Portomesenteric vein gas is a rare condition, which pathogenesis is not completely understood. One of causes is e.g. mesenteric ischemia. Pathogenesis of this condition are: intraabdominal sepsis, interventional procedures, liver transplantation, Crohn disease and trauma. In 15% of causes its idiopathic. Hepatic portal venous gas predict high risk of mortality (>50%). An advanced radiology techniques such as computed tomography can be helpfull in recognizing of this pathology stage. We want to report a case of 83-year-old man with acute abdominal pain after cardiovascular procedure, with portomesenteric vein gas and bowel pneumatosis detected on computed tomography.

Key words: portomesenteric vein gas, pneumobilia, bowel pneumatosis

CASE REPORT

We want to present a case of 83-year-old man with a history of hypertension and heart failure who presented with acute abdominal pain. Subsequently he underwent coronary angiography in 2012, which demonstrated critical stenoses of coronary arteries. Therefore the patient was qualified to cardiac surgery procedure – OPCAB (off pump coronary artery bypass). Furthermore, he had a history of left nephrectomy due to kidney tumor, appendectomy and left leg varicectomy.

4 days after OPCAB operation concerning symptoms occurred, including: abdominal pain, nausea, vomiting. The patient had signs of peritonitis of the whole abdomen, too. Laboratory tests revealed a white blood cell count of 8.63 G/l with 88.6% segmented neutrophils, a C-reactive protein level of 309.4 mg/L, creatinine 1.47 mg/dL. A plain abdominal X-ray showed bowel dilatation, but without radiological symptoms of ileus or perforation. After surgical consultation, the computed tomography (CT) of abdomen was performed. CT imaging required both oral and intravenous administration of iodinated contrast agent (Ultravist 370). Acquisitions were performed...
before and after contrast agent administration in arterial, venous and late phase. Portomesenteric veins gas and bowel pneumatosis were diagnosed on CT scans.

After computed tomography, an explorative laparotomy was performed. During this operation we found huge dilatation of the small intestine with necrotic damage and loss of pulse in the superior mesenteric artery. Moreover, gas in bowel wall was palpable. The surgical team decided to resect all the necrotic tissue (small intestine) and created anastomosis between two parts of intestine (end-to-side). Approximately 120 cm of terminal portion of the small intestine was left. A lavage and drainage of abdomen was provided. After the surgical procedure was completed, the patient was transported to Intensive Care Unit at our hospital. He died 2 days after the surgery for respiratory and circulatory insufficiency caused by sepsis.

DISCUSSION

Portomesenteric vein gas is a very rarely recognized symptom of acute abdomen. The pathogenesis of this sign in not clearly understood. There are few hypotheses attempting to explain it: escape of gas from the bowel lumen which can be transferred into liver or microorganisms which can produce gas inside organs.
A case of portomesenteric venous gas detected on computed tomography

Fig. 6. Axial CT scan after contrast administration in venous phase reveals stomach (arrow) with air-fluid level (double arrow)

Fig. 5a, b. Contrast-enhanced transverse CT scan (a) and frontal CT scan (b) show mesenteric venous gas with an air-contrast material level in the superior mesenteric vein

and transport it to the blood system (6). This symptom can occur in different abdominal diseases e.g. gastric ulcer (6), Crohn’s disease (7) or in bowel ischemia. When it is related to bowel pneumatosis – it indicates poor prognosis for the patient survival (8). As we had shown, the occurrence of both these signs is related to high risk of mortality. Although Ruiz et al. claim that the Doppler ultrasound imaging is more sensitive than CT scans (Ruiz) but it is a very subjective test, and has to be performed by a very good specialist radiologist. The CT scans may be not so sensitive, but can be more objective. Furthermore, big amounts of gas in a bowel lumen can impair the quality of ultrasound imaging (2).

REFERENCES


Received: 7.11.2012 r.
Adress correspondence: 70-111 Szczecin, ul. Powstańców Wlkp. 72
e-mail: nitus2@wp.pl