

A Rare Case Of Rupture Of Short Gastric Vessels Leading To Idiopathic Spontaneous Intraperitoneal Hemorrhage (ISIH) Following Intractable Vomiting

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Citation

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Abstract

Hemoperitoneum due to spontaneous rupture of short gastric vessels following vomiting is rare and poses a clinical dilemma. Our patient, a 14-year-old boy presented with abdominal pain and distension following vomiting. He had anemia with tender abdomen. Computerized tomography revealed short gastric vessel discontinuity with large intrabdominal collection. Exploratory laparotomy was performed with evacuation of a large intra-abdominal collection and splenectomy. Histopathology was insignificant. Spontaneous intraperitoneal hemorrhage is rare, resulting from a variety of disease processes affecting the arterial and venous abdominal vasculature. Immediate exploratory laparotomy is the treatment of choice for a successful outcome.

INTRODUCTION

Abdominal apoplexy, or idiopathic spontaneous intraperitoneal hemorrhage (ISIH), is a rare and often fatal condition resulting from a variety of disease processes affecting the arterial and venous abdominal vasculature.¹ Immediate exploratory laparotomy is the treatment of choice², and rapid surgical intervention remains central to a successful outcome.

Our patient presented with abdominal pain and distension with no significant history. Diagnosis of hemoperitoneum following rupture of short gastric vessels was confirmed on radiology. Splenectomy with ligation of the short gastric vessels was done.

CASE REPORT

A 14-year-old boy presented with history of pain in the upper abdomen, distension, vomiting and fever for one day. There was no other significant medical history or history of trauma. On examination, he was pale and had tachycardia with normal blood pressure. Abdominal palpation was normal. Ultrasonography of the abdomen revealed a large retrogastric thick collection suggestive of blood. Blood investigations revealed anemia with normal coagulation and liver profile. Contrast-enhanced computerized tomography (CECT scan) revealed short gastric vessels discontinuity with large lesser sac collection. Exploratory laparotomy

revealed retrogastric hematoma with bleeding from the uppermost short gastric vessel with normal spleen. Evacuation of the hematoma with ligation of the bleeding short gastric vessels and splenectomy was done. The patient had an uneventful postoperative course and was discharged on day 7. The histopathology report revealed congestive splenomegaly with hilar hemorrhages and no abnormality was found in the short gastric vessels.

Figure 1

Figure 1: CT scan of the abdomen showing hemoperitoneum with large hematoma in the lesser sac and extravasation of contrast medium from the short gastric vessels

