CASE REPORT

Intussusception secondary to a solitary peritoneal lung metastasis

C Wou,¹ E Sharp,¹ L Johnson²¹QEQM Hospital, Margate, UK²Research Oncology, Kings College London, London, UK

Correspondence to

L Johnson,
laura.johnson@kcl.ac.uk

SUMMARY

We report a 77-year-old woman, newly diagnosed with a malignant lung neoplasm of indeterminate nature who presented with profuse bilious vomiting without abdominal distension, pain or constipation. CT confirmed proximal small bowel obstruction. Laparotomy found a large area of intussusception from an intraluminal mass in the small bowel, which was resected and a primary anastomosis performed. Histology reported the mass as metastatic non-small-cell carcinoma and brought clarity to the primary tumour diagnosis. The patient made a good recovery from the operation, but unfortunately died a few months later from complications of her metastatic disease.

BACKGROUND

Non-small-cell lung cancer (NSCLC) is the most common type of lung cancer (80% of all types in the UK)¹ and at diagnosis, 70% present at a locally invasive or metastatic stage.² As such the prognosis is poor with less than a 15% 5-year survival.² Intussusception is an unusual cause of small bowel obstruction in adults and reported in less than 5% of cases.³ Furthermore, NSCLC metastases to bowel is also uncommon reported in less than 1% of patients with an NSCLC primary.⁴ This is a case of an indeterminate lung neoplasm that presented with acute small bowel obstruction secondary to intussusception from an isolated NSCLC secondary. Laparotomy and small bowel resection of the intussuscepting segment clarified the diagnosis of the lung primary lesion, which had remained unclear following previous percutaneous lung biopsy.

The initial diagnosis of small bowel obstruction was delayed since the primary symptom was vomiting in the absence of abdominal pain or distension due to the proximal nature of the lesion. It is important to educate the wider medical community to the variable presentation of bowel obstruction.

CASE PRESENTATION

A 77-year-old female patient was admitted with a 2-month history of intermittent bilious green vomiting which had become profuse and continuous over the preceding weeks. This was on the background of a recent diagnosis of a primary lung neoplasm for which a CT-guided biopsy had been performed. The results of the biopsy were inconclusive but were suspicious of malignant sarcomatous mesothelioma, however, further biopsy was planned. Staging CT scan had demonstrated probable mediastinal lymphadenopathy but there was further evidence of distant metastatic spread.

INVESTIGATIONS

Biochemical parameters were all grossly abnormal and in keeping with the clinical picture: Hb 16.7 g/dl, white cell count $17.8 \times 10^9/l$, Na 125 mmol/l, K 3.3 mmol/l, urea 34.4 mmol/l, creatine 267 mmol/l, C-reactive protein 41 mg/l. Abdominal x-ray revealed a large dilated stomach and duodenum, which on CT was confirmed as proximal small bowel obstruction, the aetiology initially thought to be from small bowel herniation (figure 1).

TREATMENT

At presentation this patient was severely dehydrated as a result of continuous vomiting over the previous weeks. Initial management included passing of a Ryles tube for nasogastric drainage and correction of biochemical abnormalities with intensive intravenous resuscitation. Following a 72 h period of optimisation exploratory laparotomy was performed.

Intraoperatively, the site of small bowel obstruction was identified in the jejunum 50 cm from the duodenojejunal flexure, with a large area of intussusception. This was only partially reducible and appeared to be resulting from a large intraluminal mass (figure 2). Exploration of the abdomen was otherwise normal with no further evidence of metastases. The area of intussusception was segmentally resected and anastomosed in a side-to-side configuration using a linear stapler.

OUTCOME AND FOLLOW-UP

Histological examination revealed a large, full-thickness poorly differentiated malignancy (figure 3), which was confirmed as non-small-cell carcinoma from a lung primary not mesothelioma as had been suggested by the previous, yet indeterminate lung biopsy. Following repeat evaluation of the initial lung biopsy alongside the tissue from the intussuscepting lesion, histological features were comparable and it was concluded that the lung primary was indeed NSCLC. This consensus of opinion over the exact histological type of the lung lesion was particularly important because of the potential implications of a mesothelioma diagnosis.

The patient made an uneventful postoperative recovery and was discharged home after 10 days. Unfortunately, she passed away less than 2 months later from complications due to her metastatic disease.

DISCUSSION

Of all cases of intussusception, only 5% occur in adults and is the cause of up to 1–5% of bowel obstruction.^{3–5} In 20% of adults, the cause of

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Figure 1 Coronal section on CT scan demonstrating the area of intussusception, with proximal bowel distension and distal bowel collapse.

Figure 2 Intraoperative findings of small bowel intussusception.

intussusception is idiopathic.⁶ The majority of identifiable causes of small bowel intussusceptions are from benign lesions such as hamartomatous polyps and Meckel's diverticuli. Malignancy is found in 6–30% of small bowel intussusception following surgical resection.^{3–5} These malignancies include primary lesions (lymphoma, gastrointestinal tumours) and metastases, in particular from lung, breast and malignant melanoma.^{3–8} NSCLC metastasis to the bowel is rarely reported in the literature and is more likely to metastasise to brain, adrenal glands and bone. A study by Yang *et al*⁴ found symptomatic gastrointestinal metastasis in 1% of patients with primary lung carcinomas; however, McNeill *et al*⁹ found 10% of lung cancer patients had small bowel metastasis at postmortem, all of which were asymptomatic. We have identified three cases in the literature where NSCLC metastases have been the cause of small bowel intussusception^{7–10} and our case is of particular

Figure 3 Histology specimen showing the metastasis within the jejeunal lumen.

importance because it resulted in the accurate diagnosis of the lung primary lesion.

Preoperative staging CT scan—and subsequent postoperative evaluation—did not identify the intraluminal mass as the cause for obstruction and highlights the importance of clinical evaluation. This patient presented with acute small bowel obstruction within a short time period of receiving her original mesothelioma diagnosis. In such instances, successful excision of the metastasis prior to the start of any further palliative treatment reduces the risk of viscous perforation secondary to tumour response to chemotherapy although in this instance the patient did not proceed to any palliative treatment. This case highlights the importance of suspicion of metastatic spread in the presence of acute bowel obstruction in patients with a background of malignancy.

Learning points

- ▶ All four cardinal signs of bowel obstruction—abdominal distension, pain, absolute constipation and vomiting—are not always present and depend on the level of obstruction. Large bowel obstruction by comparison typically present with distension and absolute constipation early, whereas vomiting is often a late feature. A soft, non-distended abdomen does not in itself exclude proximal small bowel obstruction in the presence of profuse bilious vomiting and should be considered as a potential diagnosis.
- ▶ There can be variable presentations of non-small-cell lung cancer and other solid organ metastases and suspicion should be high for the presence of metastases in the presence of a known primary tumour.
- ▶ It is less likely that patients with an advanced malignancy would present with a concomitant second unrelated primary pathology rather than with one unifying diagnosis.

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