

## Colonic metastasis after resection of primary squamous cell carcinoma of the lung: A case report and literature review

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### Abstract

Lung cancer is a common malignancy in the world; however symptomatic colonic metastasis from primary lung cancer is rare. A 64-year-old man was originally found poorly differentiated squamous cell carcinoma of right lung and received right lower lobectomy and lymph node dissection. Three years later, the patient presented to our emergency room with the symptom of upper abdominal pain and weight loss. Abdominal palpation and computed tomography scan of the abdomen

revealed a large mass measuring 7.6 cm × 8.5 cm in the ascending colon. Colonoscopy and biopsy revealed poorly differentiated squamous cell carcinoma with similar morphological pattern to that of the previous lung cancer. Chemotherapy was given and the patient died 5 mo later. Lung cancer metastatic to the colon confers a poor prognosis: overall survival ranged from 5 wk to 1 year, with a median survival of 3 mo after the diagnosis of the colonic metastasis.

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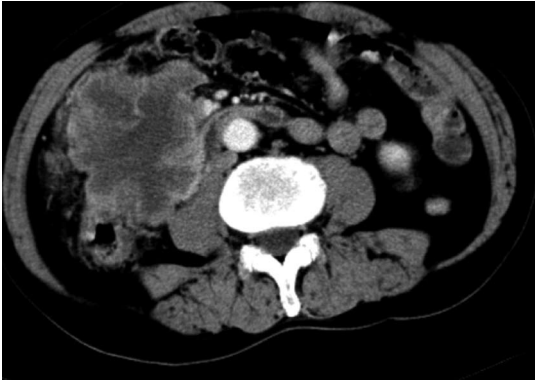
**Key words:** Lung neoplasm; Colonic metastasis; Squamous cell carcinoma; Chemotherapy

**Core tip:** Lung cancer with colonic metastasis is a rare condition, accounting for only 0.5% of lung cancer cases. Symptomatic colonic metastases are often emergent and colonoscopy with biopsy can make further diagnosis. Herein we report a case of patient with upper abdominal pain and weight loss after lung cancer resection. Subsequent colonoscopy and pathology confirmed poorly-differentiated squamous cell carcinoma due to colonic metastasis of lung cancer. The patient improved after receiving chemotherapy but died from rectal bleeding. We report the case for its rarity and emphasize disease management after prompt clinical and pathological analyses.

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### INTRODUCTION

Lung cancer is a common malignancy in the world; how-



**Figure 1** Abdominal computed tomography which revealed a large soft tissue mass of 7.6 cm × 8.5 cm in size in the ascending colon.

ever symptomatic colonic metastasis from primary lung cancer is rare. Clinically, patients may present with symptoms of abdominal pain, obstruction, bowel perforation, and lower gastrointestinal bleeding. In this report, we describe a rare case of symptomatic colonic metastasis from squamous cell carcinoma of the lung and with literature review.

## CASE REPORT

A 64-year-old man originally presented to local hospital for left chest pain in May 2009. At that time, he underwent a contrast-enhanced computed tomography (CT) scan of the chest, which showed a mass in the right lower lobe of lung. Flexible bronchoscopy identified focal areas of thickening in the bronchus of right lower lobe. Histopathologic examination revealed a poorly differentiated squamous cell carcinoma (SCC) of the lung. Then he underwent right lower lobectomy and lymph node dissection. The final pathologic diagnosis of the tumor was stage II poorly differentiated SCC. Margins were negative and no involved lymph nodes. The patient refused any adjuvant chemotherapy or radiation therapy after surgery.

In February 2012, nearly three years after his initial lung cancer diagnosis, the patient presented to our emergency room with the symptom of upper abdominal pain and weight loss. On physical examination at admission, the patient was fully alert and oriented, afebrile. His vital parameters were normal. There was slight pallor, no peripheral lymphadenopathy or pedal edema. Abdominal palpation revealed a large mass in the right upper quadrant. The mass was tender on palpation, but there was no rebound tenderness or guarding. Rest of the systemic examination was unremarkable. On laboratory tests, hemoglobin was 10.6 g/dL, blood count showed slight leukocytosis with neutrophils elevated. Liver and renal functions were normal. Fecal occult blood test was positive.

