
Isolated Mesenteric Vascular Injury Due to Seatbelt Trauma

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Summary

Mesenteric vascular injuries following blunt abdominal trauma are uncommon and difficult to diagnose. A 33-year old restrained front seat passenger presented with chest and abdominal pain following a head-on collision. Initial evaluation was unremarkable except for diagonal chest and transverse lap seatbelt marks. A day after admission the patient's abdomen became increasingly tender. An abdominal ultrasound scan revealed free fluid in the abdomen. Laparotomy

revealed hemoperitoneum, tear of the mesentery and gangrene of the small intestines. The case is presented to show delayed onset of significant symptoms and signs. Trauma teams should have a high index of suspicion for mesenteric vascular injuries in patients who present with the seatbelt mark when evaluating the blunt trauma abdomen.

Introduction

Injury to the mesentery during blunt abdominal trauma is uncommon and is usually difficult to diagnose (1). It is also recognized that seatbelt trauma from motor vehicle crashes is the most common mechanism of mesenteric injury (2). In addition, this seatbelt syndrome may involve tears and perforations of the gastrointestinal tract and lumbar fracture dislocations. Bruising, laceration, or other signs of direct trauma to the skin in the area covered by the seatbelt denote the likelihood of intra-abdominal injury (3-4). The clinical significance of isolated mesenteric injuries is the delayed presentation of symptoms and signs which may increase the incidence of sepsis and associated morbidity and mortality (5). This paper presents an unusual case of mesenteric injury caused by road traffic crash.

Case Report

The patient was a 33 year old male with no known medical condition prior to the injury. He was a front seat passenger in a saloon car involved in a head on highway collision. The speed of the vehicle at the time of crash was not established. He was wearing a three point lap and diagonal seatbelt at the time of the crash.

At presentation at a private hospital in Nakuru, the patient complained of pain in the chest and abdomen. Physical examination revealed a sick looking patient with a Pulse rate of 80 per minute, Blood Pressure of 120/80mmHg, Respiratory rate of 22 breaths per minute

and Temperature of 36.2 degrees C. There was no palor, jaundice or dehydration. The patient had diagonal chest and transverse lap seatbelt marks. There was tenderness of the anterior chest wall with normal breath sounds. The X-ray of the chest was normal. The abdomen was not distended. There was mild tenderness in the umbilical region with no guarding. Bowel sounds were normal. The patient was admitted for observations.

A day after admission the patient developed severe abdominal pain. There was tenderness with guarding around the umbilical region. Bowel sounds decreased. The Blood Pressure dropped to 100/60 mmHg with a Pulse rate of 98 per minute. Abdominal ultrasound revealed fluid in the abdomen. The patient was prepared for laparotomy. Operative findings included haemoperitoneum, a tear of the mesentery and gangrene of the small intestines at the point of tear of the mesentery (Figure 1).

Resection of the gangrenous gut and anastomosis (Figure 2) and peritoneal lavage was performed. Post-operative recovery was uneventful and the patient was discharged home after one week. On follow up the patient has remained well.

Discussion

This case report adds to existing literature by describing the case of a patient with a tear of the mesentery and gangrenous changes of the small intestines in Kenya. Reports from other parts of the world where various diag-

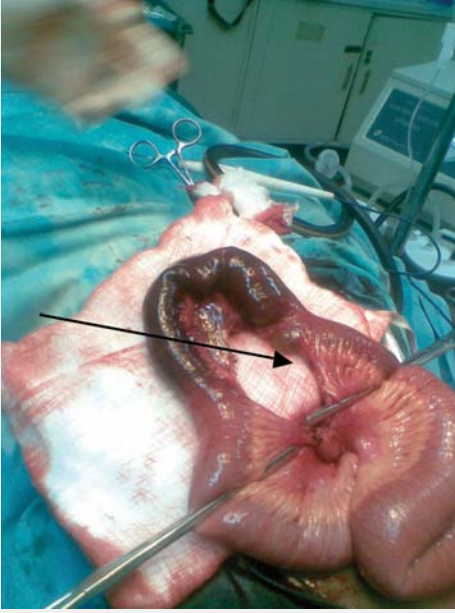


Figure 1: A tear of the mesentery (arrow) and gangrenous small gut



Figure 2: Gangrenous gut after resection

nostic adjuncts are accessible exist (1, 4-7). It is difficult to explain the mechanism of the tear. Direct compression of the organs between the seatbelt and the spine is a possibility (1).

The diagnosis of mesenteric injuries tends to be difficult and delayed. Early detection and surgical intervention, when necessary, are critical in improving the outcome of treatment. No one diagnostic modality is superior in reliably diagnosing this problem. Exploratory laparotomy has been emphasised but it carries the risks associated with invasive procedures. Computerised Tomography (CT), roentgenograms, diagnostic peritoneal lavage and abdominal ultrasound scans may help in detection but there are questions about their success rates and suitability to all kinds of patients (8-9).

Literature indicates that patients with the seatbelt sign have a higher incidence of abdominal injury than others (3-4). In resource scarce settings, diagnosis may therefore require a high index of suspicion. Abdominal pain, tenderness, guarding, reduced bowel sounds, hypotension and shock, though not specific, are usually found (1). Clinically the isolated mesenteric injury may present immediately due to bleeding, delayed due to bowel infarction or late due to bowel stenosis or adhesion formation (5). Without doubt the key considerations in the diagnosis include the mechanism of injury, clinical suspicion for mesenteric injury and serial physical examinations.

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