CASE REPORT

# Hepatic portal venous gas does not show the severity of intestinal ischaemia

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## Abstract

Hepatic portomesenteric venous gas is a rare condition. Although a CT scan can show hepatic portal vein gas, the intestine's condition can still be misdiagnosed at the very early stage. Accordingly, the decision to operate has to be made based on or after a physicial examnination and laboratory results.

In this report, we present a case of portomesenteric venous gas in which the gas was no longer discernible on the control CT scan, even though the patient developed peritonitis.


**Keywords:** portomesenteric venous gas, intestinal ischemia, peritonitis.

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## Introduction

Hepatic portomesenteric venous gas (HPVG) is a rare condition, the detection of which has become easier due to the increased use of abdominal computed tomography (CT).[1] The most common cause aetiology is mesenteric ischaemia, but many other abdominal and extra-abdominal causes have also been reported.[1-5]

An early decision on surgical intervention is important for a patient presenting with HPVG, regarding surgery or conservative therapy. In this report, we present a case of HPVG which had resolved, yet the patient developed intestinal necrosis.

## Case Report

A 56-year-old woman with right lower quadrant abdominal pain, whose CT scan showed HPVG within the whole liver, (Figure-1) was transferred to Samsun Medicalpark Hospital, Istanbul, Turkey emergency department from a local hospital, where she was admitted in October 2020. There was no abnormality other than the HPVG detected on the abdominal CT scan. On physical examination, she had only mild tenderness at the right lower quadrant, and bowel sounds were audible. Her abnormal laboratory values were WBC: 13.01( normal range: 4 to 10 k/ml) and CRP: 0.99 (normal range: 0.001 to 0.5 mg/dl). A plain abdominal x-ray showed one air–fluid level at the right lower quadrant.

We treated her medically according to the physical and radiological findings. She had severe abdominal pain and rebound tenderness on the next day. Her CRP level inreased to 25.7, her D-dimer level was 4.68 (normal range: 0 to 0.5) and the procalcitonin level was 1.31 (normal range: 0 to 0.5). A chest CT scan was done on the next day to rule out COVID-19, showing a decreased HPVG in the liver.

The patient's clinical condition was suggestive of an intestinal ischaemia, due to which she underwent emergency surgery. An exploratory laparotomy showed the necrosis of 10 cm of ileum secondary to the adresion (Figure-2). A resection of the necrotic segment of the ileum and anastomosis was performed. The clinical course after the surgery was uneventful, and she was discharged on the sixth post-operative day.

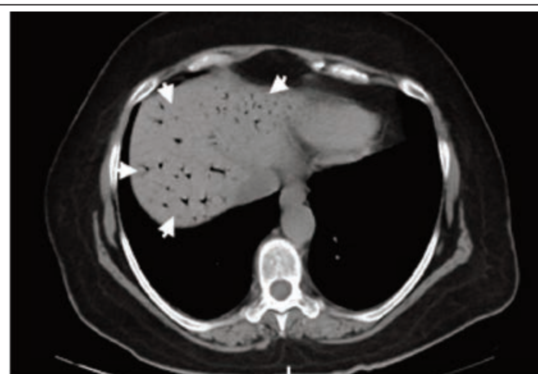

**Figure-1:** The white arrows show hepatic portomesenteric venous gas.

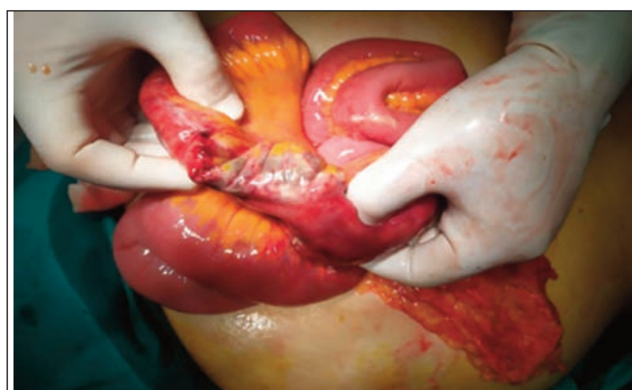

**Figure-2:** The necrosis of ileum.

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Consent was obtained from the patient for publishing her case.

## Discussion

Hepatic portomesenteric venous gas is most commonly caused by intestinal ischaemia, but some other intra-abdominal conditions, such as dilatation of the intestine, diverticulitis, pyleflebitis and pneumotosis intestinalis, can also cause HPVG[1,3,5-7]

Hepatic portomesenteric venous gas appears fairly early, at the stage of ischaemia before necrosis.[8] During the ischaemic stage, conservative therapy can preclude the development of necrosis.[3,6,9] It is thus important to identify the presence of bowel ischaemia in HPVG patients without signs of peritoneal irritation.[4] Computed tomography scans display high sensitivity in the diagnosis of HPVG and can show intestinal tract conditions such as free-air or intestinal wall necrosis.[4,10] The decision between proceeding with surgery or conservative treatment has to be made based on the peritoneal signs and CT findings.[2,4]

The disappearance of hepatic portal vein gas after conservative therapy in the absence of peritonitis has been reported.[3,9] This disappearance of HPVG, however, does not mean that the intestinal ischaemia has been ameliorated. Our patient developed peritonitis, even though a CT scan done one day later showed the HPVG to have resolved.

## Conclusion

Even if the diagnosed HPVG resolves, a patient can still develop intestinal necrosis. Although a CT scan can show HPVG, the intestine's condition can be misdiagnosed at a very early stage. Therefore, the decision for surgery has to be made according to a physicial examnination and laboratory results.

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**Conflict of Interest:** None.

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