CT scan of the abdomen revealed a large mass measuring 7.6 cm × 8.5 cm in the ascending colon with heterogeneous enhancement (Figure 1). Subsequent colo-

noscopy disclosed a large ulcerated lesion in the ascending colon, and biopsy revealed poorly differentiated SCC with similar morphological pattern to that of the previous lung cancer. Furthermore, immune histochemical results of the tissue specimen were positive for CK5/6 and p63, but negative for CDX2 and CK20 (Figure 2). Upon review by our hospital's tumor board, it was concluded that these results were consistent with primary lung cancer. Then chemotherapy with intravenous cisplatin and oral S-1 every 5 wk was initiated and a total of 2 cycles were given. The patient improved remarkably after 2 cycles of chemotherapy. CT scan of the abdomen showed significant reduction in the abdominal mass. Just before the 3<sup>rd</sup> cycle, the patient developed rectal bleeding with bright red blood in stool. He was treated with somatostatin and hemostatic drugs and symptoms relieved soon. But three weeks later the patient refused further chemotherapy and was discharged from the hospital. The patient died 5 mo after diagnosis.

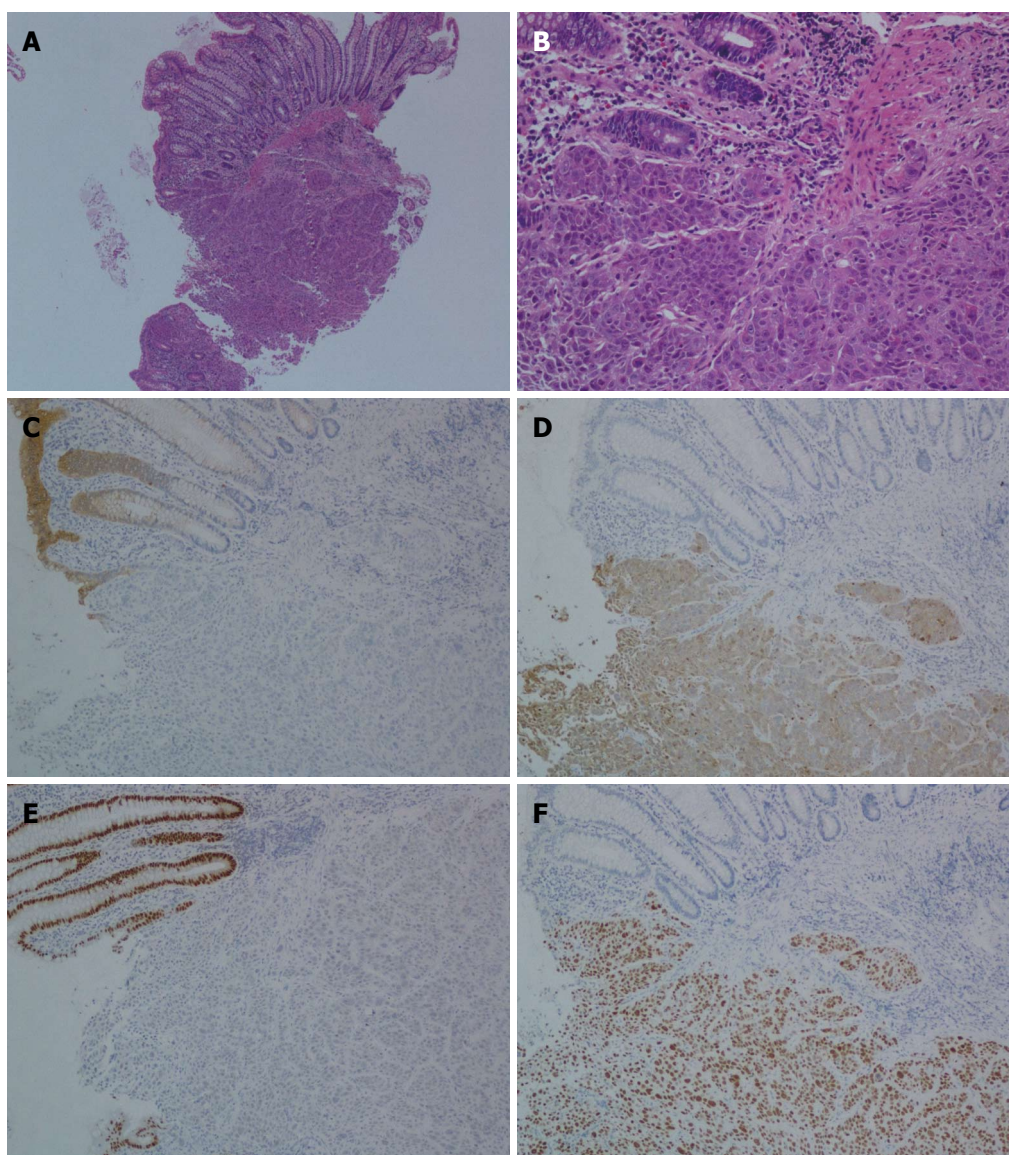
## DISCUSSION

Lung cancer is one of the most common primary malignancies, and nearly 50% have distal metastasis at the time of diagnosis<sup>[1,2]</sup>. The preferential sites of distal metastasis are the liver, adrenal gland, bone, and brain<sup>[3,4]</sup>. Gastrointestinal metastasis of primary lung cancer is considered to be rare. The overall incidence of primary lung cancer metastatic to gastrointestinal tract is about 4.7%-14.0% at autopsy<sup>[1,5]</sup>. Symptomatic gastrointestinal metastasis of lung cancer is 1.77% (6/339) as reported by Yang *et al*<sup>[6]</sup>. Lung cancer metastatic to the colon are very rare, accounting for only 0.5% of lung cancer cases<sup>[5]</sup>.

Gastrointestinal metastases from lung cancer are often asymptomatic. Symptomatic colonic metastasis is very rare and only a few cases were reported in the English literature. After review of the literature, a total of only 12 such cases were identified since 1970 (Table 1)<sup>[2-4,6-13]</sup>. In these patients, the mean age was 64.4 years and all patients were male. Abdominal pain and anemia are the most common symptoms<sup>[1,10]</sup>. Other symptoms like intestinal obstruction, lower GI bleeding, bowel perforation, or GI fistula may occur<sup>[2,10]</sup>. These findings can occur synchronously or before the diagnosis of lung cancer, but more frequently after the diagnosis of primary lung cancer<sup>[6]</sup>.

