

# Hepatic portal venous gas from perforated sigmoid diverticulitis

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**H**epatic portal venous gas (HPVG) is a rare entity that is usually indicative of an abdominal catastrophe. We describe a case in which the gas originated from a perforated sigmoid diverticulum.

## Case history

A 68-year-old man was seen in the emergency department with fever, rigors and left lower quadrant pain 2 days after being discharged from hospital for treatment of sigmoid diverticulitis. He was febrile (body temperature 40°C) and hypotensive (blood pressure 90/60 mm Hg). There was a firm, tender mass in the left lower quadrant. His leukocyte count was  $19.7 \times 10^9/L$ . Urgent CT revealed the unusual finding of

gas scattered throughout the portal venous branches in the liver (Fig. 1). There was air in an abscess in the left retroperitoneum, and gas was seen in the inferior mesenteric vein (Fig. 2). A diagnosis of a retroperitoneal abscess and portal pyelophlebitis was made, secondary to perforated sigmoid diverticulitis.

Emergency laparotomy revealed a large diverticular mass in the left lower quadrant and an abscess extending from the sigmoid mesentery into the left retroperitoneum. The abscess was evacuated and a Hartmann's resection was performed. Blood cultures grew *Enterococcus* and *Pseudomonas* spp. The patient had an uncomplicated postoperative course, and the colostomy was closed 6 months later.

## Discussion

Wolfe and Evans<sup>1</sup> were the first to describe HPVG, in 1955, in a group of infants who had necrotizing enterocolitis, intestinal obstruction or diarrhea with intestinal pneumatosis.

The first adult case was a patient with massive small-bowel infarction from mesenteric arterial occlusion.<sup>2</sup> It was postulated that gas under pressure within the bowel lumen entered mesenteric veins and gathered in the portal venous branches within the liver, that gas within an abscess cavity could escape into mesenteric veins and cause HPVG. This latter source was suggested as an explanation when HPVG was first reported in patients with complicated diverticulitis.<sup>3,4</sup> A common feature

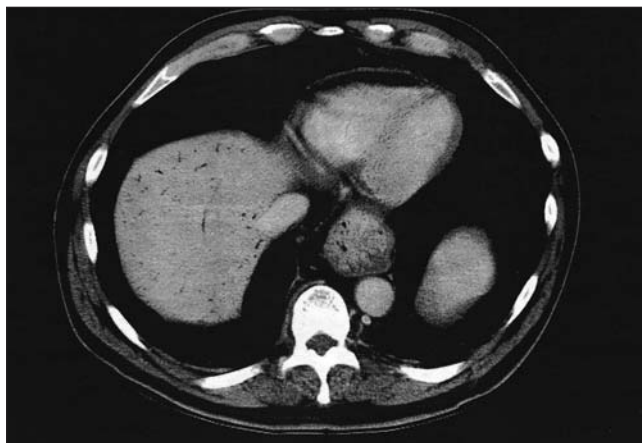


FIG. 1. CT scan of the abdomen demonstrating multiple linear gas densities in peripheral branches of portal vein within the liver.



FIG. 2. CT scan demonstrating gas in a retroperitoneal abscess (arrow).

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## Note de cas

of the cases, shared by our patient, is the presence of mesosigmoid abscesses dissecting between the leaflets of the sigmoid mesentery. The typical CT finding is that of linear-branching radiolucencies within 2 cm of the liver capsule.

The review by Kinoshita and associates<sup>5</sup> of 182 cases of HPVG showed that it was most commonly associated with intestinal necrosis (43%), followed by digestive tract dilatation (12%), intraperitoneal abscess (11%), ulcerative colitis (4%), complication of endoscopic procedures (4%) and Crohn's disease (4%).

The overall mortality was 39%, and it was highest when associated with intestinal necrosis (75%). There appear to be no long-term consequences of HPVG in patients who survive.

**Competing interests:** None declared.

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