

## ABSTRACT

### Introduction:

Penetrating injury to the colon is common, but traumatic isolated blunt injury to the colon is rare. It accounts <1% from all trauma patients and 43.9% injury following blunt trauma compared to penetrating injury.<sup>1</sup> Blunt trauma to the colon will present with late presentation due to subtle symptoms. It causes high mortality rate due to fecal spillage causing peritonism, sepsis and multi organ failure. The overall mortality rate is 25.6% of colorectal-specific injury from all trauma patients. Hence we report a case of blunt traumatic colonic injury.

### Case Report:

16 years old Malay male was brought to the Emergency Department after being involved in a motor vehicle accident. Upon initial assessment, he had no abdominal pain. His abdomen was soft and not tender. Focused assessment with sonography in trauma (FAST) was normal. After 3 hours of injury, noted patient had profuse sweating and had presyncope. He went into class I hypovolemic shock. Reassessment revealed tenderness of abdomen. Repeated FAST showed minimal free fluid at hepatorenal and splenorenal. Urgent computed tomography (CT) abdomen revealed free fluid but no obvious solid organ injury. Blood transfusion was initiated, unfortunately he went into class IV hypovolemic shock and was sent for emergency exploratory laparotomy. Intra operatively noted serosal tear at ascending colon with length of 10cm and another tear of 5cm and was repaired.

### Discussion:

CT scan remains the gold standard in managing traumatic blunt trauma to the abdomen. The diagnosis is often made in the presence of unexplained free peritoneal fluid, free gas or thickened colonic wall. In high index of suspicion cases, laparotomy mostly done within first 24 hours. The complication of abdominal sepsis accounts for about 20% of all traumatic colon injury.

### Conclusion:

Traumatic isolated blunt injury to the colon is rare, however high index of suspicion with early detection are crucial in diagnosing colonic injury in view of high mortality and morbidity.

## CASE REPORT (cont.)

After 3 hours of injury, noted patient had profused sweating and presyncope. He went into class I hypovolemic shock with blood pressure of 127/78mmHg and heart rate of 100bpm. Reassessment revealed mild tenderness of abdomen. Repeated FAST scan showed minimal free fluid at hepatorenal and splenorenal region. Urgent CT abdomen was done revealed hemoperitoneum but no obvious solid organ injury.