Symptomatic colonic metastases are often emergent and intended to undergo emergent computed tomography. Colonoscopy with biopsy can make further diagnosis. PET-FDG has become useful in patients with potentially resectable non-small cell lung cancer<sup>[14,15]</sup>. In patients with clinical stage III disease, PET scanning will detect extrathoracic metastases in approximately 25% of patients<sup>[16,17]</sup>. Recently, case of colonic metastasis from lung cancer has been assessed by PET-CT imaging<sup>[11]</sup>. PET-CT scanning may reveal a higher incidence of colonic metastases than previously suspected. However, the role of PET-CT in the diagnosis of gastrointestinal metastasis from lung cancer is still unclear because of





**Figure 2 Histological findings.** A: Poorly-differentiated squamous cell carcinoma metastatic to the descending colon [hematoxylin eosin (HE) × 40]; B: Cancer cells infiltrating mucosa of the descending colon (HE × 200); C: Negative immunohistochemical staining for CK 20 (× 100); D: Positive immunohistochemical staining for CK 5/6 (× 100); E: Negative immunohistochemical staining for CDX-2 (× 100); F: Positive immunohistochemical staining for p63 (× 100).

few clinical data.

The histological type of lung cancer that causes gastrointestinal metastasis varies according to different series<sup>[6]</sup>. The most common type was squamous cell carcinoma which accounting for colonic metastasis in more than 50% of cases in our review. But the study of Stenbygaard *et al.*<sup>[18]</sup> showed adenocarcinoma was more prominent. The pathologic results of colonic metastasis usually consistent with the primary lung cancer. These findings can be confirmed by immunohistochemistry. Lung carcinomas usually show positive staining for CK5/6 or p63 and negative staining for CK20 and CDX-2, whereas colon adenocarcinoma is typically CK5/6 or p63 negative and CDX-2 or CK20 positive<sup>[19]</sup>. CDX-2 is a highly specific and sensitive marker for gastrointestinal adenocarcinoma and can be used to differentiate from metastasis of lung cancer<sup>[20]</sup>.

