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Case report

A Rare Cause Of Acute Abdomen In Middle-Aged Man: Idiopathic Spontaneous Hemoperitoneum

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ABSTRACT

Introduction and importance: Idiopathic spontaneous hemoperitoneum is a rare and often life-threatening condition. It is an uncommon cause of acute abdomen; it represents a real emergency condition and must be considered in any patient with atypical abdominal pain and hemodynamic instability.

Case presentation: This is a detailed case presentation and non-operative management of idiopathic spontaneous hemoperitoneum with atypical abdominal pain. This is 45-year-old male was admitted with a history of progressive abdominal pain for one year. He denied any history of recent trauma, physical assault, bleeding disorder, or drug abuse. The plain abdominal film was unremarkable, and a computed tomographic scan with intravenous contrast (CT) revealed an intra-peritoneal hemorrhage, while esophagogastroduodenoscopy (EGD) and CT angiography (CTA) revealed no abnormality. The patient was managed non-operatively with a good outcome. Six days later, the patient was discharged with further follow-up in outpatient. The follow-up computed tomographic scan with intravenous contrast revealed complete resolution of the hemoperitoneum, and the patient remained asymptomatic.

Clinical discussion: Spontaneous hemoperitoneum is usually the result of an unknown cause in the non-traumatic abdomen. Also, in between 30 and 38 % of documented cases, the source of bleeding could not be determined. The pathogenesis remains unclear. The "double-rupture" phenomenon can explain the clinical deterioration after the initial presentation of the hemodynamically stable. Patient. Prognosis is dependent on early diagnosis and intervention.

Conclusion: Success with non-surgical management of idiopathic spontaneous hemoperitoneum has been reported in limited cases, including the present one.

1. Introduction and importance

Barber et al. (1909) first described idiopathic spontaneous intraperitoneal hemorrhage (ISIH). The term "abdominal apoplexy" was coined by Green and Powers in 1931. One hundred ten cases of ISIH were documented by Carmeci et al. between 1909 and 1998. In the medical literature, spontaneous hemoperitoneum is defined as intraperitoneal bleeding without abdominal trauma; it is a rare and potentially fatal condition. Meanwhile, the exact pathogenesis is not known [1,2]. But there is a hypothesis that suggests bleeding occurs secondary to a minor rupture of small mesenteric blood vessels for an undetermined reason. Another theory is that uncontrolled hypertension could be another etiological factor. An atypical presentation of abdominal pain is considered the hallmark of diagnosing idiopathic spontaneous hemoperitoneum [3,4]. The work has been reported in line with the SCARE 2020 criteria [5].

2. Case presentation

This is a 45-years old male was admitted through the Emergency Department with a history of acute onset of abdominal pain associated with constipation for a one-day duration. The patient denied any history of trauma with a significant history of uncontrolled hypertension, not a compliment on his medication. Basic blood investigations showed hemoglobin of 14 mg/dl, normal white cell count, renal, liver panels, and pancreatic enzymese. On presentation, his vital was a temperature of

Abbreviations: ISIH, Idiopathic spontaneous intraperitoneal hemorrhage; CTA, Computed tomography angiography; EGD, Esophagogastroduodenoscopy.

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(37 °C), a pulse of 82 rate beats/min, and 100 % oxygen saturation on room air. The patient on admission was hypertensive; he received hydralazine. Subsequently, his blood pressure returned to 119/79 mm Hg. Physical examination revealed tenderness in the epigastric area, but no sign of peritoneal irritation with normal bowel sound, and the digital rectal exam was unremarkable. In the imaging department, while doing the Plain abdominal radiography patient became hypotensive (71/35 mm Hg) with a pulse rate of 110, and oxygen saturation was 88–91 %.

