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Case Report

A rare case of isolated transverse colon perforation following blunt trauma abdomen-case report with review of literature

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ABSTRACT

Colon injury is far more common in penetrating injury than blunt trauma abdomen. Blunt trauma to the abdomen is more likely to damage solid organs such as the liver, spleen, pancreas and kidneys. Colon injury in blunt trauma is severe and is associated with other organ, making its diagnosis difficult. However, isolated transverse colon injury in blunt trauma is rare. We report a case of 62 year old female who presented to us with blunt trauma to abdomen following motor vehicle accident. The patient was having tenderness and guarding all over abdomen. X-ray abdomen was normal, ultrasonogrm of abdomen showed presence of free fluid. Patient was operated on clinical basis. A single perforation of size 2 cm×1 cm was present in transverse colon on and there was no other injury. The perforation was primarily closed. Isolated transverse colon injury is rare presentation. Initial radiologic investigations may be misleading. Most of the injuries can be managed with primary repair in absence of gross contamination and shock.

Keywords: Blunt trauma abdomen, Isolated transverse colon injury, Treatment

INTRODUCTION

The most common mechanism of colonic injury is penetrating trauma.[1] Low incidence of colon injury due to blunt abdominal trauma and the lack of a definitive diagnostic method for the same can lead to delays in diagnosis and treatment. Initial investigations may be negative, with no abnormality on blood tests, no free gas on initial chest radiograph, or abnormality on ultrasound.[2] subsequently resulting in high morbidity and mortality. We present the case of a woman who presented immediately within 1 hour with blunt abdominal trauma following a motor vehicle accident, primary closure of the transverse colonic perforation was done for isolated transverse colon perforation. We report this case due to rarity of isolated transverse colonic perforation following blunt trauma abdomen, its presentation and to review the literature for its management.

CASE REPORT

A 62 year female came to emergency department with history of blunt trauma injury to the abdomen by motor vehicle accident. The female presented to us 1hr after the injury with complaints of pain upper abdomen and 1-2 episodes of vomiting. Patient was afebrile, pulse rate was 98/min, blood pressure - 90/60, per abdomen examination showed - small contusion of size 2×2 cm present above the umbilicus in midline, with abdominal distension, diffuse tenderness and guarding. Patient was resuscitated with i/v fluids, chest X-ray showed no air under diaphragm, USG abdomen showed free fluid 2+ with no solid organ injury. Patient was taken up for exploratory laparotomy.

Operative findings were - around 300 cc of feculent fluid mixed with blood present in the peritoneal cavity, a 2×1 cm perforation present in the transverse colon over the

taenia, to the left of the middle colic vessel, hematoma present in the wall of transverse colon. Peritoneal lavage with normal saline was done and with primary repair of the perforation done after freshening the margins with vicryl 3-0, interrupted sutures in single layer. Patient had uneventful recovery and was allowed orally on 4th postoperative day after resumption of normal bowel sounds. Patient was discharged on 7th post-operative day.

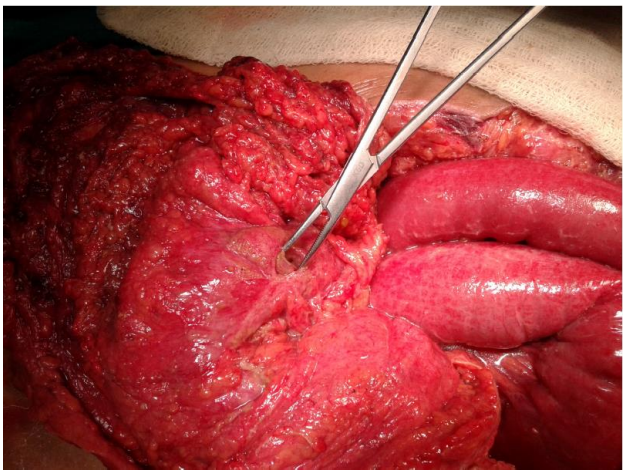

Figure 1: Operative findings.

DISCUSSION

Colon injuries generally occur after penetrating abdominal trauma, whereas they are uncommonly encountered after blunt abdominal trauma. In a retrospective study, the incidence of colon injuries due to blunt abdominal trauma has been reported to be 1.1%.[3] The transverse colon is the most vulnerable colonic segment to blunt trauma due to its unprotected location.[4] Crushing of the colonic segment between two objects, rapid deceleration and burst injury in response to increase intra-luminal pressure are the probable mechanisms.[5] The rate of complications associated with colon injury is significantly higher if the duration is longer than 24 h after the injury.[6] Plain radiographs are not reliable in detecting the presence of a significant injury, they appear normal in most cases.[7] Ultrasonographic findings of free fluid in the abdomen, particularly between the intestinal loops without the presence of solid organ injury, may indicate bowel injury.[8] Colon trauma management has evolved dramatically over the past century. Eastern Association for the Surgery of Trauma (EAST) practice management guidelines advocate that patients with destructive colon wounds with a Penetrating Abdominal Trauma Index (PATI score) >25, significant co morbidities, or hemodynamic instability, benefit from diversion.[9] A Cochrane Review from five prospective randomized trials from 1966-2001 found that overall there was no difference in mortality between primary repair versus diversion.[10] Causey et al. in there brilliant and comprehensive article concluded that, through advancements in perioperative care and surgical techniques, studies are now focusing on reducing the risk for anastomotic complications and maximizing the number of patients that can safely have up-front continuity restoration.[10] American Association for the Surgery of Trauma (AAST) to help determine severity and help guide the decision-making process.[12] Table 1 is useful summary of these recommendations.

Table 1: AAST guidelines and recommendation.

AAST grade	Meaning	Expected treatment
Ia	Mesenteric hematoma or colonic wall hematoma	Observed
Ib	Simple partial thickness laceration or small full-thickness lacerations (<50% of circumference)	Simple suturing and primary repair
II	Above with associated Peritoneal contamination	Simple suturing and primary repair
III	Large lacerations involving more than 50% of the bowel wall circumference	Surgeon discretion and experience
IV	Transection of the bowel wall	Surgeon discretion and experience
Va	Transection with segmental tissue loss	Surgeon discretion and experience
Vb	Devascularized tissue	Surgeon discretion and experience

Grade III, IV and V are more advanced injuries. The guiding principles are removal of all devascularized tissue and consideration for primary anastomosis versus diversion based on the management criteria outlined previously in EAST guidelines.

CONCLUSION

Isolated transverse colon injury is rare presentation. Initial radiologic investigations may not show any finding and close watch on patient is the necessary prerequisite. Most of the injuries can be managed with primary repair in absence of gross contamination and shock.

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