H69 A Fatal Idiopathic Spontaneous Intraperitoneal Hemorrhage (ISIH) (Spontaneous Hemoperitoneum) in a 56-Year-Old Male With Cirrhosis

Gregory M. Dickinson, MD, Montefiore Medical Center, Bronx, NY 10467; Hannah C. Jarvis, MRCS*, Harris County Institute of Forensic Sciences, Houston, TX 77054; Jacob Steinberg, MD, Montefiore Medical Center, Bronx, NY 10467*

Learning Overview: After attending this presentation, attendees will better understand the signs, symptoms, risks, and findings associated with ISIH.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by highlighting the difficulties of evaluating a spontaneous intraperitoneal hemorrhage for both clinicians and forensic pathologists and highlight the likely associations to be aware of for improving diagnostic accuracy.

A 56-year-old man with a history of chronic alcohol abuse collapsed at work and was brought to the emergency department. Despite resuscitative efforts, he remained hypotensive and tachycardic. His hemoglobin dropped from 8.9g/dL to 2.1g/dL (reference range 14.0g/dL–17.4g/dL) over the course of several hours. Additionally, the patient's prothrombin time was >200 seconds (reference range: 26.1–33.8 seconds) and his partial thromboplastic time was 24.5 with an International Normalized Ratio (INR) of 2.4 (reference range: 9.5–12.0 seconds and 0.9–1.2, respectively). An abdominal Computed Tomography (CT) scan revealed abdominopelvic hemorrhagic ascites without active extravasation. Multiple blood products were transfused, but without any clinical improvement, and the patient died.

At autopsy, the abdomen was distended with a fluid wave. There was 3.5 liters of blood in the peritoneal cavity. Despite a thorough search, the source of the hemorrhage could not be identified. The patient also had hepatomegaly (2,750 grams) with nodular and fatty changes. On histology, the liver showed steatosis and fibrosis, consistent with cirrhosis. The manner of death was natural, and the cause of death was complications of coagulopathy due to severe liver disease.

Peritoneal hemorrhage may be secondary to aneurysmal rupture, solid organ malignancy, inflammatory erosive processes, or trauma. The cause may also be idiopathic.[1] Trauma and non-malignant gynecological conditions account for greater than 90% of peritoneal hemorrhages. The major cause in women is ruptured ectopic pregnancy, and the major cause in men is post-traumatic rupture of the liver or spleen.[2] Non-traumatic peritoneal hemorrhage is a rare condition. ISIH was first reported by Barber in 1909. The term "abdominal apoplexy" was coined by Green and Powers in 1931 as a comparison to its cerebral counterpart of historical significance.[1] ISIH is a diagnosis of exclusion after aortic dissection, ruptured aortic aneurysm, malignancy, gynecologic lesions (ectopic pregnancy), traumatic injury, or other obvious sources of hemorrhage are ruled out. It is thought to be caused by a spontaneous rupture of the smaller abdominal arteries or veins, especially at branch points where small aneurysms may form.[3] Approximately 30% of cases have no identifiable cause.[4] Likely risk factors include arteriosclerosis, essential hypertension, portal hypertension, and liver cirrhosis.[1,4] The exact pathophysiology is unknown but likely represents weakness of the tunica media, which predisposes the vessel to rupture in the face of abrupt increases in pressure. Spontaneous hemorrhage may also be associated with inflammatory and necrotizing processes, such as polyarteritis nodosa and rheumatoid arthritis. Venous rupture is thought to be associated with portal hypertension.[1,3] There is a male predominance, and the majority of cases present between and 50 and 60 years of age.[1,4]

Reference(s):

1. Harbour, L., Koch, M., Louis, T., Fulmer, J. and Guileyardo, J. 2012. Abdominal Apoplexy: Two Unusual Cases of Hemoperitoneum. *Baylor University Medical Center Proceedings.* 25(1):16-19.
2. Sincos, I., Mulatti, G., Mulatti, S., Sincos, I., Belczak, S. and Zamboni, V. 2009. Hemoperitoneum in a Cirrhotic Patient Due to Rupture of Retroperitoneal Varix. *HPB Surgery*:1-5.
3. Cawyer, J. and Stone, C. 2011. Abdominal Apoplexy: A Case Report and Review. *The Journal of Emergency Medicine.* 40(3): 49-52.
4. Battistini, A., Marchesi, M., Amadasi, A., Rancati, A., Gentile, G. and Zoja, R. (2017). Death Due to Non-Traumatic Hemoperitoneum in Milan 2002–2016, With Focus on Two Cases of Abdominal Apoplexy (Idiopathic Spontaneous Hemoperitoneum) and Review of the Literature. *Legal Medicine*. 29: 13-17.

ISIH, Spontaneous Hemoperitoneum, Abdominal Apoplexy