

# Squamous cell lung carcinoma presenting as melena: a case report and review of the literature

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## Abstract

Lung cancer has a predilection to widely metastasize to the liver, bone, brain and adrenal glands. Metastasis of primary lung tumors to the stomach is infrequent, with only sporadic cases reported. Most cases are asymptomatic and diagnosed post-mortem on autopsy. The incidence of symptomatic gastrointestinal metastases is extremely rare. Herein, we describe a case of gastric metastasis by squamous cell lung carcinoma, presenting as melena and diagnosed by esophagogastroduodenoscopy. To the best of our knowledge, only twenty other cases in the English literature have reported symptomatic gastric metastasis of lung cancer diagnosed by endoscopic biopsy. A brief review of the literature shows gastric metastasis of lung cancer to have a predilection to occur most frequently in male smokers with the most common type of tumor likely to be squamous cell carcinoma.

## Introduction

Lung cancer is the most common cancer worldwide and the leading cause of tumor-related deaths. It has a predilection to widely metastasize to the liver, bone, brain and adrenal glands. Metastasis of primary lung tumors to the gastrointestinal tract is infrequent, with only sporadic cases reported. The incidence of symptomatic gastrointestinal metastases is extremely rare. In this report, we describe a case of a squamous cell lung carcinoma with metastasis to the stomach.

## Case Report

A 90-year-old man with a history of left upper lobe pulmonary nodule on prior imaging presented with dark tarry stools, fatigue and repeated falls that progressively became worse over a one-month period. A week prior to presentation, he had a syncope episode. He had not had an EGD or colonoscopy done in about 10 years. His social history is notable for a remote history of smoking.

Five months prior to this presentation, a 2.4 cm left upper lobe pulmonary nodule suspicious for neoplasm was incidentally found on CXR. The patient had declined any invasive procedures and opted to monitor the nodule thru serial chest computer tomography (CT) scans (Figure 1A). Two months later, new scattered 8 mm hepatic nodular hypodensities suspicious for metastatic lesions were found on a CT scan of the abdomen and pelvis (Figure 1B). A [<sup>18</sup>F] fluoro-2-deoxy-D-glucose positron emission tomography (FDG-PET)/CT (Figure 1C) showed a 4.4×2.9 cm FDG-avid lung mass (SUV max 12.3 g/mL) and 4 foci of increased radiotracer uptake corresponding to metastatic liver lesions; No FDG-avid mediastinal lymphadenopathy were identified. A CT head was negative for any metastases. Clinically, he appeared to have a T2aN0M1b stage IV primary lung neoplasm. On physical exam, the patient had pale conjunctivae and dry mucous membranes. His breath sounds were diminished on the left lower lobe. He had an ecchymosis over the anterior abdomen that was non-tender. FOBT was positive on rectal exam. His labs showed a hemoglobin of 5.7 g/dL and a hematocrit of 18.1%. His esophagogastroduodenoscopy (EGD) showed a non-obstructing, non-bleeding, cratered gastric ulcer at the greater curvature of the gastric body. The ulcer had a clean base, no stigmata of bleeding and no evidence of perforation. A gastric ulcer biopsy showed metastatic squamous carcinoma involving the base of the gastric mucosa without surface involvement on hematoxylin and eosin stain (Figure 2). Although the standard of care for stage IV Squamous Cell Lung Cancer is combination chemotherapy with platinum doublet, he was referred to palliative care given patient's extremely poor functional status. He passed away 54 days after his presentation with GI bleed. The family declined an autopsy

## Discussion

Lung cancer most commonly metastasi-

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Key words: Lung cancer, squamous cell lung carcinoma, metastasis to the stomach, GI metastasis, Esophagogastroduodenoscopy.

