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Rare cause of acute abdomen: Small bowel metastasis from lung cancer[☆]

Causa rara de abdomen agudo: metátasis intestinales de cáncer de pulmón

Lung cancer small bowel metastases are rare.¹ Their diagnosis is difficult, as most of them are asymptomatic, although they can sometimes cause symptoms related to complications. In the presence of abdominal symptoms in patients with lung cancer, we should suspect a lung cancer small bowel metastasis.^{2,3}

We describe 2 cases of patients with acute abdomen secondary to lung cancer small bowel metastasis.

Case 1

58-year-old male, smoker, who presented in the Emergency Room for a seizure. Bilateral supratentorial masses consistent with brain metastases were observed on the brain computed tomography (CT). The chest-abdomenpelvis CT revealed a pulmonary nodule in the left upper lobe infiltrating the pleura, with mediastinal and intraabdominal lymphadenopathy. On° day 7, a CT scan was performed for abdominal pain, which revealed pneumoperitoneum, distension of the small bowel loops and free fluid (Fig. 1A). Urgent surgery was performed, in which a perforated jejunal tumour and generalised peritonitis were observed. Segmental resection and anastomosis were performed. Subsequently, CT-guided chest puncture histology revealed a lung adenocarcinoma. The patient was discharged 8 days later without complications (Clavien 0, CCI: 0). The histological study of the small intestine showed a poorly differentiated adenocarcinoma consistent with pulmonary origin (Fig. 1B and C). The patient died 2 months after surgery due to tumour progression (Clavien V, CCI: 100).

Case 2

A 46-year-old woman, on immunotherapy with nivolumab for undifferentiated stage IV carcinoma of unknown origin, stable for one year. She was hospitalised for general malaise and vomiting. Intestinal obstruction secondary to jejunal invagination was observed on the abdominal CT (Fig. 1E–G). The surgery confirmed invagination, with a palpable and indurated lesion inside, with no further findings; segmental resection and anastomosis were performed. The histological result was infiltration due to lung adenocarcinoma (Fig. 1H and I). The patient presented with deep vein thrombosis and acute respiratory failure secondary to pleural effusion (Clavien IIIb, CCI: 33.5). She was readmitted one month later for pleural effusion. She received palliative treatment and subsequently died (Clavien V, CCI: 100).

Approximately 50% of lung cancer patients have metastases at diagnosis² and the incidence of locoregional or distant recurrence after treatment is 50% at 2 years.⁴ Lung cancer can spread lymphatically or haematogenously; the liver, brain, adrenal gland and bone are the most common locations,^{2–5} although dissemination patterns vary according to histological type.⁵

Metastatic involvement in other locations is rare (less than 5%), is more frequent in men and usually presents with multiple lesions.^{2,3} It usually appears in terminal patients with disseminated disease in several locations.²⁻⁴ Of these lesions, gastrointestinal lesions have an incidence of $0.3\%-1.7\%^1$, and are located, in order of frequency, in the oesophagus, small intestine, stomach and colon.^{1,3} In the small intestine, they predominantly affect the jejunum-ileum, as in our patients, and to a lesser extent the duodenum.^{1,3}

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Figure 1 A) Case 1 abdominal CT axial slice: pneumoperitoneum (arrow). B) Case 1 histology: wall of the small intestine infiltrated by the tumour. Infiltration from the peritoneal layer towards the mucosa, in which small tumour nests, ulceration and surface necrosis are observed. C) Case 1 immunohistochemistry. Positivity for cytokeratin 7 in the membrane and cytoplasm in the tumour. D) Case 1 immunohistochemistry. Positive TTF-1 in the infiltrating tumour. E-G) Case 2 abdominal CT: small intestine invagination (arrow).
H) Case 2 histology: panoramic view of the ulcerated intestinal wall infiltrated by adenocarcinoma throughout its thickness. I) Case 2 histology: sheet-like growth of the neoplasm, forming solid nests, cells with the presence of intracytoplasmic vacuoles and cell lumina.

