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PHOTO QUIZ

The iron bowel

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CASE REPORT

A 53-year-old woman with a history of anorexia nervosa, laxative abuse and iron deficiency, for which she used ferrous fumarate, presented to our emergency department after intentional intoxication with benzodiazepines. She was comatose (GCS 3) and in acute respiratory distress resulting from massive aspiration with prolonged hypoxaemia before hospital admission. She was intubated and ventilated. Further examination raised the suspicion of an ileus. The plain abdominal X-ray (*figure 1*) and CT scan (*figure 2*) with only rectal contrast showed radio-opacity apparently of the bowel wall, as well as dilatation without an obstruction.

Figure 1. *Plain X-ray of the abdomen. Radio-opacity of the bowel wall mimicking intra-luminal contrast (white arrows)*

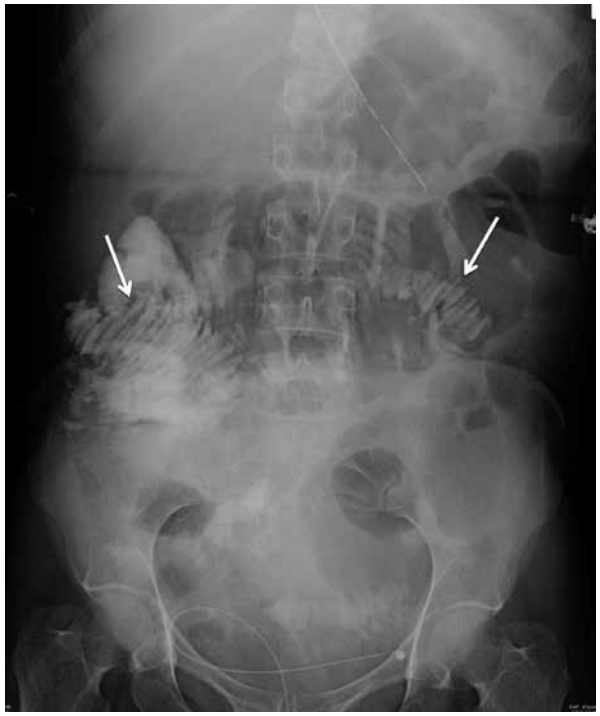


Figure 2. *Axial CT scan of the abdomen with only rectal contrast (white arrow). Radio-opacity of the bowel wall mimicking intra-luminal contrast (black arrows)*

WHAT IS YOUR DIAGNOSIS?

See page 531 for the answer to this photo quiz.

ANSWER TO PHOTO QUIZ (PAGE 527)

THE IRON BOWEL

DIAGNOSIS

The most logical explanation would be contrast media from recent radiological imaging. However, no contrast studies had been performed in the last months. During preceding hospitalisation an upper endoscopy and a colonoscopy were done for analysis of an iron deficiency anaemia and chronic diarrhoea. The intestinal view with dark pigmentation was consistent with (pseudo) melanosis coli. Biopsies were taken, unfortunately only from the oesophagus, which showed a brown pigment in the bowel wall. In this patient, the histological picture in the oesophagus was that of ulcerative inflammation of which only the ulcer base was present in the biopsies (*figure 3*). Some undetermined brown pigment was present, since melanin staining was negative, not in line with pseudomelanosis coli. With pseudomelanosis, the brown pigment is debris and can result from chronic damage, for instance in the colon caused by chronic laxative abuse (*figure 4*). Pseudomelanosis (coli) in general does not cause opacities seen on radiological images and therefore offers no explanation for the bowel wall enhancement on the plain abdominal X-ray and CT scan as shown above.

Chronic laxative abuse can, however, result in delayed colonic transit and thereby facilitate accumulation with precipitation of ferrous fumarate in the bowel wall.[1] This is in our opinion the most likely explanation for the opacities on radiological imaging. No biopsies were obtained after iron supplement therapy commenced to support this assumption, however. Iron staining on the oesophageal biopsies was negative (not shown). Another suggestion could be precipitation of iron in the mucous layer lining the bowel lumen. This phenomenon is also encountered with much bigger materials such as radio-opacity markers.[2-4]

The patient never recovered from her comatose state due to encephalopathy as a result of periodic severe anoxia caused by massive aspiration. She died after withdrawal of life-prolonging treatment. Unfortunately post-mortem examination on the body was not permitted.

Figure 3. *Oesophagus biopsy showing fibrinoid change with active inflammation, some pigment is visible (white arrow), upper inset: Larger collection of pigment, lower inset: melanin staining negative*

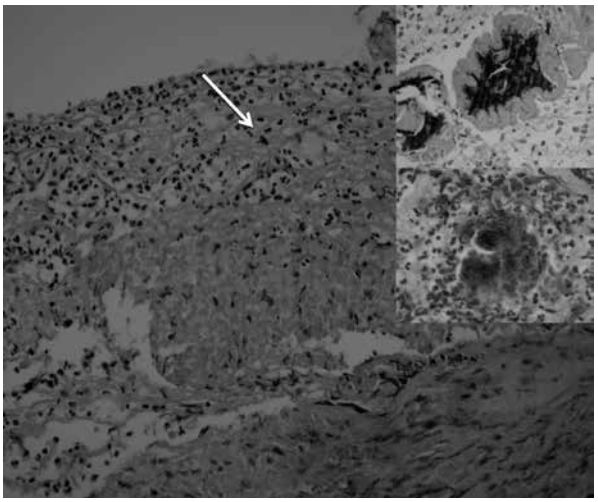
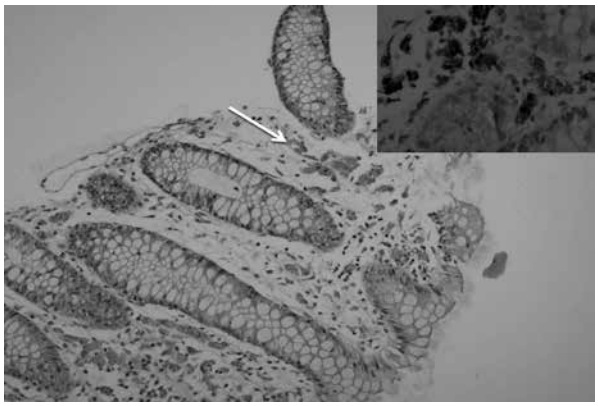


Figure 4. *Colon biopsy showing pigment (white arrow) phagocytised in macrophages within the lamina propria consistent with pseudomelanosis coli. Inset: melanin stain (Schmorl) showing positive staining*



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