Noradrenaline infusion was started, and the patient's hemodynamics improved. A contrast-enhanced abdominal computed tomography demonstrated a high-density fluid (blood) in the pelvis, mesentery, anterior para-renal space, and surrounding second and third parts of the duodenum, non-separable from the uncinate process of the pancreas. No extravasation or blushes were observed, and the source of the fluid remained unknown. Furthermore, *computed tomography angiography* (CTA) and upper endoscopy were unremarkable (Fig. 1). Although the patient dropped Hemoglobin from 15 to 12 g/dl, he remained clinically stable. The patient was managed conservatively with intravenous fluid ringer's lactate), analgesia, and anti-hypertensive medication. The condition of the patient was monitored by a repeated abdominal examination and serial hemoglobin level check-ups and controlled hypertension. The patient improved dramatically with conservative management and was discharged after six days with further follow-up in outpatient. Surveillance computed tomographic scan with intravenous contrast revealed complete resolution of hemoperitoneum. The patient was asymptomatic and reassumed his normal life.

3. Clinical discussion

Apoplexy was originally a “Greek” word that means rupture of an internal organ, and the accompanying symptoms “ struck down or away.” The incidence is higher among elderly males; the male-to-female ratio is 3:2, and therefore the prevalence is most significant among individuals aged between (50–70 years). The pathogenesis of Idiopathic spontaneous hemoperitoneum (ISH) is scanty described in the medical literature. There is a theory that suggests the fragility of the media

