

ANSWER TO PHOTO QUIZ

Shocking haemolysis

Diagnosis

The CT scan revealed a large hypodense lesion in the liver containing air bubbles. An ultrasound of the liver did not show fluid levels in the lesion, ruling out a drainable abscess.

The patient was treated with crystalloid resuscitation along with intravenous cefuroxime and metronidazole. New blood was drawn because the haemolysis was thought to be due to a sampling error.

Shortly afterwards, the patient rapidly developed severe septic shock and was admitted to the intensive care unit. She was resuscitated with fluids and inotropic agents, and was intubated and ventilated. Gentamicin and corticosteroids were added to the treatment regime. Despite these efforts, the condition of the patient deteriorated rapidly. Repeated attempts to analyse blood samples failed due to massive haemolysis. Only a second blood count could be measured, which was now 3.0 mmol/l. The patient died before a transfusion could be given, within four hours of admission.

Pathology revealed necrosis of the liver with cultures positive for *Clostridium perfringens*. This bacterium can produce an alpha toxin responsible for haemolysis and gas gangrene. Although it is a commensal that inhabits the gastrointestinal tract, in rare cases it can cause septicaemia. This occurs more often in patients with previous gastrointestinal surgery or patients with diabetes or malignancies.^[1] Our patient had a pancreaticoduodenectomy, which meant that with her hepaticojunostomy she had an open connection of the gastrointestinal to the hepatobiliary tract. This could have provided an easy passage for the *C. perfringens* bacteria to the liver.

With a doubling time of only seven minutes,^[2] *C. perfringens* can produce a rapidly progressive sepsis, which is often fatal due to toxemia causing massive intravascular haemolysis. The described mortality rate is 74-80%.^[1,3]

The preferred treatment is surgical debridement or drainage of the infected site or abscess. Experimental studies have shown better efficacy of clindamycin and metronidazole in treating *C. perfringens* toxemia, because in addition to being bactericidal this treatment also inhibits the alpha toxin production.^[4]

C. perfringens septicaemia is a rapidly progressive and often fulminant disease, and should be suspected in all septic patients with massive intravascular haemolysis. Clindamycin and/or metronidazole should pragmatically be added to the antibiotics regime.

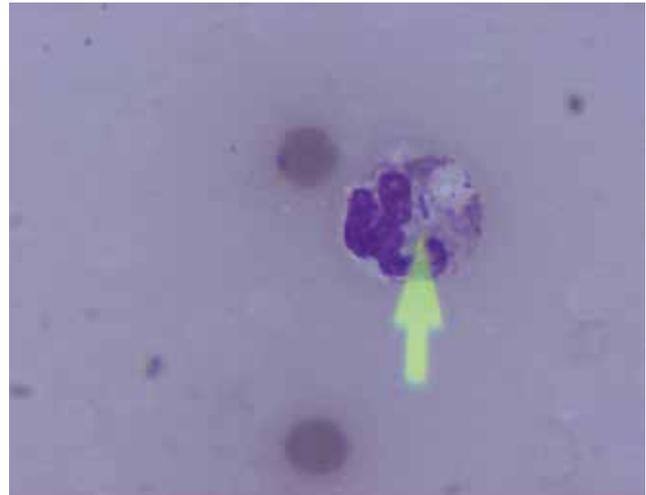


Figure 2. Peripheral blood film confirming haemolysis, with a striking absence of abundant erythrocytes. In combination with the presence of spherocytes and so-called 'ghost' red blood cells (empty erythrocytes where the haemoglobin content has leaked out), this finding is indicative of haemolysis. The blood smear also shows a neutrophil granulocyte phagocytosing a bacterial rod

Disclosures

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References

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