

# Intra-Abdominal Hemorrhage Due To Traumatic Rupture Of The Inferior Mesenteric Artery (IMA) Following Blunt Abdominal Injury

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## Citation

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## Abstract

Intra-abdominal bleeding following blunt abdominal injury is a well recognized surgical emergency. Patients present with abdominal pain and symptoms of hypovolemia. The focused abdominal sonography usually shows a hypo-echoic mass in Morrison's pouch. The source of hemorrhage is usually evident on laparotomy or laparoscopy. In this report, we present the first recorded case of intra-abdominal hemorrhage due to a ruptured inferior mesenteric artery secondary to blunt abdominal injury.

## INTRODUCTION

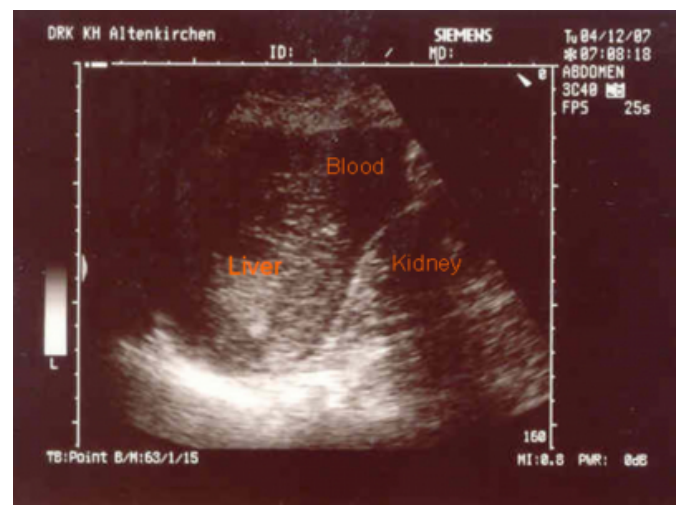
Intra-abdominal hemorrhage is a well-recognized surgical emergency. This usually results from rupture of one or more intraperitoneal organs. In this report we describe the first recorded case of intra-abdominal hemorrhage due to traumatic rupture of the IMA.

## CASE REPORT

A 70-year-old man was brought to our emergency department (ED) by paramedics after slipping of a flight of stairs. On initial assessment, he complained of abdominal and back pain. His vital signs on presentation were: respiratory rate 16/min, BP 100/60mmHg, heart rate 105/min. and temperature 37.4 degrees Celsius. His abdomen was lightly distended with mild guarding and rebound tenderness on palpation. An abdominal ultrasound in the ER showed an intra-abdominal hypo-echoic mass (see figure 1). A CBC showed: hemoglobin 11.8 g/dl, hematocrit 33.2%, WBC 17000 cells/dl.

## Figure 1

Figure 1: Sonogramm showing blood in Morrison's pouch (hepato-renal space)



Medline laparotomy was performed; about 700 ml of blood was evacuated from the peritoneal cavity. The source of hemorrhage was found to be a ruptured inferior mesenteric artery (IMA) with oozing hemorrhage. There was extensive hemorrhage into the paracolic tissue. The vascular damage was extensive, without reconstruction possibilities. In the presence of extensive sigma diverticulosis, the sigmoid and the distal portion of the descending colon were resected (see figure 2). Histological findings confirmed a rupture of the IMA with beginning hemorrhagic necrosis of the sigmoid, with bleeding into the pericolic tissue.

**Figure 2**

Figure 2: Resected sigmoid colon showing extended hemorrhage.



The patient was monitored in the ICU. Three units of cross-matched blood were transfused. On the first day after surgery, the patient suffered from a minor myocardial infarction, but later recovered fully.

**COMMENTS**

Intra-abdominal hemorrhage describes bleeding into the peritoneal cavity. Intra-abdominal hemorrhage due to trauma is usually associated with a rupture of one or more intra-abdominal organs, most commonly the spleen or the liver. Bleeding into the peritoneal cavity in females of reproductive age could be associated with a ruptured fallopian tube in the setting of an extra uterine pregnancy. Bleeding into the abdominal cavity following a traumatic rupture of the mesenteric vessels is extremely rare. A review of literature on intra-abdominal bleeding due to a traumatic rupture of the IMA was unsuccessful, thus our interest in publishing this case.

Hypotension and tachycardia as a response to bleeding in the shock-scenario, in association with diffuse abdominal pain due to blood-induced peritoneal irritation, warrants an immediate workup, including an immediate surgical consultation, especially after blunt abdominal trauma.

Tso et al. proved in 1992 that focused abdominal sonography for trauma (FAST) examination performed in the emergency department was a valuable diagnostic assessment with accuracy of almost 99% in patients at risk for abdominal injury<sup>1</sup>. In unstable patients no further diagnosis is required.

An intra-abdominal hemorrhage warrants an immediate

surgical consultation. An anti-shock therapy via i.v. fluid substitution as well as cross-matching of blood is carried out<sup>2</sup>. The source of bleeding is usually evident on exploratory laparotomy<sup>3</sup>, and thus the appropriate treatment.

The management of intra-abdominal bleeding is not limited to surgery. Medical management of stable patients has been shown to be successful. In fact, data show no increase in mortality and morbidity associated with medical treatment or delayed surgery<sup>4</sup>.

The mortality and morbidity of patients suffering from intra-abdominal bleeding is greatly determined by non-surgical complications. In elderly patients, as in this case, myocardial ischemia remains one of the leading complications. Intravenous fluid substitution greatly improves prognosis.

Bleeding from a ruptured IMA following blunt abdominal trauma is extremely rare. Our research failed to provide information on the same or a similar topic so that we consider this to be the first recorded case.

**RECOMMENDATIONS**

All patients with blunt abdominal injury should undergo a FAST examination in the ED. Ultrasound is noninvasive, involves no ionizing radiation and no known complications result from the use of ultrasound in the trauma setting.

An adequate anti-shock therapy should be started as soon as possible, even without clinical signs of shock while a surgeon is consulted.

Further imaging, e.g. CT with i.v. contrast enhancement, could locate the source of bleeding. This is recommended in stable patients.

Furthermore, we recommend a post-surgical monitoring in the ICU for at least 24 hours.

A prophylactic broad-spectrum i.v. antibiotic combination is also recommended.

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**References**

1. Tso P., Rodriguez A, Cooper C, et al. Sonography in blunt abdominal trauma: a preliminary progress report. J Trauma 1992; 33: 39-44.

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2. Mullins R, Mattox K, Feliciano D, Moore E. Management of shock, Trauma 4th Ed. New York McGraw-Hill; 2000: 195-231.

3. Kimura A. Nippon Geka Gakkai Zasshi (Japanese Journal). Ultrasonographic finding of hemoperitoneum and

indication for laparotomy in blunt abdominal trauma. 1992; 93: 1378-83

4. H. Sarihan, M. Abes. Nonoperative management of intra-abdominal bleeding due to blunt trauma in children: The risk of missed associated intestinal injuries. *Pediatr Surg Int* 1998; 13, 108-111.

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