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Metastatic Lung Cancer Presenting as Perforated Colon Diverticulitis-A Case Report

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Abstract

Lung cancer is the most prevalent cancer in the developed world and the most common cause of cancer-related deaths. Metastasis to the gastrointestinal tract is relatively rare from any primary cancer, and particularly from lung cancer. The most common site of metastases of lung cancer is to the adrenals, liver, bone, and brain. Although metastasis to the gastrointestinal tract remains rare, it is under-diagnosed, and is likely to increase in frequency as patients with primary lung cancer live longer with their disease and therefore suffer more sequelae of advanced disease.

Keywords: ***Perforated diverticulitis, metastatic lung cancer.***

1. Introduction

According to the literature, the incidence of GI metastases from primary lung cancer is 0.2-1.7% [1-7]. It is a poor prognostic factor, associated with advanced disease [8]. The most common site of metastases in the gastrointestinal tract is the small bowel, followed by the stomach [8], although historically the oesophagus was thought to be the most common site of spread.

All types of lung cancer can cause GI metastasis, with small cell, large cell, squamous and adenocarcinoma all variously reported in different studies to be the most commonly associated primary [9-13]. Upon literature review, previously reported cases of colonic perforations from a primary lung carcinoma occurred in the context of previously diagnosed lung tumours.

In this article we present an interesting case of a primary lung adenocarcinoma that presented as a perforated diverticulum, and show that although rare, a metastatic tumour should be considered as a differential in evaluating a colonic mass.

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2. Case Report

A 65-year-old male patient presented to the accident and emergency with a one-day history of rectal bleeding and left iliac fossa pain. Prior to that, he had change in bowel habit, diarrhoea alternating with constipation for six weeks and was due for colonoscopy at another facility to investigate this.

He had no chronic illness or previous surgery. Of note, he was a previous heavy smoker, smoking 30-40 cigarettes per day, and had stopped one year previously. He also reported right shoulder pain that had started two months prior, not responding to physiotherapy. He had a long-standing cough productive of sputum over many years. He was otherwise in good health; he reported no weight loss and no family history of malignancy.

On examination he was afebrile and was in fair general condition. On examination of his abdomen, he had generalized tenderness with a palpable mass in the left iliac fossa but bowel sounds were normal. Digital rectal examination did not reveal any abnormality. In his laboratory work up he had an elevated white cell count of 14.4 and CRP of 69. Renal functions, electrolytes and liver function tests were normal.

A CT scan of the abdomen revealed features of moderate sigmoid diverticulosis with a parasigmoid diverticular collection measuring 9.1 x 6.8cm which contained bubbles of air. A CT guided drainage of the collection was done and he was commenced on IV ciprofloxacin and metronidazole. However, on the second day of admission he complained of worsening pain and fevers, while his WCC continued to rise. A decision was made to conduct an exploratory laparotomy and resection of the sigmoid colon with stoma (Hartmann's procedure) was performed.

On exploration, he had adhesions of the small bowel and a thickened, inflamed sigmoid colon with a cicatrix. There was also a perforation of the posterior wall and a large abscess. Adhesiolysis and drainage of the abscess and sigmoid resection with a Hartmann's colostomy was done. He had an uneventful recovery and was discharged six days later.

Histopathological examination of the specimen revealed a perforated diverticulum containing poorly differentiated carcinoma with focal squamous areas in the bowel. There were two positive nodes out of nineteen (2/19). For further staging work-up, a CT scan of the chest revealed a 4.7X3.1X4 cm thick walled cavitating mass in the right upper lobe extending into the right hilum in continuity with a 6.2 X 5.4cm hilar mass with mediastinal, and paratracheal nodes compressing the distal SVC. The clinical and radiological features were in keeping with a metastatic lung tumour.

Immunotyping of this lesion showed TTF1 and CA19.9 positivity consistent with a primary lung adenocarcinoma. He went on to have an EBUS sample of his lung mass, which was reported as a metastatic, non-small cell carcinoma (likely adenocarcinoma. His current management plan is for chemotherapy and immunotherapy. At the time of writing this report (two months after his initial presentation), this patient has been admitted to hospital for stenting of his SVC as he re-presented with symptomatic SVC obstruction. His most recent CT showed progression of lung tumour, causing local obstructive mass effect (Fig. 1).

