

POST-TRAUMATIC SMALL-BOWEL STRICTURE: A CASE REPORT

Calvin H.L. Law, MD; Frederick D. Brenneman, MD, FRCSC; Sandro B. Rizoli, MD; Bernard R. Boulanger, MD, FRCSC;
Sherif S. Hanna, MD, FRCSC, FACS, FICS

The use of lap seat belts has recently been recognized as a mechanism of blunt injury to the small bowel. Patients usually present immediately after injury and require urgent laparotomy. An unusual case of delayed small-bowel stricture after conservative management of an injury resulting from blunt trauma is reported. A 37-year-old woman involved in a high-speed motor vehicle accident was managed in hospital by observation. She had abdominal distension and pain, which gradually decreased and allowed slow introduction of a liquid diet. She was discharged from hospital but returned 6 weeks after injury with pain, abdominal distension, vomiting and obstipation. Stricture of an 8-cm segment of distal jejunum was found. Resection of the involved segment with primary anastomosis was curative.

On a reconnu récemment que le port de la ceinture de sécurité ventrale est une cause de blessure par contusion à l'intestin grêle. Habituellement, les patients se présentent immédiatement après avoir subi la blessure et ont besoin d'une laparotomie d'urgence. On décrit un cas inusité de rétrécissement retardé de l'intestin grêle après le traitement conservateur d'une blessure causée par un traumatisme. Une femme de 37 ans victime d'un accident de circulation à grande vitesse a été traitée à l'hôpital par observation. Elle avait l'abdomen distendu et des douleurs qui ont diminué graduellement et ont permis de commencer lentement un régime liquide. Elle a été libérée de l'hôpital, mais y est revenue 6 semaines après avoir subi la blessure : elle souffrait, avait l'abdomen distendu, vomissait et souffrait de constipation opiniâtre. On a constaté un rétrécissement d'un segment de 8 cm du jéjunum distal. La résection du segment en cause et une anastomose primaire ont réglé le problème.

Since its introduction in 1960, the lap seat belt has saved many lives.¹ However, a constellation of injuries attributed to lap-belt use has emerged, collectively referred to as the "seat-belt syndrome."¹ Seat-belt-related injuries include hollow viscus and mesenteric tears, abdominal wall disruptions and lumbar spine fractures. The hollow viscus and mesenteric injuries are usually the result of either deceleration and shearing stresses at points of fixation or compression against the vertebral col-

umn. These injuries are usually recognized and treated early after injury. Very rarely, however, an ischemic segment of bowel from a mesenteric injury may go unrecognized, only to present with symptoms at a later date. We discuss such a case, in which the patient presented 6 weeks after injury with a small-bowel obstruction from an ischemic stricture.

CASE REPORT

A 35-year-old woman was involved

in a high-speed motor vehicle crash. She was a back-seat passenger wearing a lap seat belt. Injuries identified at a local hospital included marked anterior abdominal wall ecchymosis with abdominal tenderness but no peritonitis. An abdominal double-contrast computed tomography scan appeared normal. The patient had no other injuries and was treated conservatively with in-hospital observation. She had abdominal distension and was thought to have an ileus. However, her abdominal pain gradually decreased, bowel move-

From the Department of Surgery and the Trauma Program, Sunnybrook Health Science Centre, University of Toronto, Toronto, Ont.

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Correspondence and reprint requests to: Dr. Frederick D. Brenneman, Division of General Surgery, Sunnybrook Health Science Centre, Suite H-170, 2075 Bayview Ave., North York ON M4N 3M5

ments returned and she tolerated the slow introduction of a liquid diet. She was discharged home, only to return 6 weeks after her injury with worsening colicky abdominal pain, distension, vomiting and obstipation.

Her medical history included an appendectomy at 3 years of age and a vaginal hysterectomy, but she had no history of gastrointestinal disease. No abdominal wall hernias were present on physical examination. Plain abdominal radiographs confirmed a small-bowel obstruction, and a laparotomy revealed an isolated, 8-cm segment of strictured distal jejunum (Fig. 1). The small-bowel mesentery at this level was foreshortened and scarred and showed areas of fat necrosis. Pathological examination revealed focal mucosal ulceration with organizing granulation tissue and extensive fibrosis in the submucosa and muscularis propria, features consistent with a localized ischemic process. Resection of the involved segment of jejunum with primary anastomosis was performed, and the patient was dis-

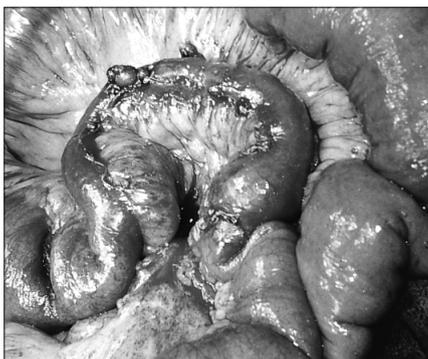


FIG. 1. Operative view of segment of small bowel with late stricture from blunt trauma.

charged from the hospital, tolerating a full diet, after an uncomplicated postoperative course.

DISCUSSION

Delayed small-bowel obstruction after the conservative management of blunt abdominal trauma is uncommon, yet may result from a number of pathophysiologic mechanisms. These include intramural hemorrhage with subsequent narrowing or intussusception, serosal tears resulting in adhesions and leading to obstruction, unrecognized mesenteric, diaphragmatic or abdominal wall disruption with subsequent incarceration of bowel, direct bowel-wall compression injury and, finally, localized mesenteric injury with segmental ischemia resulting in the eventual development of a small-bowel stricture.²

All of the injury patterns causing delayed mechanical small-bowel obstruction may be missed during the initial assessment of the abdomen unless associated intra-abdominal injuries prompt laparotomy. Physical examination is often unreliable in the trauma patient because of the presence of a head injury or intoxication from alcohol. Computed tomography and diagnostic peritoneal lavage lack sensitivity in the early diagnosis of isolated bowel injuries.³ The “seat-belt sign” (abdominal wall ecchymosis, hematoma or even fat and muscle disruption) is a marker that indicates the increased potential for intra-abdominal injury.¹ However, this sign should be taken in context and does

not imply mandatory laparotomy. If it becomes devascularized from a mesenteric injury, the ischemic segment of small bowel usually becomes clinically evident within the first 24 to 48 hours after injury, due to full-thickness necrosis and perforation.^{1,4} It is extremely unusual for this mechanism of ischemic injury to result in only limited impairment of mucosal and submucosal blood flow, with resultant healing, scarring and late stenosis.

The management of a patient with delayed small-bowel obstruction from previous intra-abdominal trauma is analogous to the management of many patients with obstruction. However, since the potential for serious disorder in this situation is high, a low threshold for operative intervention is warranted, to minimize the attendant morbidity.

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