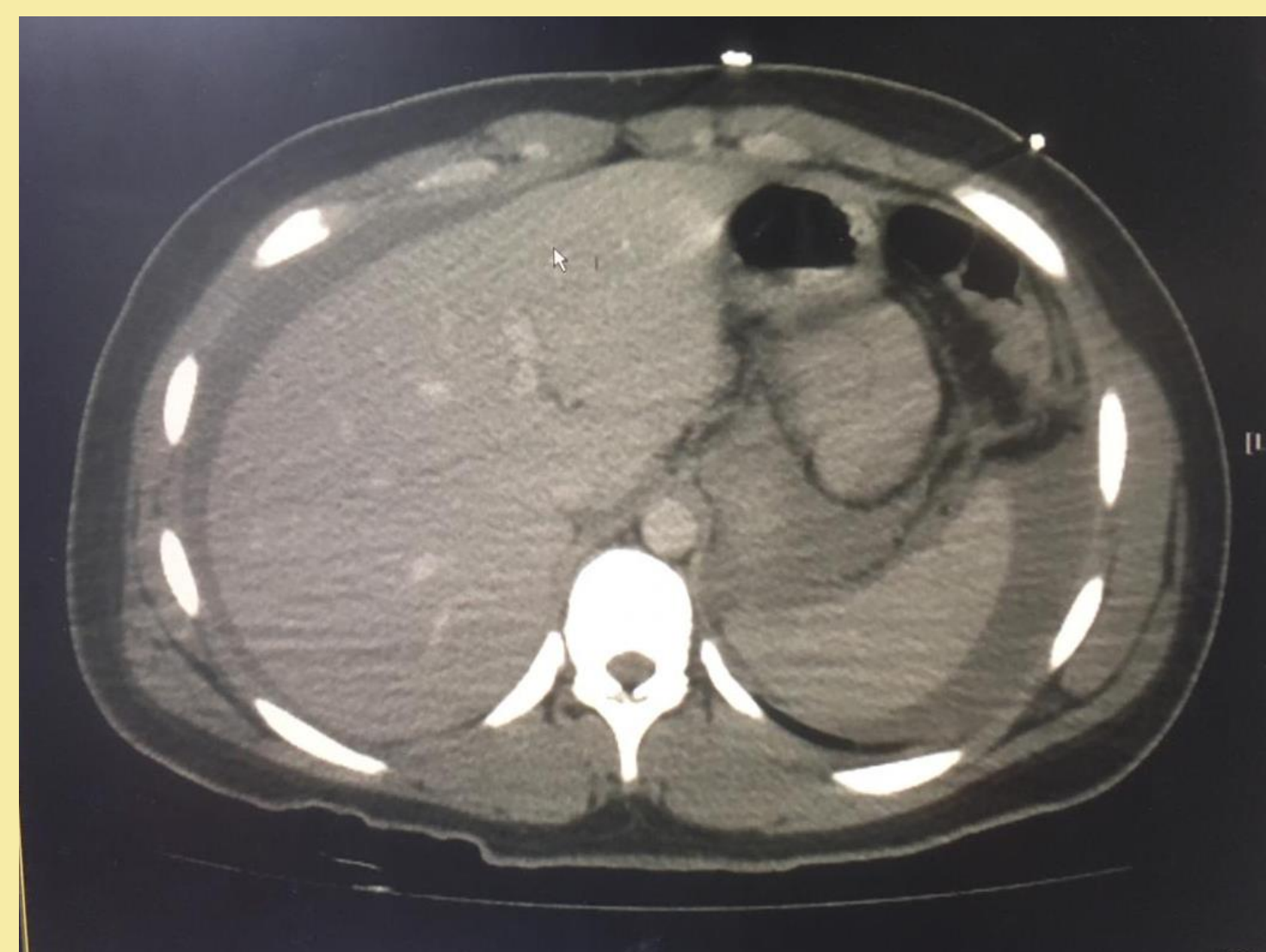


Figure 1: CT abdomen axial view showed hemoperitoneum

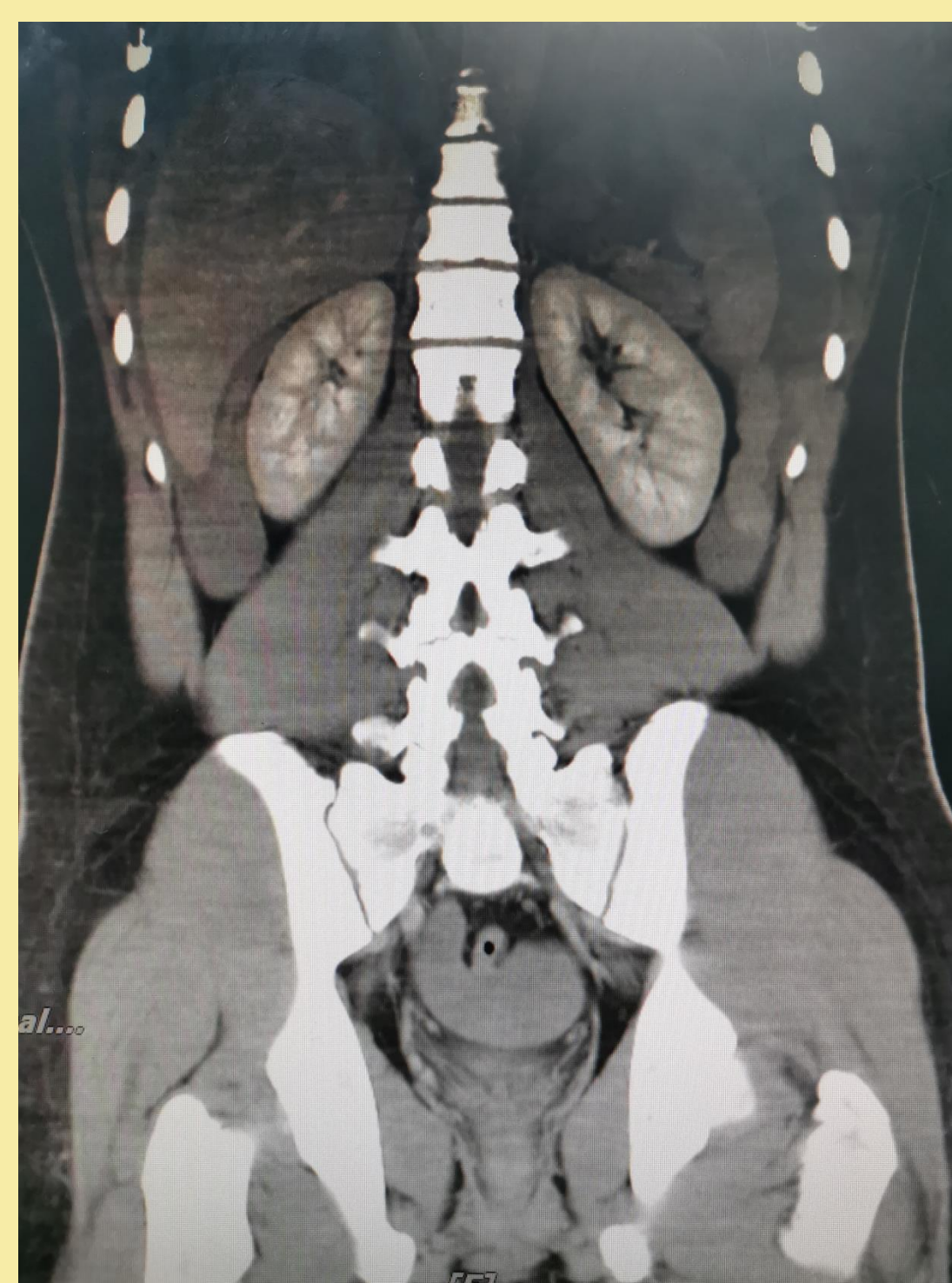


Figure 2: CT abdomen coronal view showed hemoperitoneum

Blood transfusion was initiated and he was planned for conservative management in view of stable condition. Unfortunately, at 5hours post trauma, he had another episode of profuse sweating and went into class IV hypovolemic shock. His blood pressure dropped to 80/42mmHg and heart rate of 110bpm. There was significant hemoglobin drop by 2g/L from 15g/L drop to 13g/L.

Primary team was informed and he was sent for emergency exploratory laparotomy. Intra operatively, 1 liters of hemoperitoneum was drained and noted serosal tear at ascending colon with length of 10cm and another tear of 5cm. He was discharged well after 2 weeks in ward.

## DISCUSSION

There are 2 primary mechanisms of injury that can cause intra abdominal injury which are compression forces and deceleration forces. Compression forces defined as a direct blow or external compression to the abdomen while deceleration forces means stretching and linear shearing between fixed and free object. The intestines are the 3<sup>rd</sup> most common organ to be injured in blunt trauma to the abdomen after the spleen and liver.<sup>3</sup>

## DISCUSSION (cont.)

Blunt trauma to the abdomen can present with subtle presentation. Symptoms might be absent or vague at initial presentation or non specific. Patient may complain of abdominal pain, rectal bleeding or abdominal distension. Most of the patient initially had normal abdominal examination, however, with repeated examination, signs and symptoms became more prominent. Delayed presentation of blunt trauma to the abdomen can cause large leakage of bowel contents into the peritoneal cavity and causing sepsis and peritonitis and will lead to increase in mortality.<sup>3</sup>

Diagnostic peritoneal lavage (DPL), ultrasonography and CT abdomen are the diagnostic test in diagnosing intra abdominal injury. The sensitivity of FAST is up to 86% but not specific in relation to organ injury.<sup>2</sup> In the past, DPL was the diagnostic method of choice but was replaced with CT imaging currently. CT abdomen is more preferred due to more sensitive and specific in detecting intra abdominal injury.

