

Single ilial perforation into mesentric border following blunt abdominal trauma

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Abstract: Isolated ilial perforation(IIP) caused by blunt abdominal trauma is uncommon and most often seen after motor vehicle accidents. We present a case of single perforation of the ilium in a young male who was admitted to our hospital with intense abdominal pain following fall by itself on stairs. Although the erect chest radiograph was negative for free air, abdominal computed tomography scan revealed GI perforation. The exploratory laparotomy that followed revealed only a 1 cm perforation of the ilium at mesenteric border, 90 cm from the iliocaecal junction. Although our experience as a trauma center is limited, clinical suspicion and timely exploration in this case led to prompt surgical intervention and a successful outcome.

Key Words: Blunt; ilium; perforation; trauma

Since Samuel Annan reported the first case of intestinal rupture secondary to blunt trauma in 1837, there have been abundant publications on this subject. Although ilial perforation near to IC junction from blunt abdominal trauma is a common injury, isolated ilial perforation in mesenteric border away from the IC junction is extremely rare. The vast majority of intestinal perforations following BAT is caused by motor vehicle accidents, but can also result from physical assault by human beings or animals, or fall from height. A sudden increase in intraluminal pressure in a fluid or air-filled bowel loop causes punctate or slit-like perforations (blowout) on the antimesenteric border. Most of the time, these perforations are not surrounded by damaged tissue because perforation occurs due to raised intraluminal pressure and not due to crushing. Delay in diagnosis of IIP adds significant morbidity and mortality. The clinical suspicion and early exploration in the present case led to prompt surgical intervention and a successful outcome.

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I. Introduction

Case Report

A 40-year-old man was admitted in emergency department with a history of BAT for the last 1 day. He was fall on stairs by missing steps, after that, he developed pain in the abdomen. On examination, the abdomen was tender all around. No bruises or other external injuries were noted. Except for pain abdomen and tachycardia, there was no other positive finding. Erect X-ray abdomen did not show any air under the right dome of diaphragm. But as there was history of trauma, pain abdomen, absent bowel sounds, and tachycardia, the patient was monitored closely. Patient was put on intravenous fluids. After 36 h of injury, the abdomen got distended and tense. USG whole abdomen shows septed collection in intraperitoneal cavity and query about intestinal perforation, then CECT whole abdomen done which confirm intestinal perforation. Urgent laparotomy was done by taking proper patient consent and the abdomen was found to be filled with bilious fluid. There was a single IJP of size 1 cm × 1 cm at mesenteric border, about 3 feet proximal to IC junction. Perforation was closed in two layers. Drains were put in and the abdomen was closed after saline wash. Postoperatively, the patient behaved well and was discharged after 10 days.



II. Discussion

The abdomen is the third most commonly injured part of the body following trauma. Early recognition of small bowel injury is important in the prevention of morbidity and mortality. Seventy-five percent of BATs are caused by motor vehicle accidents and the rest by other modes. ilial perforation due to other injuries are: hit by knee, assault by animal, and injury with a bicycle handle bar. Single IIL occurs rarely of blunt trauma patients. Mechanisms of small bowel disruption with blunt trauma include shearing forces, compression between the abdominal wall and vertebral column, and blowout injury due to a sudden increase in intraluminal pressure of bowel loop. The incidence of small bowel injury appears to be lower in children than in adults. For the early diagnosis of IIP, detailed history (mechanism of injury) and frequent clinical examination of the abdomen are extremely useful. Continuous abdominal pain (75.6%), tenderness (46.7%), and a bruise across the abdomen inflicted by a seat belt (seat belt sign) are the important clinical signs of small bowel perforation. These injuries pose a diagnostic dilemma. Clinical signs are usually vague and nonspecific. Abdominal pain is the most frequent symptom, and in 64% of cases, there are no bowel sounds (as in our case). Only physical examination is not sufficient for the diagnosis, and it was reliable in only 30% of blunt trauma injuries.[6] In the early hours of injury, less than 50% of the cases show free air, thus limiting the usefulness of erect X-ray chest or abdomen film (as in our case). Apart from physical examination, there are four methods for diagnosis of bowel perforation: diagnostic peritoneal lavage (DPL), computed tomography (CT) scan, focused abdominal sonography for trauma (FAST), and diagnostic laparoscopy. CT scan is the gold standard for assessment of blunt trauma, with a sensitivity of 92%, specificity of 94%, positive predictive accuracy of 30%, negative predictive accuracy of 100%, and overall accuracy (validity) of 94%. Open surgical repair or laparoscopic repair is the first line of treatment. Septic peritoneal collection is drained and saline lavage is done. Simple two-layer closure is usually adequate for single perforation of the small intestine (as done in our case). Although the impact of operative delays on morbidity and mortality has been unclear, a brief delays as little as 8 h can result in increased morbidity and mortality in "missed" small bowel injury. If small bowel perforation is treated earlier than 12 h, then the rate of complication and mortality is low. Vigilant observation, serial physical examinations, and serial abdominal ultrasound will help in the early diagnosis of obscure single IIP in BAT.

III. Conclusion

The diagnosis of traumatic single IIP is challenging. For most favorable results, strict monitoring, a high index of clinical suspicion with proper clinical history and examination and appropriate diagnostic tools like USG and CECT and surgery (laprotomy) are mandatory.

References

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