CASE REPORT

Atypical abdominal pain: post-traumatic transverse colon stricture

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SUMMARY

A driver presented to the emergency department 1 day after an accident driving his excavator with abdominal pain and vomiting. He was admitted to the surgical ward 2 days later, after reattending. A CT scan revealed wall thickening and oedema in the transverse colon. This was supported by a subsequent CT virtual colonoscopy which raised the suspicion of neoplasia. A follow-up colonoscopy was not carried further than the transverse colon due to an indurated, tight stricture. Biopsies from that area showed ulceration and inflammatory changes non-specific for ischaemia, drug-induced changes or inflammatory bowel disease. As a consequence of the subocclusive symptoms and the possibility of a neoplastic diagnosis, a laparoscopic-assisted transverse colectomy was performed. The histology of the resected segment revealed post-traumatic inflammation and fibrosis with no evidence of neoplasia.

BACKGROUND

This case is particularly important because of the diagnostic and therapeutic dilemma it raised and the eventual diagnosis of a rare condition.

We believe it is essential to keep this potential diagnosis in mind when dealing with abdominal pain after trauma. Although it is a benign condition it can have severe consequences such as bowel obstruction.

It is imperative to consider a diagnosis of a neoplastic lesion in this scenario.

CASE PRESENTATION

A 53-year-old man was driving an excavator at 10 mph, wearing a seatbelt and hit a manhole. He came to the emergency department (ED) a day later with central abdominal pain and vomiting and was discharged on antiemetics. He was very anxious and saw his general practitioner the following day; he was prescribed lansoprazole and zopiclone.

The patient returned to ED with increased abdominal pain, pyrexial, tachycardic, hypertensive associated with microscopic haematuria. His arterial blood gas analysis and ECG were normal. He was referred to the surgical team and was admitted. He had no significant medical history. He was on no medication and had no known drug allergies. He was a heavy smoker and drank an average of 24 units of alcohol/week.

On examination he was tender in the epigastrium and central abdomen with localised signs of peritonitis in the epigastrium. Rectal examination was unremarkable.

INVESTIGATIONS

Bloods on admission showed a raised C reactive protein of 189 mg/L, raised white cell count of $23.5 \times 10^9/L$, raised neutrophils of $19.9 \times 10^9/L$, normal amylase = 35 U/L. Troponin I was normal, <10 ng/L. Abdominal X-ray showed a normal bowel gas pattern and the chest X-ray showed no pneumoperitoneum.

Figure 1 Circle showing site of stricture in the transverse colon in a coronal CT view.

Figure 2 Arrow showing site of stricture in the transverse colon on a CT axial view.

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Figure 3 Circle showing the site of stricture in the transverse colon on a sagittal CT view.

A CT scan the following day showed an 8 cm segment in the transverse colon with wall thickening and surrounding mesenteric oedema (figures 1–3).

CT virtual colonoscopy as an outpatient, 1.5 months later showed a 2.7 cm stricture in the mid-transverse colon, demonstrating thickening of the bowel wall.

Bloods, 3 weeks after the CT virtual colonoscopy showed a slightly raised carcinoembryonic antigen of 5.5 µg/L.

Colonoscopy 2 weeks later revealed an indurated, tight stricture in the transverse colon, with a <1 cm lumen (figure 4); the endoscope could not be passed beyond that point. The area was biopsied.

The histology report for the biopsies diagnosed ulceration and inflammatory changes not specific to ischaemia, drug-induced changes or inflammatory bowel disease and suggested a repeat biopsy of the affected area to rule out neoplasia.

DIFFERENTIAL DIAGNOSIS

On admission, the differential diagnoses were:

- ▶ Late presentation of pancreatitis;
- ▶ Mesenteric injury with subsequent haemoperitoneum;
- ▶ Bowel injury;
- ▶ Gastritis/ perforated gastric or duodenal ulcer.

After the CT scan, the differential diagnoses considered were:

- ▶ Transverse colon neoplasia;
- ▶ Post-traumatic transverse colon stricture.

TREATMENT

Four months after the accident, a laparoscopically assisted transverse colectomy was performed, with resection and primary anastomosis of the midtransverse colon stricture.

OUTCOME AND FOLLOW-UP

The histopathology report for the resected specimen showed fibrosis and chronic inflammation with fat necrosis in the mesentery. Focally, the fibrosis was obliterating the muscularis propria and there were vessels showing marked mural thickening. Also, in some areas there was acute inflammation and microabscesses formation with no granulomas seen. There were no specific abnormalities in the mucosa and there was no evidence of neoplasia.

The histopathological diagnosis was that of inflammation and fibrosis, features consistent with the clinical history of seatbelt-caused abdominal trauma.

The patient was reviewed in-clinic and has made an excellent postoperative recovery. He is now asymptomatic, with normal bowel habit and a steady weight.

DISCUSSION

There are few published cases of post-traumatic bowel obstruction, with the most common being in the small bowel. The incidence of colonic strictures after a blunt abdominal trauma is 3–5%, with the descending colon as the most frequently affected area of the colon.^{1 2} The risk of post-traumatic colonic

Figure 4 Arrows showing the degree of stricture in the transverse colon on two colonoscopic views.

stricture is increased in patients with inflammatory bowel disease and is more frequent in the restrained crash victims.³

On a histological level, a contained mural haematoma with subsequent ischaemia is the most likely cause of the fibrous stenosis.² The signs and symptoms are non-specific, with abdominal pain and often repeated episodes of incomplete intestinal obstruction. Investigations such as an ultrasound scan, a CT scan, a colonoscopy and even barium enema and MRI are used to aid the diagnosis.

Management can be conservative, especially in young patients, or surgical with resection of the affected area and either exteriorisation or primary anastomosis. So the choice to operate will depend on the severity of symptoms with signs of obstruction or perforation, making surgery more inescapable.²

It takes anytime from 1.5 to 14 months after an abdominal trauma for a patient to get to the point of having surgery, with a mean time of 4 months.

We found two cases of published post-traumatic colon strictures. One was in 1964, a 61-year-old woman who developed transverse colon stricture after a fall. It was diagnosed through laparotomy after a large bowel obstructive episode. She underwent a colectomy and survived. Another case was that of a 3-year-old boy with battered child syndrome, in 1994. He developed large bowel obstruction as well and the diagnosis was made after a colonoscopy. Treatment for him was conservatively and there were no further problems reported.²

Learning points

- ▶ Atypical disease can be difficult to diagnose.
- ▶ It is potentially fatal.
- ▶ Can be misleading and can mimic a neoplastic process.
- ▶ Surgical treatment is often possible.
- ▶ Patients can make a good recovery if treated in a timely manner.

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