

A Case of Small Bowel Obstruction Secondary to Intraluminal Metastasis from an Undiagnosed Metastatic Lung Cancer

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Abstract

Background: Small bowel obstruction is a common emergency general surgical presentation with multiple possible causes. Small bowel metastases from a primary lung cancer is unusual with one study showing only 0.9% of patients with primary lung cancer will have metastasis to the small bowel.

Methods: We present a case of a 66-year-old fit male who was admitted at the Accident and Emergency Department unwell and septic with clinical and radiological findings of small bowel obstruction.

Results: The patient resuscitated and brought to operation theatres despite no obvious cause of the obstruction in the Computerised Tomography (CT) scan of the abdomen and pelvis. Laparotomy revealed small bowel obstruction secondary to an intraluminal small bowel lesion. Post-operative CT scan chest and histopathology of the excised lesion showed metastatic adenocarcinoma of the small bowel from a newly diagnosed lung cancer. Post operatively, patient initially recovered well but he deteriorated rapidly due to hospital acquired pneumonia and passed away 15 days after initial presentation.

Conclusion: The case highlights the need to be cognizant of rarer causes of common emergency general surgical complaints.

Keywords: Small bowel obstruction; Metastasis; Lung cancer; Malignant obstruction

Introduction

Bowel obstruction is a common emergency general surgical presentation with a multifactorial cause. Small bowel obstruction accounted for 12,000 major emergency operations in England between 2015-2016 with 13% of these patients dying within 3 months of their operation [1].

Small bowel metastases from a primary lung cancer is unusual with one study showing only 0.9% of patients with primary lung cancer will have metastasis to the small bowel [2]. We present a case that highlights a rare cause of the common general surgical problem as well as our management of this patient.

Case and Methods

A 66-year old man presented to our emergency department (ED), at Kingston Hospital NHS Foundation Trust, acutely unwell and septic after being found the morning of admission drowsy and cyanotic by his wife. He gave a 4-day history of nausea, abdominal pain and constipation. Furthermore, in the preceding 24-hours prior to admission he reported eight episodes of faeculant vomiting.

He had a past medical history of open appendicectomy, unilateral open mesh repair of an inguinal hernia and hypertension. He was an ex-smoker with a 30-pack year history. He lived with his wife and worked as a manual laborer and was able to cycle 1.5 miles to and from work daily.

On presentation to the ED his temperature was 38.4 degrees Centigrade, heart rate of 99 beats per minute, blood pressure 77/21 mmHg, respiratory rate of 30 breaths per min with un-recordable oxygen saturation on room air.

On clinical examination he appeared unwell and on auscultation of his chest he had reduced air entry and crackles at the right base. His abdomen was distended with mild left sided tenderness but no peritonism. Digital rectal examination confirmed an empty rectum.

His arterial blood gas on high flow oxygen indicated a compensated metabolic acidosis; pH 7.38, PO₂ 16.26, PCO₂ 3.93, HCO₃ 17, Lactate

4.37. His Chest X-Ray did not demonstrate any evidence of consolidation or pneumoperitoneum. His Abdominal X-Ray confirmed small bowel obstruction (Figure 1). His bloods demonstrated an acute kidney injury, with a CRP of 287 and a microcytic anaemia with a haemoglobin of 81 g/l and mean cell volume of 79.6.

The impression at this point was of possible aspiration pneumonia secondary to small bowel obstruction of unclear aetiology. A nasogastric tube was inserted and he was resuscitated aggressively with intravenous fluids and antibiotics before being moved to the Intensive Care Unit (ICU) for further management.

An abdominal and pelvic computerised tomography (CT) scan demonstrated small bowel obstruction with no clear transition point, as well as bilateral adrenal masses and bibasal consolidation (Figures 2 and 3).

Later that day, following a period of stabilization, an emergency laparotomy was performed. This demonstrated scattered intraluminal lesions throughout the length of the small bowel. The largest of these lesions was in the proximal ileum, causing almost complete luminal obstruction with proximal small bowel dilatation and the distal segment was more collapsed (Figures 4, 5 and 6). The other lesions along the length of the small bowel were non-obstructive. In addition to this there was a small volume of serosal disease associated with two of these lesions, multiple large, irregular mesenteric lymph nodes and a moderate volume of ascites. The obstructing lesion was resected (Figure 7) and sent for histology. The two ends of the small bowel were joined with an end-to-end hand sewn anastomosis.

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Received July 15, 2018; Accepted July 31, 2018; Published August 07, 2018

Citation: Normahani P, Budge J, Gerogiannis I (2018) A Case of Small Bowel Obstruction Secondary to Intraluminal Metastasis from an Undiagnosed Metastatic Lung Cancer. *Emergency Med* 8: 376. doi:10.4172/2165-7548.1000376

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Figure 1: Abdominal X-ray: dilated small bowel loops.