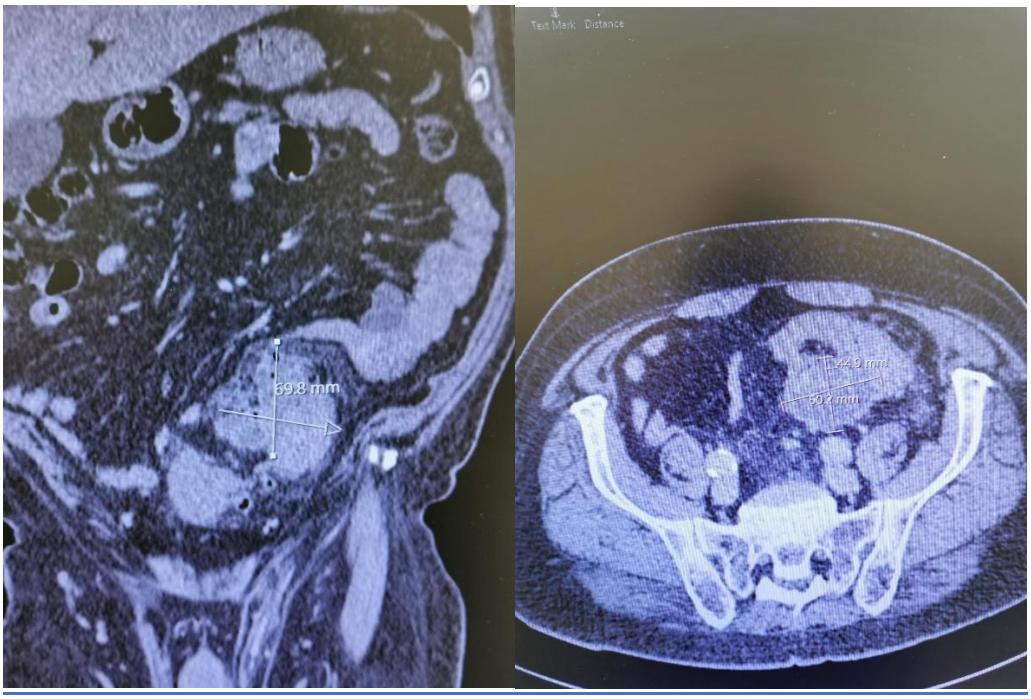

Fig. 1. CT scans in axial and cross-sectional views showing a large parasigmoid diverticular collection of 9.1 x 6.8 cm with air locules (inset arrows). After failing to achieve sepsis control by image-guided drainage, laparotomy was performed with emergency Hartmann's procedure.

3. Discussion

Lung cancer is the most common malignancy in the developed world and usually presents with respiratory symptoms. 50% of patients have distal metastases at the time of diagnosis [1]. In this patient's presentation, his lung tumour was entirely asymptomatic. His symptoms were attributed to diverticular disease and his lung malignancy was only suspected when histology showed tumour in his resected bowel. With retrospect, this patient's smoking history, chronic cough and the new onset right shoulder pain could be seen to herald an underlying lung pathology. There was no documentation of this patient's smoking history before CT imaging revealed a lung mass.

On review of the literature, cases of lung tumour metastasizing to the bowel occur overwhelmingly in patients with previously diagnosed lung tumours [14]. Three isolated case reports exist in the literature of primary lung cancer presenting with small bowel symptoms (obstruction, abdominal pain and mass [1], [14-15]. To our knowledge, this is the first reported incident of lung cancer presenting with colonic metastasis. It is also the first-reported case of lung cancer presenting with a perforated diverticulum.

The gastrointestinal tract is a relatively rare site of metastasis. The incidence of symptomatic lung cancer metastasis to the GI tract has been reported to be as low at 0.2-1.7%. [16]. However, 4-18% of autopsies of patients with any cancer show gastrointestinal tract metastases [16], [17] and it is likely that these are clinically under-diagnosed. Bowel symptoms like abdominal pain and change in bowel habit are readily attributed to chemotherapy, and rarely investigated in the context of malignancy. GI metastases are most frequently diagnosed when they present with an acute

abdomen or gasrointestinal bleeding. However, one large retrospective study found that the most common presenting symptom for bowel metastases was abdominal pain [18]. As seen in this case, CT imaging is vital to establish those cases where bowel metastases require surgical intervention. As supportive therapy and chemotherapy for patients with lung cancer improves, we can expect to see more patients presenting with consequences of advanced lung disease.

This case also highlights the importance of immunopathology: histopathology revealed a poorly differentiated carcinoma where there was no clinical indication of this. Immunotyping and CT imaging revealed the primary to be lung. The tumour exhibited the CK7+/CK20- immunoprofile shown by Rossi et al. to be most commonly associated with lung malignancy (GI malignancy is most commonly CK7-/CK20+) [5]. The tumour was TTF-1+, and this is recommended as a more specific marker of lung cancer [8].

4. Conclusion

This case report highlights the importance of obtaining an accurate social history from all patients and maintaining a wide differential diagnosis, whatever the initial presentation. In this patient's case, there was no documentation of smoking history until histology reported a metastatic tumour, and a primary was sought. Despite the low reported frequency of bowel metastases from any site, and particularly lung cancer it remains an important consideration. Given the prevalence of lung cancer the incidence of GI metastasis is still significant and likely to increase.

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