

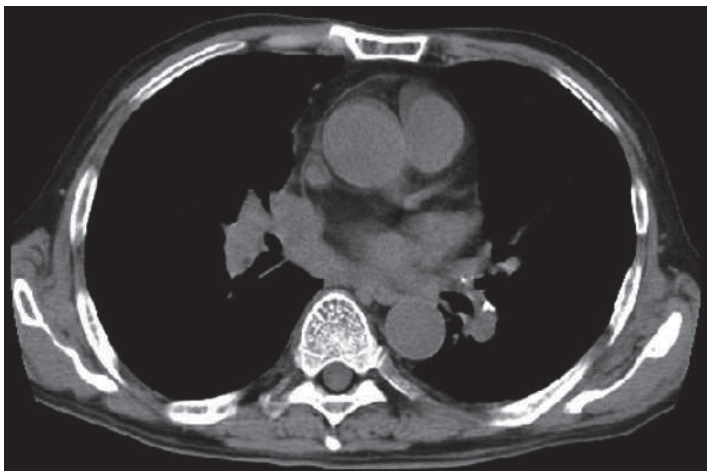

Fig.6 Chest computed tomography demonstrating a partial response to chemotherapy in the primary lung lesion.

and irinotecan（100 mg/m^2）on days 1 and 7, every 3 weeks. After the first cycle of chemotherapy, chest CT showed a partial response to chemotherapy in the primary lung lesion（Fig.6）. Colonoscopy demonstrated that the metastatic colonic tumor had disappeared after 2 months following the first chemotherapy cycle. Converging mucosal folds and redness were seen in the ascending colon（Fig.7）. Pathological evaluation of the biopsy specimen demonstrated no metastatic cancer cells（Fig.8）.

Eight months following the first chemotherapy cycle, colonoscopy showed no recurrence of the metastatic tumor. The patient survived for 14 months after the metastatic colonic tumor was diagnosed. He died of a metastatic brain tumor.

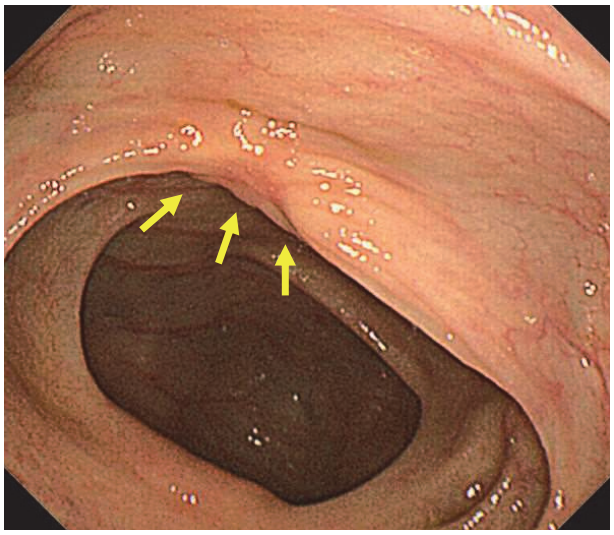

Fig.7 Colonoscopy showing disappearance of the metastatic colon cancer.

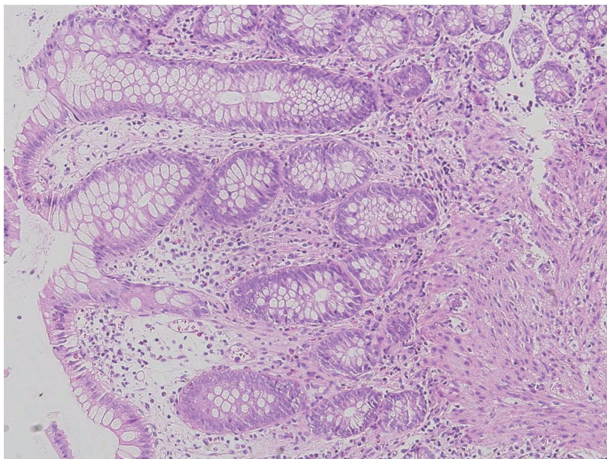

Fig.8 Pathological evaluation of the biopsy specimen in the ascending colon demonstrating no small cell carcinoma. Chronic inflammatory cell infiltrate around the crypts is seen in the lamina propria.

Discussion

Lung cancer is one of the most common primary malignancies, and nearly 50% of cases have distal metastasis at the time of the diagnosis [6, 7]. Lung cancer metastases to the colon are extremely rare, accounting for only 0.5% of lung cancer cases [8].

Only 19 clinical case reports of metastatic colonic tumor from lung cancer, including our case, have been published with detailed clinical information (Table 1). The ages ranged from 43 to 74 years (median, 62 years). Of the 19 patients, 17 were men and two were women. The pathological diagnosis of primary lung cancer was non-small cell carcinoma in 17 cases and small cell carcinoma in 2 cases. Squamous cell carcinoma was the most common type in cases of non-small cell carcinoma. The sites included the left side of the colon in 12 cases and the right side of the colon in 7 cases. Six cases were treated with chemotherapy, and the tumors in 2 cases, including ours, decreased in size. Tumor disappearance only in our case was observed specifically by endoscopic and histologic examinations.

