

# Hepatic Portovenous Gas in a Young Male

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**Abstract:-** Hepatic portal venous gas is diagnosed via computed tomography due to unusual imaging features. Hepatic portal venous gas when linked with pneumatosis intestinalis has a high mortality rate and required urgent intervention. We present a case of a 35 year-old male patient with a 12 hour history of generalised abdominal pain, watery diarrhoea and vomiting. He had a background of gout and alcoholism. He had an unmeasurable blood pressure and sinus tachycardia when he was first seen. The patient was stabilized after undergoing vigorous intravenous fluid resuscitation, and he was then sent for a CT scan. A considerable amount of hepatic portovenous gas was seen on the CT scan, coupled with dilated and diffusely aberrant small and large bowel with mucosal enhancement.

**Keywords:-** Hepatic Portal Venous Gas, Enterocolitis, Small Bowel Obstruction, Subserosal, Submucosal.

## I. INTRODUCTION

Hepatic portal venous gas (HPVG) is a medical illness that affects the portal venous system and its branches. Clinical signs of HPVG might range from mild disorders to serious illnesses<sup>[1]</sup>. HPVG was first reported as a finding in new-borns with necrotizing enterocolitis. Since then, it has been linked to a number of underlying abdominal ailments, ranging from benign conditions to potentially fatal conditions needing emergency surgery<sup>[2]</sup>. When HPVG is diagnosed, it might indicate a number of underlying clinical disorders, from benign etiologies to serious illnesses requiring emergency surgery<sup>[3]</sup>.

The diagnosis of HPVG implies various underlying clinical conditions, ranging from benign etiologies to severe clinical conditions that need immediate surgical treatment.

## II. CASE STUDY

A 35 year-old male patient came via ambulance to the emergency department with a 12 hour history of generalised abdominal pain, watery diarrhoea and vomiting. He had a background of gout and alcoholism. The patient denied abusing drugs when questioned further. He had an unmeasurable blood pressure and sinus tachycardia when he was first seen. A physical examination found that his right side of the abdomen was stiff. With a lactate level of 15, venous blood gas analysis showed a severe anion gap metabolic acidosis; a complete blood count revealed neutrophilia. Elevated lipase levels were observed along with abnormalities in liver function tests. The patient was stabilized after undergoing vigorous intravenous fluid resuscitation, and he was then sent for a CT scan. A considerable amount of hepatic portovenous gas (HPVG) was seen on the CT scan, coupled with dilated and diffusely aberrant small and large bowel with mucosal enhancement. Significant stranding around the external iliac and common femoral arteries was also noted indicating diffuse bowel ischemia. Sadly, the patient passed away before being moved from emergency room, despite the surgery team plans to perform an exploratory laparotomy. Without a discernible underlying cause, a post-mortem investigation demonstrated indications of acute small intestinal ischemia. One theory was that the reason could have been mechanical, like a tiny bowel volvulus that resolved on its own.

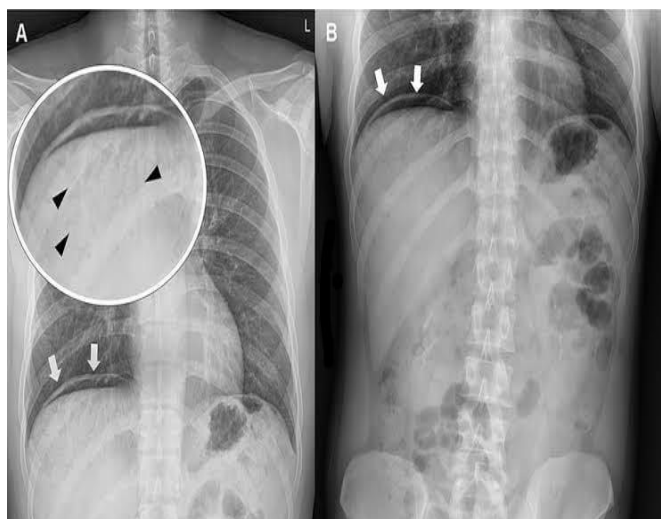


Fig 1: Plain Radiographs of the Chest (A) and Abdomen (B) Displaying Hepatic Portal Venous Gas (Arrow Head) and Subphrenic Free Air (White Arrow).

### III. DISCUSSION AND CONCLUSION

The literature refers to HPVG as gas embolization of the portal venous circulation. Bowel necrosis (72%), ulcerative colitis (8%), intra-abdominal abscess (6%), small bowel obstruction (3%), and gastric ulcers (3%), are also frequently linked to HPVG. We are presenting HPVG as an uncommon but well-known Crohn's disease consequence, as it is shown in the case. About 58% of HPVG cases linked to Crohn's disease are iatrogenic, meaning they resulted from blunt abdominal trauma, barium enema studies, or colonoscopies<sup>[4, 5]</sup>. Three potential mechanisms of HPVG are mucosal injury, intestinal distension, and sepsis brought on by gas-forming bacteria. Of the patients with hepatic portal venous gas, over two-thirds had a necrotic gut. Gas-filled subserosal and submucosal cysts in the digestive system, known as pneumatosis intestinalis (PI), are often accompanied with gas in the hepatic portal vein<sup>[6, 7]</sup>. Simple abdominal X-rays can show branching radiolucencies that extend to within 2 cm of the hepatic capsule, which is indicative of hepatic PVG. They are most useful in revealing PVG when the patient is in the left lateral decubitus posture<sup>[8]</sup>. Treatment for varices secondary to PVT involves endoscopic elimination with VBL, beta-blockers, and nitrates, and is comparable to methods for varices from other portal hypertension mechanisms. According to one study, these procedures are very effective and low risk; it shows a 95% 5-year survival rate and no mortality from recurrent bleeding in cases of extrahepatic portal vein obstruction.<sup>[9]</sup>

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