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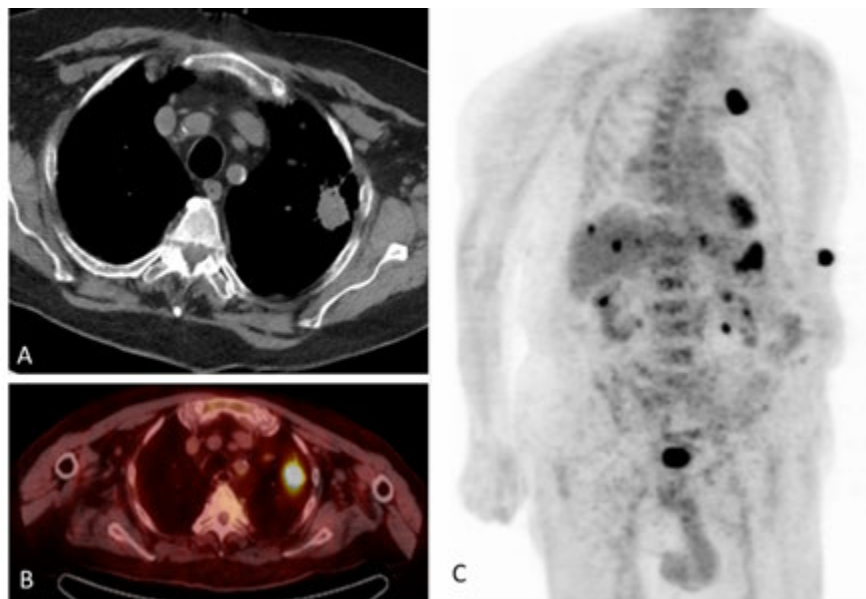
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zes to liver, adrenal glands, bone and brain. Metastasis to the GI system is considered uncommon; although a higher prevalence has been reported on autopsies (14%).<sup>1</sup> Symptomatic manifestations of GI metastasis are rare with only a few cases published. Of the GI sites where lung cancer metastasizes, stomach is an extremely rare site and is usually discovered on autopsies (<2%)<sup>2,3</sup> To the best of our knowledge, 20 cases in the English literature have reported symptomatic gastric metastasis of lung cancer diagnosed by endoscopic biopsy. Here, we report a case of squamous cell lung carcinoma metastasizing to the stomach along with a brief review of the cases reported in the literature (Table 1).

Squamous cell carcinoma has been reported as the most common type of lung cancer metastasizing to the entirety of the GI system.<sup>1-4</sup> Our case, along with the majority of gastric metastases reported in literature (Table 1) support the case of Squamous cell carcinoma also being the most common type of lung cancer metastasizing to the stomach. Surprisingly, the second most com-

mon type is adenocarcinoma; a difficult pathological diagnosis to establish given the glandular epithelium of the stomach. Cases of pleiomorphic,<sup>5</sup> large<sup>6</sup> and small cell carcinoma<sup>7,8</sup> have also been reported. From an epidemiological point of view, the vast majority of gastric metastases present in male smokers. One of the only 2 cases to report incidence in a female presented uniquely with small cell carcinoma metastasizing to 2 different sites of gastric metastases and over 80 cutaneous ones.<sup>8</sup> Not a single case reported a non-smoker; although some cases did not report a smoking status. Interestingly, our case occurred in the eldest individual so far (age range: 45-90).

Metastatic spread to the GI system can present with symptoms including abdominal pain, GI bleeding, bowel obstruction, peritonitis and perforation. The two most common symptoms associated with gastric metastasis in our review were melena and epigastric pain (Table 1). Three cases presented with perforation,<sup>9-11</sup> one of which was chemotherapy-induced.<sup>11</sup> Only 3 reported cases<sup>5,6,12</sup> presented with no abdominal symptoms, one of which was diagnosed by



**Figure 1.** Computed tomography scan and [<sup>18</sup>F] fluoro-2-deoxy-D-glucose positron emission tomography. A solitary 2.4 cm Left Upper Lobe (LUL) nodule on CT scan (A) and FDG-PET/CT (B) C: [<sup>18</sup>F] fluoro-2-deoxy-D-glucose positron emission tomography (FDG-PET)/CT showing FDG-avid masses in the left upper lobe and right and left hepatic lobes

**Table 1.** Reported cases of symptomatic metastatic squamous cell lung carcinoma to the stomach in the English literature.

