

Delayed ileal perforation secondary to traumatic stricture presenting as pyrexia of unknown origin

Nedeni bilinmeyen ateş olarak ortaya çıkan, travmatik darlığa ikincil ileal perforasyon

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Traumatic small bowel strictures secondary to blunt abdominal trauma are extremely rare, with few cases reported. Delayed ileal perforation as a result of a traumatic ileal stricture remains, to the best of our knowledge, unreported. We herein report a case of a 28-year-old polytrauma patient admitted following a high speed road traffic accident who developed abdominal pain, distension and vomiting. Despite serial computerized tomography (CT) scanning, the diagnosis remained unclear until eight weeks into his admission by which time he had developed pyrexia. A fourth CT scan at this time revealed a collection in the right iliac fossa suggestive of possible appendicitis. Subsequent laparotomy, however, revealed an ileal stricture with upstream small bowel dilatation and perforation into a chronic abscess cavity. The appendix was normal. The patient underwent resection of the strictured segment and end ileostomy. Our case highlights the potential pitfalls in managing polytrauma patients who develop abdominal symptoms and in particular, traumatic small bowel strictures. We would like to highlight the limitations of CT in making this diagnosis and the importance of having a high index of clinical suspicion, particularly in the presence of distracting injuries.

Key Words: Computerized tomography; laparotomy; perforation; pyrexia; traumatic ileal stricture.

Künt abdominal travmaya ikincil olarak gelişen travmatik ince bağırsak darlıkları, rapor edilmiş birkaç olgu dışında oldukça nadirdir. Bildiğimiz kadarıyla, travmatik ileal darlığın bir sonucu olarak gelişen gecikmiş ileal perforasyon literatürde henüz bildirilmemiştir. Bu yazıda, yüksek hızda gerçekleşen bir karayolu kazasını takiben karın ağrısı, distansiyon ve kusma gelişen 28 yaşında bir politravma olgusu sunuldu. Seri bilgisayarlı tomografi (BT) görüntülemesine rağmen, tanı hastanın yatışından itibaren ateşin geliştiği sekizinci haftaya kadar belirsiz kaldı. Dördüncü bir BT filmi, olası apandisitisi düşündürecek şekilde sağ ilyak fossada bir koleksiyon olduğunu ortaya koydu. Bununla birlikte, daha sonra gerçekleştirilen laparotomide, proksimalinde ince bağırsak dilatasyonu olan ileal darlık ve kronik apse kavitesine drene olan perforasyon saptandı. Apendiks, normal olarak değerlendirildi. Darlığın olduğu ince bağırsak segmenti rezeke edildi ve uç ileostomi uygulandı. Olgumuz, karın belirtileri ve özellikle travmatik ince bağırsak darlıkları gelişen politravma hastalarının tedavilerinin düzenlemesindeki olası tehlikelere dikkat çekmektedir. Bu yazıda, BT'nin bu tanıyı koymadaki kısıtlılıklarını ve özellikle dikkati başka yöne çeken yaralanmaların varlığında klinik olarak kuşku duymanın önemi vurgulamak istedik.

Anahtar Sözcükler: Bilgisayarlı tomografi; laparotomi; perforasyon; ateş; travmatik ileal striktür.

Traumatic ileal strictures secondary to blunt abdominal trauma are rare, with only a few cases reported.^[1] Delayed ileal perforation secondary to traumatic stricture, to the best of our knowledge, remains unreported. It is important to be aware of

such phenomena because they may mimic other conditions such as Crohn's disease^[1] or appendicitis. We herein report a case of ischemic stricture and subsequent perforation of the distal ileum in a post-traumatic patient, which presented as a pyrexia of

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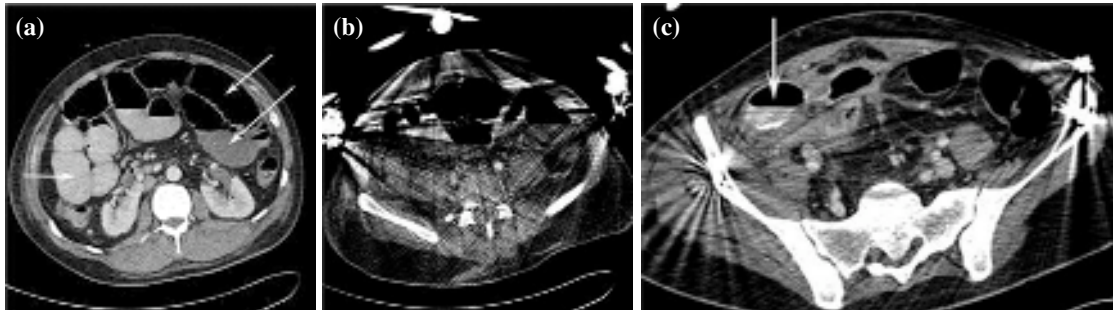


Fig. 1. (a) Axial CT scan showed multiple dilated loops of fluid/air-filled small bowel. (b) Axial CT scan of pelvis was obscured by external fixator artefact. (c) Axial CT scan of the pelvis showed a large collection in the right iliac fossa.

unknown origin. This case also highlights the potential limitations of computerized tomography (CT) in making this diagnosis.

