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## Blunt Injury Abdomen: A Late Presentation.

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### ABSTRACT

Blunt abdominal trauma is a leading cause of morbidity and mortality among all age groups. Identification of serious intra-abdominal pathology is often challenging; many injuries may not manifest during the initial assessment and treatment period. Blunt abdominal trauma (BAT) comprises 75% of all blunt trauma and is the most common example of this injury. The majority occurs in motor vehicle accidents, in which rapid deceleration may propel the driver into the steering wheel, dashboard, or seatbelt causing contusions in less serious cases, or rupture of internal organs from briefly increased intraluminal pressure in the more serious, dependent on the force applied. There are two basic physical mechanisms at play with the potential of injury to intra-abdominal organs — compression and deceleration. These forces can cause tearing of the mesentery of the bowel, and injury to the blood vessels that travel within the mesentery. When blunt abdominal trauma is complicated by 'internal injury', the liver and spleen are most frequently involved, followed by the small intestine. Splenic vessel pseudoaneurysm is uncommon condition develops following some sort of trauma to vessel wall. Lesion consists of single cavity continuous with lumen of vessel covered by meniscus shaped thrombus. These rather uncommon pseudoaneurysms are frequently accompanied by life-threatening complications, mainly rupture and bleeding. Better outcome requires accurate, timely, and appropriate diagnosis and medical and/or surgical intervention.

**Keywords:** Blunt abdominal injury, splenic artery aneurysm, late presentation, hypotension

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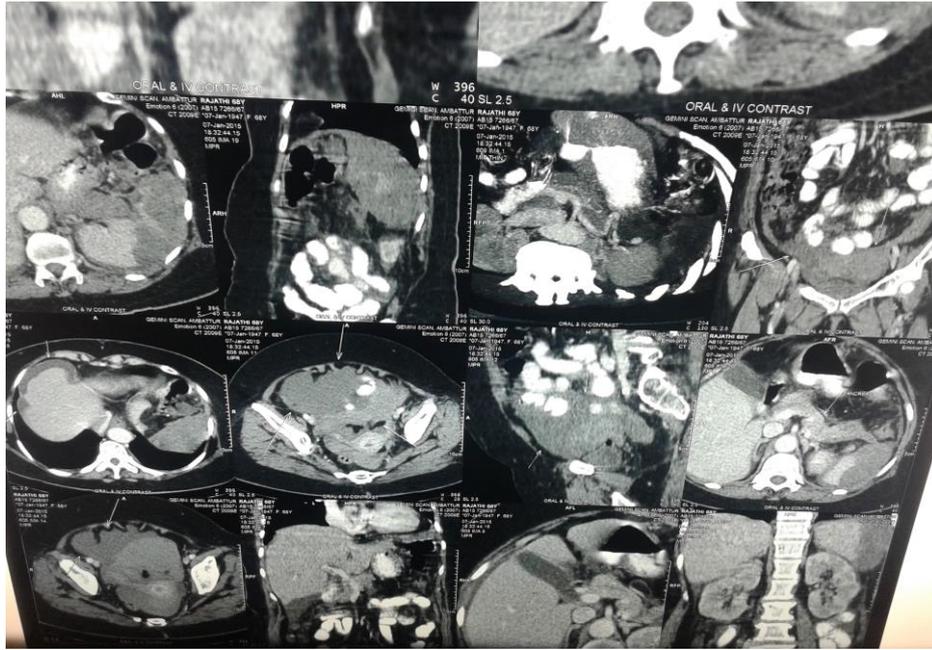
**CASE REPORT**

In our case, an elderly post-menopausal female patient presented to our casualty with diffuse abdominal pain, dizziness and disorientation. She said she was working in her kitchen preparing lunch and had stretched to reach the upper shelf of her kitchen cabinet when she suddenly felt a dull aching abdominal pain which seem to be generalised all over the abdomen. She said she subsequently felt nauseated and dizzy. She also said she was thirsty and was asking for some water to drink in our casualty. She appeared mildly disoriented and was dehydrated. She was pale and tachycardic with her pulse rate being 126/min and blood pressure 80/50 mm of Hg. An ECG was also taken and was found to be normal. She gave no history of hematemesis, bleeding per rectum, fever, fall, injury or any other co-morbidities. She did not give any history of consumption of any drugs or of any previous surgeries in the recent past. She said she was alone at home at the time of the incident and had informed her husband who was at work. Her neighbours who had come to her aid in response to her calls for help brought her to our hospital. There was no reason to doubt her history. Her husband who had arrived slightly later at the casualty also confirmed her past history, but also added that she had a trivial slip and fall in the bathroom two weeks back at their residence. She complained of mild pain of her upper and lower back at the time but later was completely fine. They had not sought any medical treatment at the time [1-5].