Author	Age	Sex	Smoking	Cancer cell type	Primary location	Clinical presentation	Gastric location	Other metastatic sites	Time between discovery and death
Azar	90	M	Y	Squamous cell	LUL	Melena	Greater curvature	Liver	54 days
Yang 1 <sup>4</sup>	71	M	Y	Squamous cell	LLL	Melena	-	None	136 days
Yang 2 <sup>4</sup>	65	M	Y	Squamous cell	RML	Melena	-	Pleural effusion, bone	90 days
Yang 3 <sup>4</sup>	62	M	Y	Adenocarcinoma	RUL	Melena	-	Bone	371 days
Casella <sup>7</sup>	63	M	Y	Small cell	LU hilar region	Epigastralgia, constipation	Gastric Corpus	LN's, pleural effusions, liver	1 month
Suzaki <sup>11</sup>	45	M	-	Adenocarcinoma	RML	Perforation	Fundus & corpus at Greater curvature	None	13 days
Fletcher <sup>9</sup>	70	M	Y	Squamous cell	LLL	Perforation, epigastralgia	Greater curvature	None	2 months
Kim <sup>12</sup>	71	M	Y	Squamous cell	RLL	No abdominal Sx	Gastric corpus	LN's, spleen, pancreas	11 months
Maeda <sup>8</sup>	60	F	-	Small cell	RLL	Nausea, vomiting	Gastric corpus & greater curvature	~ 80 Skin tumors	-
Kim 1 <sup>6</sup>	67	M	N	Adenocarcinoma	LUL	Abdominal pain	-	Lung	80 days
Kim 2 <sup>6</sup>	72	M	Y	Large cell	RUL	No symptoms	-	Lung, brain, adrenal gland	67 days
Alpar <sup>13</sup>	66	M	Y	Squamous cell	RUL	Epigastralgia, vomiting	-	Liver, LN's	2 months
Hamatake <sup>14</sup>	65	M	Y	Adenocarcinoma	LLL	Hematemesis	Gastric corpus	Lingula, Chest wall	147 days
Schmidt <sup>10</sup>	61	M	-	Adenocarcinoma	Left hilum	Epigastralgia	Gastric fundus	LN, Brain	21 days
Yamamoto <sup>15</sup>	80	M	Y	Adenocarcinoma	Left lung	Epigastralgia	Upper stomach	Brain	18 months
Kadokia 1 <sup>16</sup>	-	M	-	Squamous cell	-	Acute GI bleed	Gastric corpus	-	-
Kadokia 2 <sup>16</sup>	-	M/F	-	Squamous cell	-	Acute GI bleed	Gastric corpus	-	-
Kadokia 3 <sup>16</sup>	-	M/F	-	Squamous cell	-	Anorexia, wt loss, IDA	Gastric Antrum	Duodenum	-
Aokage <sup>15</sup>	69	M	-	Pleiomorphic	RUL	Fatigue, severe anemia	Anterior wall of md-stomach	None	5 years
Aokage <sup>25</sup>	62	M	-	Pleiomorphic	LUL	Nos	Gastric fundus	None	4 years
Miyazaki <sup>17</sup>	54	M	-	Squamous cell	RUL	Epigastralgia, anemia	Gastric Antrum	Colon, liver	-

-, unknown or not reported; Sx: Symptoms; LN's: Lymph nodes; M: Male; Y: Yes.

FDG-PET/CT.

Metastasis to the stomach can arise from any lobe of the lung (in our case LUL); but so far only 2 cases<sup>7,10</sup> reported a gastric metastasis with a hilar primary. In contrast to esophageal metastases which is thought to be through direct extension, metastasis to the stomach, just like bowel is through hematogenous and lymphatic routes. Figure 2B suggests that, in our case, metastasis occurred hematogenously, either intravascularly or through lymphatics. The most common site of metastasis appears to be the gastric corpus; while our case's site of metastasis was the greater curvature.