Secondary colonic involvement from lung cancer suggests widespread dissemination and is associated with a poor prognosis. According to our review, after the detection of colonic metastasis secondary to primary lung cancer, survival times ranged from 5 wk to 1 year (Table 1), with most patients dying within 6 mo. Treatment of colonic metastasis depends on the extent of the disease and the nature of the initial presentation. The most important point is which lesion should be treated first—the colonic metastasis or the primary lung cancer? In case of a complicated colonic lesion (obstruction, bleeding or perforation), proper surgery for colonic metastasis provides excellent palliation, increases the quality of life and shortens the time of hospitalization<sup>[9,13]</sup>. Chemotherapy is useful in selected patients. In our case sufficient palliation was achieved with chemotherapy. This patient survived for a further 5 mo after diagnosis.

**Table 1** Clinical characteristics of published colonic metastasis from primary lung cancer

Case	Year	Age	Sex	Site of metastasis	Pathology type of lung cancer	Location of lung cancer	Interval time to diagnosis	Survival
1	1978	52	Male	Sigmoid colon	Poorly differentiated squamous cell carcinoma	Left upper lobe	Same time	> 1yr
2	1978	57	Male	Sigmoid colon	Squamous cell carcinoma	Left lower lobe	2 yr later	1 yr
3	1980	63	Male	Sigmoid colon	Large cell carcinoma	Left upper lobe	1 mo	NA
4	1988	69	Male	Ascending colon	Small cell carcinoma	Right medial lobe	Same time	2 mo
5	1998	69	Male	Sigmoid colon	Squamous cell carcinoma	Right main bronchus	9 mo	2 mo
6	2001	68	Male	Sigmoid colon	Squamous cell carcinoma	Right lower lobe	10 wk	6 mo
7	2002	73	Male	Entire colon	Large cell carcinoma	Right lower lobe	Same time	3 mo
8	2006	60	Male	Ascending colon	Squamous cell carcinoma	Left upper lobe	Same time	NA
9	2006	57	Male	Caecum	Small cell carcinoma	Left upper lobe	645 d	70 d
10	2008	74	Male	Descending colon	Squamous cell carcinoma	Right upper lobe	Same time	23 wk
11	2008	59	Male	Caecum	Small cell carcinoma	Left hilar mass	Same time	NA
12	2010	53	Male	Descending colon	Adenocarcinoma	Left lower lobe	Same time	6 mo
32	2012	67	Male	Descending colon	Squamous cell carcinoma	Right lower lobe	32 mo	5 mo

NA: Not available.

Although lung cancer metastatic to colon is rare, it should be included in the differential diagnosis for any patient with colonic tumor. Accurate differentiation is necessary because treatment differs significantly for patients with colonic metastasis of lung cancer, as compared with patients with primary colon cancer. Lung cancer metastasis to the colon confers a poor prognosis and early diagnosis can prevent further complications.

## COMMENTS

### Case characteristics

The patient presented with the symptom of upper abdominal pain and weight loss.

### Clinical diagnosis

Clinical diagnosis was colonic metastasis of primary squamous cell carcinoma of lung.

### Differential diagnosis

Differential diagnosis of primary colon carcinoma, malignant lymphoma, Crohn disease and diverticulosis should be considered.

### Laboratory diagnosis

On laboratory tests, hemoglobin was 10.6 g/dL, blood count showed slight leukocytosis with neutrophils elevated.

### Imaging diagnosis

Computed tomography scan revealed a large mass in the ascending colon with heterogeneous enhancement and colonoscopy disclosed a large ulcerated lesion in the ascending colon.

### Pathological diagnosis

Pathology with Hematoxylin and eosin stain and immunohistochemistry revealed poorly differentiated squamous cell carcinoma.

### Treatment

Chemotherapy with intravenous cisplatin and oral S-1 every 5 wk was initiated and the patient improved remarkably after 2 cycles of chemotherapy.

### Related reports

Most patients presented with symptoms like intestinal obstruction, lower glycemic index or glycaemic index (GI) bleeding, bowel perforation, or GI fistula and pathology with immunohistochemistry can confirm the diagnosis.

### Experiences and lessons

Although lung cancer metastatic to colon is rare, it should be included in the differential diagnosis for any patient with colonic tumor. Accurate diagnosis and chemotherapy with cisplatin and S-1 may help to manage the condition but the prognosis is still very poor.

### Peer review

In this manuscript "Colonic metastasis after resection of primary squamous cell carcinoma of the lung: a case report and literature review", Lou *et al* reported a

case of symptomatic colonic metastasis from squamous cell carcinoma of the lung.

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