International Surgery Journal
McElhatton CP et al. Int Surg J. 2023 Apr;10(4):807-809
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: https://dx.doi.org/10.18203/2349-2902.isj20230698

Case Report

Delayed presentation with sigmoid perforation: a gut feeling that something is wrong

Claire P. McElhatton*, Trent Cross

Department of Surgery, The Mater Hospital Brisbane, South Brisbane, Queensland, Australia

Received: 26 February 2023
Accepted: 13 March 2023

***Correspondence:**
Dr. Claire P. McElhatton,
E-mail: clairepmcelhatton@gmail.com

ABSTRACT

Blunt abdominal trauma (BAT) resulting in delayed colonic perforation is uncommon, even more so in the case of an isolated injury. This case report describes a presentation with a contained sigmoid perforation six days after low impact BAT which was managed non-operatively.

Keywords: BAT, Colonic perforation, Non-operative management

INTRODUCTION

Intraabdominal injury from BAT most commonly results in injuries to the liver, spleen or bowel mesentery.[1] Colonic injury from BAT is not common, only occurring in 0.1-0.5% of all major traumas.[2] Most often, these injuries occur after motor vehicle accidents, assaults or falls.[3] This case describes an unlikely mechanism of injury, which resulted in delayed presentation with contained sigmoid perforation. There are no cases reported in literature detailing non-operative management of colonic perforations after trauma.

CASE REPORT

A 45-year-old man presented to the emergency department with left lower quadrant pain. Six days prior, he had been loading a wooden garden trellis into a van and sustained a minor injury to his left lower abdomen. Whilst manoeuvring the trellis into the van, it was in contact with his abdomen, and on pushing it forwards, the farther end had become trapped and would not move forward. Unaware of this at the time, he gave an extra push with his body weight, pushing his abdomen against the trellis. He noticed a bruise develop in the left mid to lower abdomen, with minor associated pain. The pain gradually worsened over the next four days, prompting the patient to seek medical attention.

Day five post injury, the patient saw his general practitioner, who arranged an abdominal ultrasound scan to exclude an abdominal wall haematoma. The ultrasound identified a heterogenous collection with internal echogenic foci immediately deep to the abdominal wall. This concerning finding was further investigated with a CT abdomen, which identified a loculated gas containing collection measuring 67×26 mm (coronal plane), 65×31 mm (axial plane). Collection abutted proximal sigmoid colon which appeared inflamed. Anteriorly, collection contacted the lateral left abdominal wall muscles which appeared slightly heterogenous. Due to the suspicion of traumatic bowel injury, patient advised to go to hospital.

Day six post injury, the patient presented to the emergency department for assessment. On review of the history, the pain was most severe on day five post injury and was starting to improve. He had been anorexic for three days and had noticed some dark red blood in his stools. He did not report any subjective fevers and denied and urinary tract symptoms, including pneumaturia. Prior to presentation, he had no change in his bowel habits. His past medical history included asthma and his BMI was 34. He had never had a colonoscopy and had no family history of inflammatory bowel disease or colon cancer.

On examination, he was afebrile, his pulse was 85 bpm, and he was normotensive.

He had a bruise on the left, lower abdominal wall, with no evidence of cellulitis or crepitus. His abdomen was soft and focally tender in the left lower quadrant. There was no blood or masses on rectal examination. Blood tests revealed a haemoglobin of 148 g/l, white cell count of 12.8×109/l and a C-reactive protein of 52. His urine microscopy and culture were negative for leucocytes, erythrocytes, and bacteria.

The patient was considered clinically stable, with only localised tenderness, normal observations, and mildly elevated inflammatory markers. A trial of non-operative management with a five-day course of intravenous piperacillin-tazobactam was initiated and a plan was made to have an interval progress CT abdomen in three days. He was commenced on a free fluid diet and on serial reviews, he showed no signs of deterioration. On day three of admission (day nine post injury), a CT abdomen with rectal contrast showed a contained perforation arising from the proximal sigmoid colon. The collection extended laterally and inferiorly to the sigmoid colon, abutting the anterolateral abdominal wall. It also appeared to be tethered to but not involving the bladder. In its maximal dimensions, the collection measured 33 (anteroposterior)×56 (transverse)×52 mm (craniocaudally). Small diverticulae were noted in the sigmoid colon with no adjacent inflammatory stranding. Following an upgrade in diet and completion of 5 days of intravenous antibiotics, with a white cell count of 7.7×109/l, and C-reactive protein of 5.0, the patient was discharged with a ten-day course of amoxicillin/clavulanic acid oral antibiotics.

He was seen in outpatients at four weeks post discharge and was noted to be feeling well with an interval CT scan showing a reduction in size of the gas containing collection. The main component measured 22×19×20 mm. A further scan 8 weeks continued to show slow resolution of the gas containing collection. He remains clinically well and has not had any further courses of antibiotics. He is planned for an interval repeat rectal contrast CT and colonoscopy.

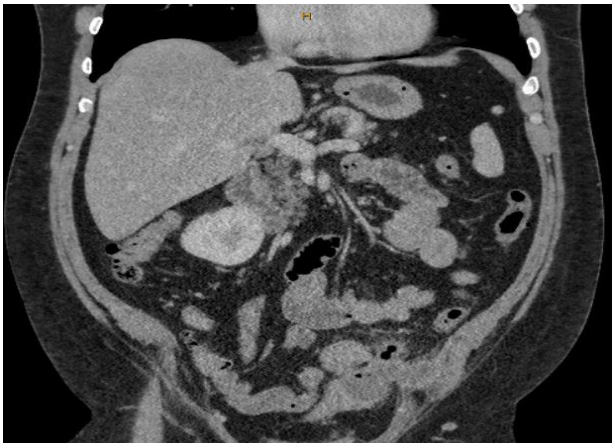

Figure 1: A coronal CT image of gas containing collection in left lower quadrant day 5 post injury.