The clinical manifestations of lung cancer small bowel metastases are usually rare or confused with the gastrointestinal effects of chemotherapy. In fact, in *post mortem* studies, their incidence increases to 4.6%–14%.¹ In rare cases, the first clinical manifestation of lung cancer is due to gastrointestinal metastatic involvement.^{1,2} Symptomatic intestinal metastases due to complications such as upper gastrointestinal bleeding, perforation or obstruction have been described.^{1,3} Therefore, in patients with acute abdomen and lung cancer, they should be considered in the differential diagnoses.^{1,3}

The most appropriate treatment for intestinal metastases is under debate and is influenced by the clinical picture. In the case of complications, as in our patients, the recommended treatment is surgery, with segmental intestinal resection and anastomosis. In the case of invagination, previous disinvagination should be avoided due to the risk of neoplastic spread, perforation and complications in the anastomosis caused by manipulation.¹

Gastrointestinal metastases in lung cancer worsen the prognosis and reduce survival.² The presence of intestinal perforation, other extraintestinal metachronous metastases and age are factors that tend to indicate a poorer prognosis. In these cases, survival is usually a question of weeks or months.^{1,3}

Lung cancer small bowel metastases are rare and mostly asymptomatic. Therefore, a high degree of suspicion is required to make the right diagnosis. Their appearance is associated with a worse prognosis and lower survival.

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Synchronic finding of a foreign body in colon and a malignant gastrocolic fistula *

Hallazgo sincrónico de un cuerpo extraño en colon y una fístula gastrocólica de etiología maligna

Gastrocolic fistulas can have numerous aetiologies, both benign and malignant. Benign entities include peptic ulcers, acute or chronic pancreatitis, and Crohn's disease. In western countries, the most common malignant aetiology is colon adenocarcinoma, while in eastern countries it is gastric adenocarcinoma. The incidence of a malignant fistula is very low: they appear in only 0.3%-0.4% of patients undergoing surgery for a digestive neoplasm.¹

The most common clinical manifestations are feculent vomiting, abdominal pain, diarrhoea and weight loss.²

We present the case of an 80-year-old patient with a history of a cholecystectomy and a hiatal hernia operated by a posterior Toupet-type fundoplication. The patient presented for an outpatient colonoscopy for a microcytic anaemia study, in which, 25 cm from the anal verge, an elongated foreign body embedded at both ends (bone fragment) was observed, with the surrounding mucosa oedematous and erythematous (Fig. 1A). It was extracted in a second stage, 24 h later, using a foreign body forceps, and an abdominal computed tomography (CT) scan was performed showing a 45 \times 38-mm mass in contact with the greater curvature of the stomach and splenic flexure of the colon that suggested communication between the lumen of both structures (Fig. 1B). Clinically, the patient reported postprandial dyspepsia and anorexia, with a weight loss of 3 kg in 6 months.

The study was completed with a gastroscopy in which a 3–4 cm lesion with a depressed central area and raised margins with an inflammatory appearance, suggestive of a fistula (Fig. 1C) was observed in the gastric corpus, with an endoscopic ultrasound in which a solid 40 mm \times 40 mm mass

was observed that encompassed the gastric wall and communicated with the colon. A further colonoscopy revealed a mucosa with multiple ulcerations and an impassable stenosis at the splenic flexure (Fig. 1D).

The biopsies were consistent with a moderately differentiated adenocarcinoma of gastric origin (CDX2 and CK20 positive immunohistochemical study, with weakly positive CK7).

Therefore, the patient synchronously presented a foreign body lodged in the sigmoid colon and a malignant gastrocolic fistula.

The detection of foreign bodies in the colon is rare, since they are usually expelled spontaneously once they have reached it. Diagnosis is usually related to the appearance of a complication, such as intestinal perforation or digestive bleeding.³

Moreover, the detection of gastrocolic fistulas is exceptional. These, as occurred in our patient, usually communicate the greater curvature of the stomach with the distal half of the transverse colon, since at this point both organs are only separated by the greater omentum.²

There are 2 hypotheses to account for the formation of fistulas between the upper and lower digestive systems. The tumour can invade the adjacent organ through the greater omentum or cause, secondary to an ulcer, an intense peritoneal inflammatory reaction that produces adherence and subsequent fistulisation between both organs.¹

Diagnostic methods include abdominal CT scan, gastroscopy, colonoscopy or a barium meal, which is the most sensitive procedure (up to 90%). Gastroscopy and colonoscopy are important, since they allow direct visualisation of the fistula and the taking of biopsies, although small fistulas may go unnoticed.⁴

Treatment is usually surgical, individualised in each patient based on tumour staging and comorbidities, although if possible an en bloc resection of the affected area with combined adjuvant chemotherapy is performed in some cases. The data available on the long-term post-surgical survival of these patients are scant.⁴

In our patient, an en bloc resection was indicated. However, during surgery, the tumour's unresectability was confirmed, since it infiltrated the root of the mesenteric vessels, whereupon the decision to perform palliative surgery, consisting of a feeding jejunostomy and a colostomy in the ascending colon, was taken. The patient died three months later.

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