CASE REPORT

A 28-year-old male was admitted following a high speed road traffic accident. He sustained a closed pelvic injury with an open comminuted fracture of his right femur and a closed fracture of his right medial malleolus. Upon admission, he was noted to be hypotensive, which improved following reduction of his pelvis. However, in spite of an unremarkable abdominal examination, the patient underwent a CT scan of his abdomen in accordance with Advanced Trauma Life Support (ATLS) guidelines. CT scan revealed a small amount of free fluid in the subhepatic space, which was treated conservatively.

Two weeks later and after treatment of his fractures with external fixators, the patient complained of nausea. Abdominal examination revealed a soft but distended abdomen with quiet bowel sounds. A second CT scan at this time revealed small bowel dilatation with no identifiable transition point (Fig. 1a). No gross hematoma or collection was seen. The patient was thought to have an ileus and responded well to conservative management. At this point, there was no clinical or radiological suspicion of small bowel obstruction and no further investigations were pursued. However, the patient then developed a low grade sepsis with no identifiable source; septic screens proved negative and initial broad spectrum antibiotic therapy failed to resolve his pyrexia. A third CT scan (4 weeks after admission) searching sources of abdominal sepsis demonstrated no significant change from his previous scan and was obscured by artefacts arising from the patient's pelvic external fixator (Fig. 1b). During this time, the patient remained relatively well and was tolerat-

ing oral feeding and opening his bowels intermittently. However, four weeks later, the patient developed abdominal pain localized to his right iliac fossa without peritonitis. A fourth CT (8 weeks following the initial injury) revealed a large collection in the right iliac fossa with proximal small bowel dilatation possibly related to appendicitis (Fig. 1c).

An initial laparoscopy performed for suspected appendicitis instead revealed an abscess cavity with small bowel dilatation. Subsequent laparotomy confirmed the presence of a distal small bowel stricture 10 cm from the ileocecal valve with upstream small bowel dilatation and perforation into a chronic abscess cavity containing feces. The patient had a normal appendix. The strictured segment was resected along with the abscess cavity and an end ileostomy formed. A primary anastomosis was not performed due to the high risk of failure; the presence of an abscess and fecal contamination within a post-traumatic catabolic patient represented strong contra-indications. Histology of the resected ileum

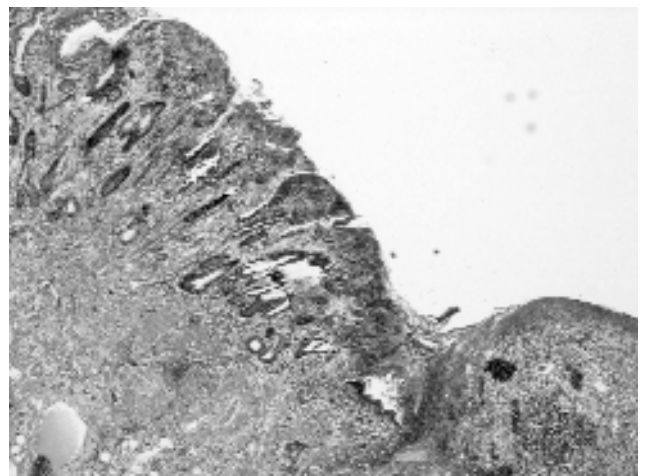


Fig. 2. Luminal surface with ulceration of mucosa and inflammation.

revealed mucosal necrosis with transmural edema in keeping with ischemic changes. Fig. 2 shows luminal surface with ulceration of mucosa and inflammation. In addition, tissue from the abscess cavity consisted of chronically inflamed fibroadipose tissue infiltrated by numerous polymorphs. This confirmed it as part of an abscess wall on the serosal aspect of the ileum resulting from perforation. The patient underwent an uneventful post-operative recovery with resolution of his pyrexia.

DISCUSSION

Traumatic ischemic stricture of the small bowel is rare, with only a few cases documented.^[2] Proposed pathologies include:

1) Mesenteric trauma due to deceleration and shearing injury leading to arterial damage with local ischemia, fibrosis and ileal stenosis.^[3]

2) Localized perforations resulting in delayed abscess formation with subsequent obstruction.^[2]

In this patient, the first mechanism is most likely, with subsequent perforation and abscess formation. To the best of our knowledge, delayed ileal perforation secondary to traumatic stricture remains unreported.

In conclusion, our case serves to highlight a number of important points. Firstly, despite its rarity, small bowel obstruction secondary to traumatic ischemic stricture should always be considered in patients presenting with abdominal distension and vomiting following blunt abdominal trauma. Although there is recent evidence advocating the use

of CT in making this diagnosis,^[4,5] such patients should be continually re-assessed, with radiological findings always balanced against clinical suspicion. In the presented case, we believe that a delayed diagnosis due largely to serial CT scanning resulted in ileal perforation and subsequent pyrexia. However, it should be noted that the presence of external fixators at the time of imaging led to sub-optimal CT scans and were reported as such. It is also worth highlighting that symptoms of abdominal sepsis may be masked when accompanied by significant distracting injuries and may therefore present as a pyrexia of unknown origin.

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