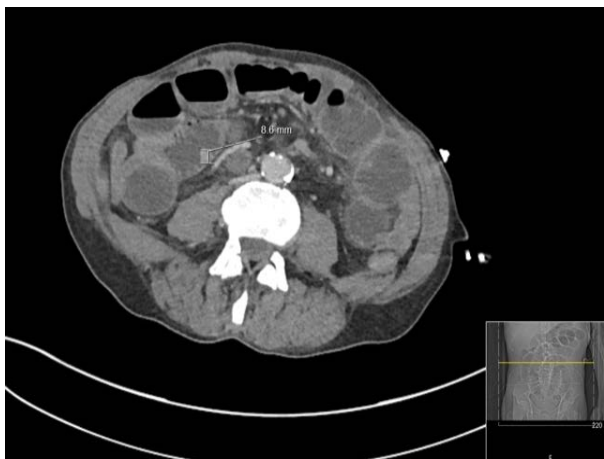


Figure 2: Computerised tomography scan of the abdomen: enlarged mesenteric node.



Figure 3: Computerised tomography scan of the abdomen: dilated small bowel loops with no obvious transition point.



Figure 4: Laparotomy: dilated small bowel loops and suspicious bowel lesion was found.



Figure 5: Laparotomy: multiple enlarged mesenteric lymph nodes.



Figure 6: Laparotomy: small bowel loop with a lesion and possible mesenteric spread of neoplasia. Proximal to the lesion bowel diameter is larger.



Figure 7: Specimen after small bowel segment resection: large wide based intraluminal tumour.



Figure 8: Computerised tomography Scan of the chest: multiple necrotic nodal masses in the mediastinum.

Due to the high suspicion of underlying malignancy, postoperatively a completion CT chest was performed which highlighted the presence of multiple necrotic nodal masses in the mediastinum as well as two nodules (10 mm and 7 mm) in the left upper lobe and possible element of lymphangitis carcinomatosa (Figure 8).

On histological analysis the resected small bowel tumour was demonstrated to be a poorly differentiated adenocarcinoma (Cytokeratin (CK) 7 positive, CK 20 negative, CD 56 negative). After discussion at the lung cancer MDT he was diagnosed with likely non-small cell lung carcinoma (NSCLC) and staged as a T3N2M1 c.

Postoperative his small bowel obstruction resolved, he was tolerating enteral feeding and making good postoperative recovery. However, after briefly stepping down from ICU he deteriorated again from chest sepsis and despite antibiotics as well as respiratory and circulatory support he deteriorated and passed away 15 days after his initial presentation.

Discussion

Despite lung cancer being a common cancer type, gastrointestinal metastases are uncommon, accounting for 2-12% of primary lung cancers [3,4]. The small bowel is the most common site of lung cancer metastasis in the gastrointestinal tract accounting for approximately 60% of cases followed by the colon and rectum which account for 25% of cases [5]. Diagnosis of gastrointestinal metastasis is challenging, as patients often remain asymptomatic or present with non-specific symptoms. Therefore, often it is not until complications develop that the diagnosis is made. The most commonly observed complication from this pathology is perforation (42% of all complications) followed by haemorrhage (24.6%) and obstruction (20.4%) [5]. Obstruction may be caused by intussusception or intraluminal obstruction.

The presence of gastrointestinal metastasis does however often indicate advanced disease, as the majority of patients with gastrointestinal metastatic disease will have other extra intestinal metastasis [5] with an associated poor prognosis.

This case, although not a unique presentation does highlight important clinical learning points. Firstly, the challenges of intraluminal diseases and the issue they pose to radiological diagnosis, as the intraluminal lesions were not visualized on initial contrast CT scan. Potential clues to the diagnosis may have been the large adrenal lesions

and the intraluminal lesions that were detected on retrospective review of the CT scan. These may have prompted a completion CT chest which would have confirmed the presence of lung lesions.

In this case a resection was performed, as the diagnosis at the time was unknown. However even in the case of known metastatic disease, although not curative, surgery may be used as a palliative step in patient care with good results. Studies have shown 32-100% of patients have obstructive symptom relief, with 45-75% of cases able to tolerate a diet postoperatively and 34-87% of patients being able to be discharged to home [6]. However, it must be noted that mortality and morbidity is high in this patient population, 6-32% and 7-44% respectively. Furthermore, re-obstruction is high, occurring in 6-47% of patients.

Conclusion

This case represents a diagnostic challenge whereby the diagnosis of malignant small bowel obstruction was made intraoperatively. It demonstrates an uncommon cause of a common surgical problem and the management steps undertaken.

Consent

Ethical approval was not required for this case report. However, verbal and written consent was obtained from the patient during the clinical care provided.

Conflict of Interest Statements

The authors declare that they have no conflict of interest.

Author's Contributions

IG and PN provided acute care for the patient. PN collected the data for the case report. PN and JB drafted and manuscript and IG revised it. All authors read and approved the final manuscript.

Acknowledgment

None.

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