Usually colonic metastases are diagnosed later than the primary tumor, however, there are cases of synchronous or prior diagnosis. Exuberant symptoms are rare [9], but there can be signs and symptoms of bowel obstruction, lower GI hemorrhage, intestinal perforation, GI fistula, anemia, and weight loss [10]. Our patient had no chronic GI symptoms. In our case, PET-CT was useful for diagnosing the metastatic colonic tumor. With the current availability of PET-CT, colonic metastases may be diagnosed more frequently than previously [11].

The prognosis of lung cancer with intestinal metastasis is poor, with a mean survival of 4 to 8 weeks and a maximum of 16 weeks. Treatment options include curative resection, palliative procedures (e.g., resection and stoma placement), and no active therapy, depending on the extent of the intestinal metastasis [12]. If resection of the colonic metastases is possible, the prognosis is depends on the primary tumor [9]. Cases managed by emergency laparotomy with resected metastases for bowel obstruction, hemorrhage, intestinal perforation have a reported mean survival of 6 months, with a maximum of 13 months [13]. Chemotherapy in patients with both primary and secondary non-resectable lesions may have prolonged survival (23 week has reported), but chemotherapy can induce intestinal perforation in patients with known intestinal metastases [7]. Chemotherapy is essential for treatment of small cell lung cancer. More than 60% of patients with small cell lung cancer respond to primary platinum-based chemotherapy, which dramatically improves overall prognosis [14]. In this case, we suggested that chemotherapy may be effective for treating metastatic GI tumors from small cell lung cancer.

To our knowledge, our patient is the first case of disappearance of a metastatic colonic tumor from primary lung cancer after chemotherapy. Patients can survive for an additional 14 months after diagnosis. In addition to surgical colonic resection, chemotherapy may be a promising treatment option for metastatic colonic tumor from primary lung cancer.

Table 1. Reported cases of metastatic colonic tumor from lung cancer

Case No.	Age/sex	Pathological diagnosis	Bowel symptom	Location	Treatment	Changes in size	Author	Year	References
1	52/M	SCC	free	S	radiation	NA	Smith HJ	1978	
2	57/M	SCC	melena	S	colectomy	no change	Smith HJ	1978	
3	63/M	LCC	anorexia	S	colectomy	no change	Brown KL	1979	
4	71/M	SCC	abdominal pain	C	colectomy	no change	Gitt SM	1992	
5	68/M	SCC	melena	S	Hartmann's ope	no change	Gateley CA	1993	Ref. 9
6	69/M	SCC	abdominal pain	S	no therapy	no change	Bastos I	1998	
7	68/M	SCC	diarrhea	S	colectomy	no change	Carroll D	2001	
8	73/M	LCC	melena	entire	no therapy	no change	John AK	2002	Ref. 12
9	67/M	SCC	abdominal pain	S	chemotherapy	NA	Habeşoglu MA	2005	
10	57/M	SCC	melena	C	colectomy	no change	Yang CJ	2006	
11	60/M	SCC	free	A	chemotherapy	NA	Stinchcombe TE	2006	Ref. 11
12	74/M	SCC	abdominal pain	D	chemotherapy	NA	Hirasaki S	2008	Ref. 7
13	53/M	adenocarcinoma	abdominal pain	D	chemotherapy	progression	Weng MW	2010	
14	60/F	SCC	abdominal pain	S	colectomy	progression	Sakai H	2012	Ref. 5
15	68/M	nSmCC	back pain	T	no therapy	no change	Bennati C	2012	
16	43/F	adenocarcinoma	fatigue	S	no therapy	no change	Pezzuto A	2013	
17	64/M	SCC	abdominal pain	A	chemotherapy	reduction	Lou HZ	2013	
18	49/M	SmCC	abdominal pain	right,S	colectomy	no change	Almeida CE	2015	Ref. 10
19	71/M	SmCC	free	A	chemotherapy	disappearance	Our case		

M, male; F, female; SCC, squamous cell carcinoma; LCC, large cell carcinoma; SmCC, small cell carcinoma; nSmCC, non small cell carcinoma; C, cecum; A, ascending colon; D, descending colon; S, sigmoid colon; entire, entire colon; right, right colon; NA, not available

Conclusions

The clinical prevalence of symptomatic metastatic colonic tumor from lung cancer is extremely rare. The prognosis of lung cancer with intestinal metastasis is poor. However, our case had endoscopic and histologic disappearance of the tumor after chemotherapy. Our case suggests that chemotherapy may be effective for treating metastatic GI tumors from small cell lung cancer.

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「The authors declare no conflict of interest.」