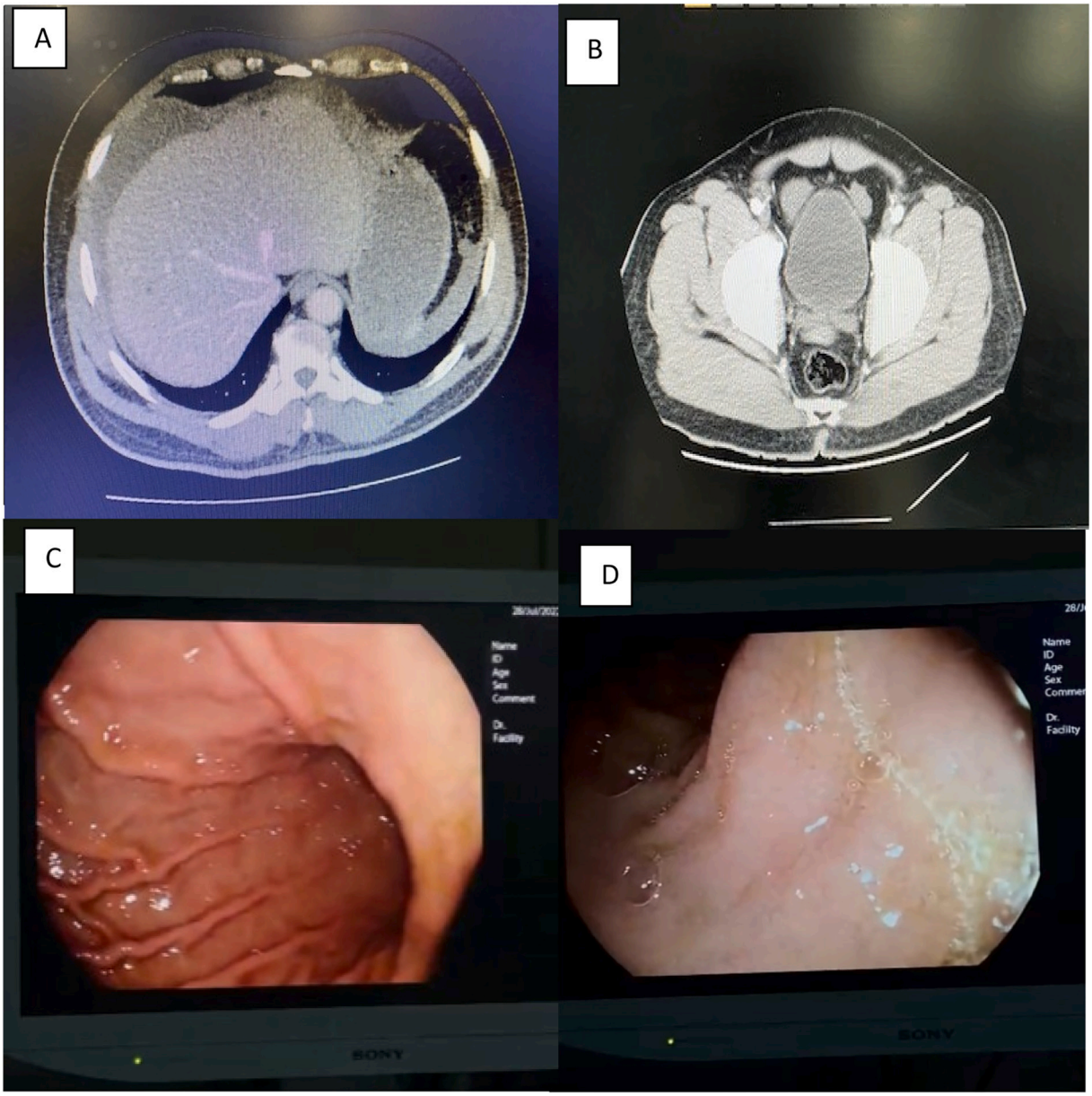

Fig. 1. Enhanced abdominal CT revealed subcapsular liver and splenic hematoma (A) urinary bladder hematoma (B) upper endoscopy demonstrated no bleeding from stomach and duodenum (C, D).

lumina of small splanchnic and mesenteric blood vessels poses a risk of rupture that is proportional to the intra-abdominal pressure that is commonly associated with uncontrolled hypertension; this condition is observed in (30–55 %) of cases [6,7]. Spontaneous hemoperitoneum is less frequently found by a disease that would be conjunct to the inflammatory disorder, ruptured varices, coagulopathy, vasculopathy, malignancy, autoimmune, and gynecological disease in female patients. On a case-by-case basis, spontaneous hemoperitoneum has minimal clinical manifestations because it is such a rare condition [8]. Frequently, the patient is brought to the emergency department (ED) with gastrointestinal symptoms and an acute abdomen that is not clearly defined. The variety has reported vomiting, nausea, abdominal distention, symptomatic anemia, and seldom melena and hematochezia; the patient might present with hypovolemic shock and cardiovascular collapse. Retrospectively if the patient collapses after being hemodynamically stable, it can be explained by double–rupture phenomena characterized by sudden abdominal pain and hypotension. On clinical examination of the abdomen, they may have flank or diffuse tenderness and guarding, rectal bleeding, abdominal ascites, and lower limb edema rarely reported in the medical literature [9].Noteworthy, spontaneous hemoperitoneum could be retroperitoneal, intraperitoneal, or both, and based on the severity of blood loss; the patients rapidly advance symptoms and signs ranging from mild to severe one, In other terms, mild or sparse bleeding is associated with minimal or no systemic effects [10,11]. Most of the time: the patient with retroperitoneal bleeding, their symptoms will be masked. In contrast, intraperitoneal bleeding will cause peritoneal irritation, and symptoms will predominate. The precise diagnosis of Idiopathic spontaneous hemoperitoneum is complicated; focused assessment by sonography in trauma (FSAT) can be used as a part of the assessment of intra-peritoneal bleeding in unstable hemodynamic patients [12,13]. there are a multiple suggestions of diagnosis reported in several cases. Eugene F et al. reported that an emergent exploratory laparotomy is still a valuable diagnostic procedure. According to Varsha, computed tomography angiography (CTA) is a diagnostic and therapeutic gold standard. Autopsy and subsequent lesion staining and highlighting with Movat pentachrome revealed the area of disruption of the internal lamina with an area of ruptured blood vessels; Fabrice and Lori N et al. referenced them as supporting the final diagnosis [14,15]. Yang Hwang et al. reported that patients underwent exploratory laparotomy without having a visible bleeding site, and the mortality rate from abdominal apoplexy declined to 40 % from the 100 % observed in non-operative management. The most common source of detectable bleeding during the diagnostic exploratory laparotomy is listed from most frequent to least often (Table 1). Of thirty-five cases studied by Ulugbek et al., ruptured aneurysms of the middle colic artery were found. Hence, in most cases involving non-therapeutic exploratory laparotomy, the origins of spontaneous bleeding could not be determined in an average of thirty to thirty-eight percent (30–38 %) in reported cases [16,17]. The evidence of unexpected death is reported in the medical literature. A middle-aged female her body was discovered at home; the autopsy revealed the cause of death secondary to peritoneal cavity continued extensive free blood and clots without a localized source of the bleeding despite the mesenteric and visceral blood vessels examination; the case was reported by F Dedouit et al. [18–20]. A higher mortality risk is associated with abdominal apoplexy in individuals with hypovolemic shock. Kasotakis stated that angioembolization is the first line of management in stable patients regardless of the causes of spontaneous hemoperitoneum. In the absence of deterioration both clinically and radiographically, our study demonstrates that non-operative management is the gold standard for idiopathic spontaneous hemoperitoneum. The principle of treatment focuses on adequate resuscitation and cardiovascular monitoring. We strongly advocate the non–operative management over the unnecessary diagnostic exploratory laparotomy in the absence of the origin of bleeding in the overall stabilized condition, and we achieve no mortality in this study. The patient's age, clinical condition, and bleeding source will determine whether surgical or radiological intervention is chosen. Damage control surgery and immediate diagnostic exploratory laparotomy are recommended in a selected group of patients who experienced hemorrhagic/hypovolemic shock at the time of presentation, generalized peritonitis, transit, or non-responder despite adequate resuscitation and blood transfusion, who required inotropes support, active extravasation on imaging, dissected or aneurysm of blood vessels un-amenable to angioembolization as an alternative option. The prognosis of the patient is dependent on early diagnosis and intervention. The resolution of hemoperitoneum is best assessed with computed tomography (CT) scans with intravenous contrast.