Following admission she quickly lost consciousness in the casualty. Her abdomen appeared distended, but was soft and a bed side USG was done which revealed free fluid in the abdomen. Blood was sent for a complete profile including blood grouping and cross matching. NG tube showed no blood. Per rectal examination showed brownish soft stools. ABG was done and was found to be normal. Foleys catheter showed high coloured urine of around 100ml. Following emergency resuscitation when her hemodynamic state improved she was quickly shifted to radiology for a CT study of her abdomen. After obtaining consent, a contrast study was done which revealed a ruptured splenic artery aneurysm resulting in hemoperitoneum.



Figure 1: CECT Abdomen



**Figure 2: CECT Abdomen**

It was concluded that the slip and fall she sustained two weeks back might have been the cause of a trivial splenic vessel injury resulting in a pseudo aneurysm with hematoma and subsequent spontaneous rupture.

She was immediately taken up for Emergency laparotomy-and-proceed after ensuring availability of blood. Gross hemoperitoneum was observed on opening the abdomen. The splenic artery aneurysm was found and a distal pancreatectomy with a splenectomy was done. The patient made an uneventful recovery and was discharged on the 7<sup>th</sup> day.



**Figure 3: Resected specimen – Spleen and Distal pancreas**

### RESULTS AND DISCUSSION

Splenic artery aneurysms are the most frequent visceral artery aneurysm accounting for as many as 60% of all the splanchnic artery aneurysms. The common etiologies include pancreatitis, trauma, congenital,

mycotic, fibromuscular dysplasia, medial degeneration with superimposed atherosclerosis and after resection of biliopancreatic cancer [6].

Patient usually presents with abdominal pain or trauma followed by gradually enlarging lesion in upper abdomen and pain. Intermittent embolism from the clot can lead to ischemic symptoms in the affected organ. Acute massive haemorrhage can lead to shock [7].

Post traumatic pseudoaneurysm is not uncommon. Trauma itself can cause injury to splenic artery and can lead to pseudoaneurysm or more commonly episode of subclinical/ clinical acute pancreatitis can lead to injury to wall of vessel leading to pseudoaneurysm [8].

Following trauma, the classical physical findings of splenic injury are left shoulder pain, left upper quadrant pain and tenderness, and Kehr's sign (left shoulder pain from irritation of inferior border of left diaphragm by hematoma). Absence of one or more or even all of these signs does not rule out splenic injury. [9] Diagnosis is based on a thorough physical examination and confirmed with the FAST examination. In a hemodynamically stable patient, treatment can be planned on the basis of contrast-enhanced CT scan, as non-operative management has been advocated, based on various grades of injury and clinical presentation.

Focused abdominal sonographic technique (FAST) in experienced hands is helpful in documenting the presence or absence of blood in the peritoneal cavity, which highly suggests the possibility of splenic injury. However, bedside FAST in the resuscitation suite does not show actual splenic injury well enough to use as a diagnostic modality for solid organ injury imaging. FAST is excellent for documenting the presence or absence of intra-abdominal fluid but should not be viewed as an equivalent to CT scanning with regard to injury site determination. [10] DPL may be a valuable adjunct if time permits and multiple other injuries are present [11].

In the stable patient, commonly defined as a patient with systolic blood pressure greater than 90 mm Hg with a heart rate less than 120 beats per minute (bpm), CT scanning provides the most ideal noninvasive means for evaluating the spleen. Helical or spiral scanners may provide even more information and may clarify the degree of injury. CT Scan is very helpful not only in confirming the diagnosis of lesion, but it also demonstrates continuation of pseudoaneurysm with parent vessel, can detect extent of thrombus component of lesion, size and extent of lesion, presence of hemorrhage and status of distal and other organ. On NCCT pseudoaneurysm appears as hypodense lesion or multilayered lesion [12].

The availability of interventional angiographic services also impacts a surgeon's decision for or against operative intervention. The use of MRI has also been reported in the literature as an option in the patient with an elevated creatinine level [13].

The major determining factors in operative intervention in the stable patient with a splenic injury include grade of injury (American Association for Splenic Trauma scale), presence of intraperitoneal blood, presence of a blush on CT scan, calculated risk of rebleeding, presence and severity of concomitant injuries, and options regarding blood transfusion.

Signs of persistent bleeding and hemodynamic instability unresponsive to fluid and blood administration are clear indications for surgery. The decision for operative intervention in other cases requires the thoughtful consideration of the surgeon [14].

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