The higher prevalence of GI metastases found on autopsies compared to the reported cases diagnosed by endoscopy suggests metastasis to GI might be a late event in the evolution of the tumor. The presence of other sites of metastases in our case and most of the literature supports this hypothesis. Interestingly, while a *bull's eye* target lesion is a well-established radiologic sign of metastasis, metastasis to the stomach does not show this sign on imaging.

Metastasis to the GI system is associated with poor prognosis.<sup>12</sup> A study by Yang showed a relatively longer survival rate for metastasis to the stomach than other sites, especially in 2 cases of squamous cell carcinoma. By comparison, our patient had a much shorter time until death (54 days vs 136 and 90) which could be explained by his older age (90 y-o vs 71 and 65). Interestingly, the only 2 cases with a good prognosis (>4 years survival rate) were the pleiomorphic tumors reported by Aokage.<sup>5</sup>

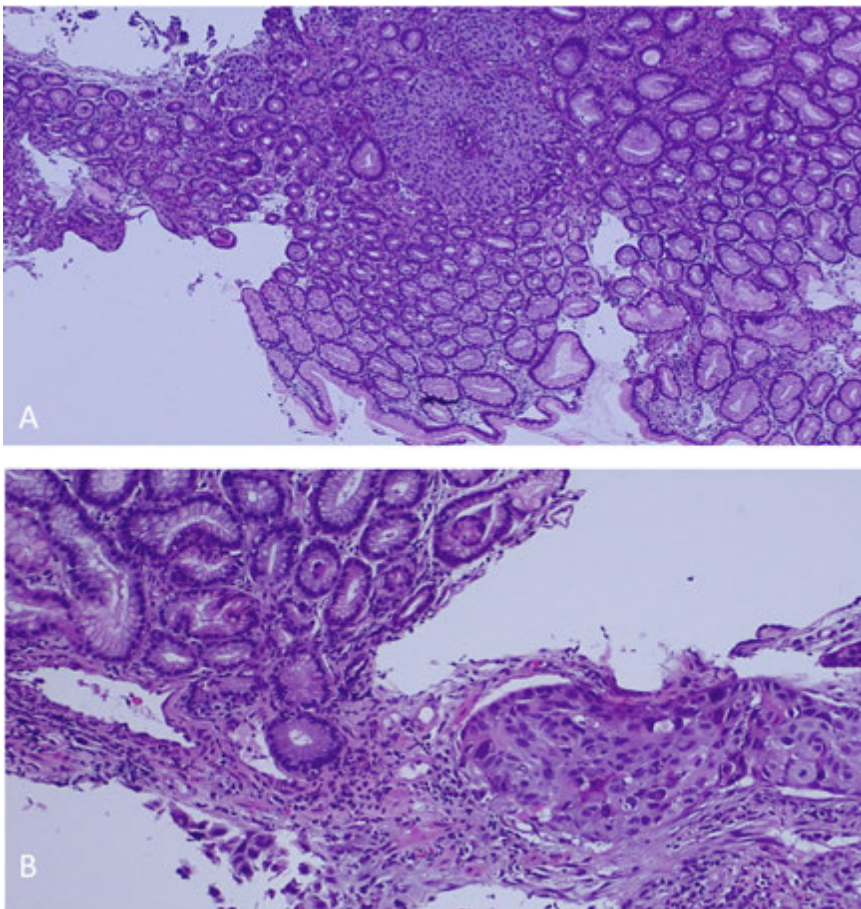
## Conclusions

Overall, we report here a rare case of metastasis of Squamous Cell Lung Carcinoma to the stomach presenting as melena and review the literature on gastric metastases of lung cancers. While gastric metastasis of lung tumors is very rare, it should be considered in patients with known lung masses presenting with melena. We find gastric metastases of lung tumors to have a predilection to occur in male

smokers with the most common type of tumor likely to be squamous cell carcinoma. The most common presentations are epigastric pain and melena. Our conclusions are limited by the small number of reported cases.

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**Figure 2. Histopathological examination: hematoxylin and eosin stain showing invasive squamous cell carcinoma under uninvolved gastric mucosa. Low (A) and High (B) magnification.**

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