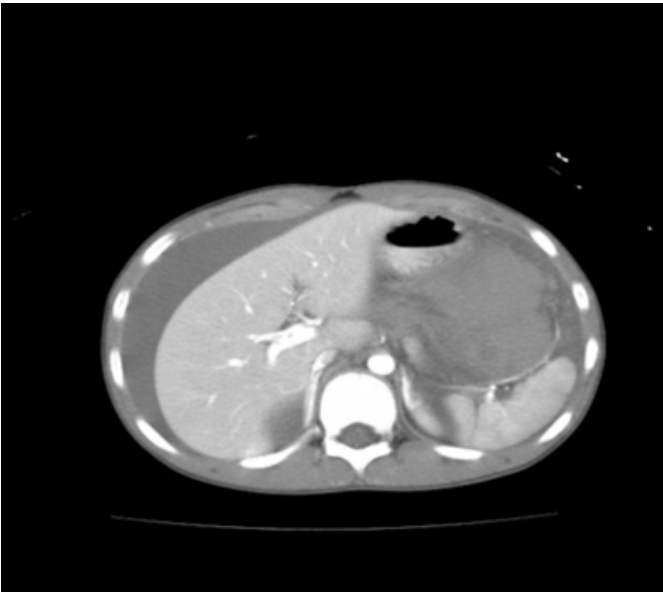


Figure 2

Figure 2: CT image of hemoperitoneum with normal solid organs

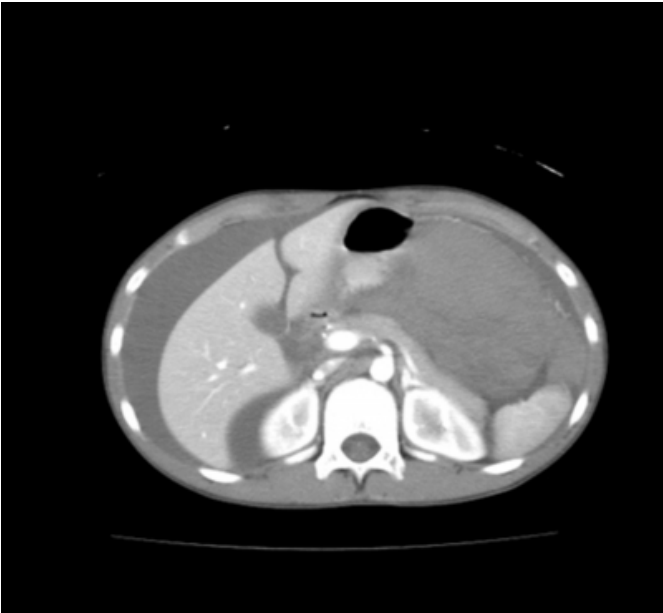


Figure 3

Table: Causes of spontaneous intraabdominal hemorrhage

Vascular
<ul style="list-style-type: none">- Rupture of abdominal aortic aneurysm- Rupture of visceral artery aneurysm (hepatic, gastroduodenal, splenic, pancreaticoduodenal, renal, gastropiploic, middle colic, inferior mesenteric, left gastric, ileocolic (maybe associated with Ehlers-Danlos syndrome))- Intraperitoneal rupture of varices in portal hypertension.- Spontaneous rupture of iliac veins
Gynecological
<ul style="list-style-type: none">- Ruptured ectopic pregnancy- Spontaneous rupture of pregnant uterus with placenta percreta- Postpartum ovarian artery rupture- Spontaneous ovarian hemorrhage (idiopathic rupture, follicular cyst or corpus luteum, ovarian cancer)
Pancreatitis
<ul style="list-style-type: none">- Erosion of adjacent vessels, involved in the process of severe pancreatitis, chronic pancreatitis or pancreatic pseudocyst
Liver
<ul style="list-style-type: none">- Rupture of benign or malignant tumor
Spleen
<ul style="list-style-type: none">- Spontaneous rupture
Adrenal gland
<ul style="list-style-type: none">- Spontaneous rupture – normal gland or secondary to tumor
Kidney
<ul style="list-style-type: none">- Spontaneous rupture – normal parenchyma or secondary to tumor
Anticoagulation
<ul style="list-style-type: none">- Patients on anticoagulation are prone to spontaneous intraperitoneal or retroperitoneal hemorrhage secondary to unrecognized minor trauma
Unrecognized trauma or denied trauma
Miscellaneous
<ul style="list-style-type: none">- Acute ruptured cholecystitis- Mediolytic arteritis of omental artery- Periarthritis nodosa

DISCUSSION

Idiopathic spontaneous intraperitoneal hemorrhage describes a rare finding of non-traumatic intraabdominal bleeding. ISIH was first reported by Barber in 1909^{3, 4, 5}. ISIH refers to spontaneous haemorrhage arising from one of the smaller abdominal arteries or veins, after haemorrhage from a grossly apparent aortic aneurysm, aortic dissection, visceral malignancy, gynaecologic lesions such as ectopic pregnancy and traumatic injury are excluded⁶. There is a male predominance (2-3:1), and the majority of cases present in

the fifth and sixth decades of life^{3,6}.

Spontaneous rupture of gastric vessels is extremely rare. Short gastric vessels are tiny branches from the splenic pedicle supplying the fundus on the greater curvature and the lower esophagus^{7,8}. Two cases of short gastric vessels rupture have been reported; one following protracted vomiting⁷ and another one after use of 'ecstasy'⁸. It has also been reported as an unusual presentation of atypical polyarteritis nodosa or Wegener's granulomatosis⁹.

Surgical intervention is the only treatment option available. In such cases of spontaneous hemoperitoneum, the entire abdomen should be thoroughly examined for other causes. Splenectomy should be done and histopathological examination is essential to rule out any immunological etiology of vascular pathology.

Abdominal small vessel rupture often occurs at the site of an aneurysm, but up to 30% of cases have no identifiable source^{3,5}. Historically, aneurysms have been mycotic, syphilitic, or traumatic in origin but are now more likely related to essential or portal hypertension^{2,3}. Fibromuscular dysplasia has also been associated with aneurysm when a specific etiology of venous disruption remains elusive. Arterial aneurysms often occur at secondary or tertiary branch points from the aorta; 60% involve the splenic artery, 22% renal, and 10% to 20% hepatic arteries, with common celiac and mesenteric arteries less common³. Most cases with no identifiable source are probably related to common vascular diseases including arteriosclerosis and essential hypertension.^{3,5} Spontaneous haemorrhage may be associated with inflammatory and necrotizing processes such as polyarteritis nodosa and rheumatoid arthritis, etc.^{3,4}. Venous rupture, on the other hand, is usually associated with portal hypertension due to hepatic cirrhosis¹⁰.

The exact mechanism is unknown but likely represents weakness of the tunica media, predisposing to rupture in the face of abrupt increases in pressure, and pathology specimens regularly exhibit disruption of elastic lamellae^{3,5}.

¹¹. An aneurysmic stage does not necessarily precede the spontaneous rupture of a visceral artery^{4,11}. Rare cases of

abdominal apoplexy have been attributed to arterial dissections involving splanchnic vessels such as the gastroduodenal, hepatic, superior mesenteric, gastric, and splenic arteries^{1,11}. Various theories regarding risk factors for arterial dissection include common disorders such as essential hypertension and less common connective tissue disorders^{1,11} such as the Marfan and Ehlers-Danlos syndromes.

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