In this patient, CT abdomen showed hemoperitoneum with no obvious solid organ injury. Free fluid is seen up to 93% of patients reported to have bowel and/or mesenteric injury.<sup>2</sup> Intra peritoneal fluid mostly seen at pelvis due to dependent area. The presence of peritoneal fluid with no visible solid organ injury is a sign of bowel injury.<sup>3</sup> Other signs include present of free air in the abdomen and extravasation of the contrast.<sup>1</sup>

This patient was treated conservative initially but his condition deteriorated and need of emergency exploratory laparotomy. The conditions that require surgical intervention include complete and serosomuscular tear, devascularized bowel, active mesenteric bleeding and mesenteric injury associated with bowel ischemia.<sup>2</sup> In blunt abdominal trauma, the time for surgery also crucial in reducing the rate of complication post operatively. If the duration of surgery is more than 24hours, the rate of complication is significantly higher.<sup>5,6</sup>

## CONCLUSION

The low incidence of blunt traumatic colonic injury in comparison to other injury make the diagnosis itself is challenging. The subtle signs and symptoms also even make it hard to diagnose and it can be missed without repeated examination and assessment of the patient. Even though the technology and imaging is expanding over the time, the clinical and initial presentation that was vague can lead to wrong diagnosis. So, high index of suspicion and individualized care will help us to improve the resuscitation and management of the patient and subsequently reduce the morbidity and mortality from blunt trauma to the abdomen.

## REFERENCES

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## INTRODUCTION

The incident of trauma cases are increasing causes a lot of admissions per year. It increased the cost and burden for our health care system. The outcomes of patients with blunt trauma depend on the severity of the injury. In minor blunt trauma, the outcome was good. However, in severe injury, the mortality rate of patients goes up to 10-30%.<sup>4</sup> Among those blunt trauma to abdomen, bowel and mesentery injury accounts for 1%-5% of the cases.<sup>2</sup>

## CASE REPORT

16 years old Malay male was brought to the Emergency Department after being involved in a motor vehicle accident. Upon initial assessment, he was conscious and pink. Airway was patent and he was put on cervical collar. Breathing was normal with good ventilation. He had no abdominal pain and no external injury over the abdomen. His abdomen was soft and non tender. Initial FAST scan showed no abnormality.

His vitals sign were: BP: 124/62mmHg, Hr: 62bpm, spo2: 100% under room air.