Table 1
Source of bleeding in non-traumatic abdominal hemoperitoneum.

Source of bleeding	Percentage %
Splenic artery	60 %
Hepatic artery	20 %
Superior mesenteric artery	5 %
Middle colic artery	3 %
Gastric & gastroepiploic arteries	1 %

4. Conclusion

We report an uncommon cause of acute abdomen in middle-aged male. Spontaneous hemoperitoneum is a rare clinical entity that necessitates a high clinical index of suspicion, particularly in healthy young and middle-aged populations. We conclude that the most frequent cause of spontaneous hemoperitoneum is Idiopathic. This condition is concomitant with long-standing uncontrolled hypertension and that is a significant predisposing factor. So far, idiopathic spontaneous hemoperitoneum can be diagnosed by excluding the differential diagnoses of acute abdomen. Since the unexpected image finding has no clinical correlation at the presentation time, the final diagnosis is still difficult for the surgeon and radiologist to determine. Tc 99m-labeled red blood cell radionuclide imaging is another uncommon diagnostic tool for identifying the source of active bleeding and can be used in cases with equivocal findings. The non-operative strategy is the cornerstone to approaching Idiopathic spontaneous hemoperitoneum in a stable patient. The supportive measures yielded a better outcome; surgical or radiological intervention may be undertaken in selected patients if required, as described.

5. Learning points

- The majority of spontaneous hemoperitoneum is idiopathic.
- Idiopathic spontaneous hemoperitoneum should be included as one of the differentials of the acute abdomen without history of abdominal trauma.
- The surgical or radiological intervention will be selected depending on the patient's age, clinical state, and source of the bleeding.
- “Hemorrhagic” hypovolemic shock increases the risk of mortality rate.
- Role of RBC scintigraphy for localization of the origin of bleeding in equivocal cases.
- Damage control surgery and immediate diagnostic exploratory laparotomy are recommended in a selected group of patients.
- In the absence of deterioration both clinically and radiographically, non-operative management is the gold standard.

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Not commissioned, externally peer-reviewed.

Consent

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CRediT authorship contribution statement

Sahar M Aldhafeeri: corresponding author wrote an abstract and discussion.
Abdulsalam Aljoaib: wrote the introduction.
Abdulaziz Alghazwi: senior author, wrote the structured abstract and conclusion.
Sharifa Alghumlas: wrote highlights, imaging, and table.
Radhwan Alghamdi: wrote the case presentation.
Falah Alotiabi: searched and wrote references.

Declaration of competing interest

No conflict of interest.

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