

Portal Vein Gas Due to Ischemic Bowel Disease

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Description

A 70-year-old man presented to our emergency department with acute onset of abdominal pain and vomiting. He had the history of atrial fibrillation and acute cholecystitis post cholecystectomy. On arrival, his vital signs were as the following: body temperature of 37.9°C, pulse rate of 137/min, respiratory rate of 30/min, and blood pressure of 136/84 mmHg. Physical examination disclosed diffuse abdominal tenderness on deep palpation. Results of laboratory examinations were as follows: white cell count 16,800/mm³ with predominance of neutrophil (84.5%), creatinine 1.2 mg/dl, and C-reactive protein 186 mg/L (normal reference <6 mg/L). Computed tomography (CT) of abdomen showed extensive hepatic portal vein gas (Figure 1, arrows) and the branching pattern with a peripheral distribution extending to within 2 cm of the liver capsule, involving predominantly the left liver lobe. Because the central air lucencies do not extend to within 2 cm of the liver capsule, we can exclude the diagnosis of pneumobilia. Therefore, the presence of gas was confirmed in the portal veins. Exploratory laparotomy was performed for acute abdomen, and ischemia change of terminal ileum secondary to a splanchnic embolus was identified. Therefore, he received resection of ischemic intestine. The post-operation course was smooth, and he was discharged uneventfully one month later.

Discussion

Portal vein gas in adult was first described by Susman and Senturia in 1960 [1], and it is defined as the presence of tubular, branching translucencies which are distributed within 2 cm of liver capsule [2]. It should be differentiated from pneumobilia, which usually presents with air located centrally within the liver. The presence of portal vein gas usually indicates intra-abdominal diseases, such as ischemia bowel disease, intra-abdominal infection, inflammatory bowel disease, iatrogenic injury, post-transplant surgery and abdominal trauma [1,2]. The pathogenesis of portal vein gas may be caused by the damaged intestinal mucosa producing intraluminal gas, which further circulates into venous system. Another possible mechanism is that the gas forming-bacilli may produce gas within the intestinal wall and the gas enters the portal vein. CT is a sensitive diagnostic tool for detection of portal vein gas, such as our demonstration. Moreover, it can provide other useful information about underlying pathology. Although the findings of portal vein gas are always considered as an ominous sign, more and more benign and non-fatal causes of portal vein gas are recognized as well as the increasing use of CT scan [3]. In other words, the presence of portal vein gas cannot predict prognosis. The outcome of patients with portal vein gas should be determined by its pathology

and the underlying diseases [3]. In conclusion, we showed a typical finding of portal vein gas in CT and demonstrated that this finding may not be a lethal sign.



Figure 1: Computed tomography of abdomen showed extensive hepatic portal vein gas (arrows)

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