Figure 2: A coronal CT image demonstrating resolving collection in the left lower quadrant eight weeks post injury.

DISCUSSION

Various mechanisms of BAT have been described and can be associated with specific injury patterns. A rapid deceleration injury in a motor vehicle accident, for example, can cause a shearing effect, resulting in sudden tension at junctions of fixed and mobile areas of bowel, which can lead to a tear in the bowel or devascularisation due to a tear in its mesentery.[4,5] A direct blow to the abdomen, could cause a crush injury to the bowel from compression between the abdominal wall and a bony structure such as the spine. A burst injury is the result of impact causing excess intraluminal pressure beyond the limits of the elasticity of the bowel wall.[5] BAT can cause an immediate or delayed colonic perforation. Delayed perforations are due to contusions which later develop into ulcerative necrosis and then eventually perforate.[5] With respect to this case, the patient sustained a direct blow to the lower abdomen, most likely causing a contusion to the sigmoid colon, which later developed into ulcerative necrosis and perforated. This would account for the delayed onset of severe pain and late presentation. Considering that BAT resulting in isolated and delayed colonic perforation is uncommon, the low impact injury this patient sustained makes this situation even more unusual. The recent history of trauma, the finding of a bruise in the left lower quadrant and the CT findings, are all in support of this diagnosis, despite the insignificant mechanism. The only other finding on CT of note, was diverticulae in the region. A possible explanation for perforation with such a low impact mechanism is trauma at the site of a diverticulum.

On review of the literature, there are multiple case reports and case series' detailing delayed presentations with colonic perforation after BAT, all of which undergo operative management.[4-10] There are no documented cases in the literature which mention non-operative management of a colonic perforation secondary to BAT.

Literature regarding non-operatively managed contained colonic perforations is mostly limited to perforations at colonoscopy and contained perforations secondary to diverticulitis.[11] The latter is more comparable given that perforations at colonoscopy occur in prepared bowel. When considering the literature related to contained diverticular perforations, successful non-operative management has been associated with smaller volumes of pericolic free air which is localised. Distant free air is suggestive of a perforation that has failed to seal. Abscess formation has also been associated with a higher failure rate of non-operative management.[11]

Operative management for BAT would include a trauma laparotomy and in the case of colonic perforation, primary repair or segmental resection or formation of a colostomy.[3] In this case, operative management was avoided which minimised patient morbidity. Fortunately, the patient was clinically well at presentation and only ever had localised tenderness on serial examinations. On follow up review, the patient remains well and interval scans show slow resolution of the contained collection.

CONCLUSION

This case serves as a reminder to consider delayed colonic perforation as a cause of abdominal pain following BAT. Considering the stability of this patient at presentation, they were able to be managed non-operatively, emphasising the importance of adapting the management of the patient to each individual clinical presentation.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. Yealy DM, Schwab CW, Peitzman AB, Fabian TC. The trauma manual. Fifth edition. Philadelphia: Wolters Kluwer. 2020;433.
2. Sharpe JP, Magnotti LJ, Fabian TC, Croce MA. Evolution of the operative management of colon trauma. Trauma surgery Acute Care Open. 2017;2:1-7.
3. Yamamoto R, Logue AJ, Muir MT. Colon Trauma: Evidence-Based Practices. Clin Colon Rectal Surg. 2018;31(1):011-6.
4. Ertugrul G, Coskun M, Sevinc M, Ertugrul F, Toydemir T. Delayed presentation of a sigmoid colon injury following blunt abdominal trauma: A case report. J Med Case Rep. 2012;6(1):247.
5. Vance BM. Traumatic lesions of the intestine caused by nonpenetrating blunt force. Arch Surg (Chicago. 1920). 1923;7(1):197-212.
6. Khanna A, Gandhi A, Sykes PA. Blunt abdominal injury associated with colonic rupture into abdominal muscles. Injury. 1995;26(5):337-8.
7. Patil S, Brown TH. Seat belt injury causing delayed sigmoid colon fistula. Emergency Med J. 2009;26(5):386-6.
8. Nosanov LB, Barthel ER, Pierce JR. Sigmoid perforation and bucket-handle tear of the mesocolon after bicycle handlebar injury: a case report and review of the literature. J Pediatr Surg. 2011;46(12):e33-5.
9. AL Shareef B, AL Jurushi R, AL Saleh N. Delayed presentation of an isolated sigmoid Colon injury following blunt abdominal trauma: A case report with review of literature. Int J Surg Case Rep. 2021;83:105989.
10. Srivastava A, Yadav HK, Katiyar V. Isolated Sigmoid Colon Perforation in the Setting of Blunt Abdominal Trauma: A Case Series. Curēus (Palo Alto, CA). 2022;14(11):e31591.
11. Chua TC, Jeyakumar A, Ip JCY, Yuide PJ, Burstow MJ. Conservative management of acute perforated diverticulitis: A systematic review. J Digestive Dis. 2020;21(2):63-8.

Cite this article as: McElhatton CP, Cross T. Delayed presentation with sigmoid perforation: a gut feeling that something is wrong. Int Surg J 2023;10:807-9.