

Rare localisation of air

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CASE REPORT

A 75-year-old woman came to the emergency room with diffusely localised, non-colicky abdominal pain which was constant in nature. In the emergency room she was restless and anxious. Medical history denotes haemodialysis since December 2003 due to terminal reno-vascular insufficiency. Physical examination showed an ill, anxious patient with a blood pressure of 130/70 mmHg, pulse 88 beats/min and body temperature 34.8°C. Abdominal examination revealed sparse, high-pitched bowel sounds, hypertympanic percussion with intact liver dullness and pain located diffusely in the abdomen. During rectal examination, dark-red blood was seen. Laboratory investigation showed a low blood count (Hb 6.1 mmol/l, MCV 93 fl), stable renal insufficiency (urea 18.3 mmol/l, creatine 464 µmol/l), leucocytes 3.7 x 10⁹/l, with a differentiation of 12% polymorph nuclear cells, lactate dehydrogenase 434 U/l, creatine kinase 404 U/l and C-reactive protein 190 mg/l. Lactate was not measured. On a supine chest X-ray no evidence of free air under the diaphragm was seen. A plain abdominal X-ray is shown here (*figure 1*).

WHAT IS YOUR DIAGNOSIS?

See page 195 for the answer to this photo quiz.

Figure 1. A plain abdominal X-ray



ANSWER TO PHOTO QUIZ (ON PAGE 191)

RARE LOCALISATION OF AIR

Plain abdominal X-ray (*figure 1*) showed air in the portal circulation (arrows). Additionally, fluid levels and dilated bowel consistent with ileus can be seen. Surgery clips from an aorta-renal bypass are visible to the left of the spinal canal as well as a left total hip prosthesis.

The precise mechanism of gas formation in the portomesenteric system is not elucidated. Predisposing factors are: 1. Mucosal injury caused by necrosis due to ischaemia of the mesenteric artery, inflammatory bowel disease or peptic ulcer. 2. Dilatation of the stomach or bowel. 3. Intra-abdominal sepsis. Finally there is a group of idiopathic causes (transplantation, corticosteroid therapy, chronic obstructive pulmonary disease (COPD).

Radiological criterion for portal gas on a conventional X-ray is a branching radiolucency, stretching within 2 cm of the hepatic margin.¹ Conventional radiology has low sensitivity in detecting portal gas. Although air in the portal vein can be detected, a substantial amount of air must be present to be visible. A substantial amount of portal gas is almost always caused by bowel ischaemia and direct surgical intervention is mandatory. Portal gas predicts neither severity of bowel ischaemia nor mortality.² Mortality depends on the underlying disease process causing the portomesenteric air.

Computer tomography (CT) scan and ultrasound have higher sensitivities because smaller quantities of air can be detected.³ Smaller quantities of air are relatively often caused by factors other than bowel ischaemia. Multiple intra-abdominal diseases can lead to this (cholecystitis, diverticulitis, peptic ulcer), but iatrogenic causes such as endoscopic retrograde cholangio-pancreatico-duodenography (ERCP) can translocate some air transmucosal leading to a small amount of air visible on CT or ultrasound.⁴

DIAGNOSIS

Portomesenteric gas probably caused by mesenteric artery ischaemia.

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