

CLINICAL IMAGE

Grey Turner's sign

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Keywords - Grey Turner's sign ; retroperitoneal haemorrhage ; acute pancreatitis

A 70-year-old man, with chronic end-stage renal disease secondary to IgA nephropathy, was referred to our centre for renal transplantation. During the early postoperative period, the patient complained of severe chest pain. The physical examination showed diaphoresis and mucocutaneous paleness. An electrocardiogram revealed atrial fibrillation and diffuse ST-segment depression. Blood tests showed a decrease in haemoglobin from 10 to 6 g/dl. Markers for myocardial necrosis were mildly elevated (TnI 2 ng/dl; $N < 0.05$). A hypercalcaemia of 12.5 mg/ml was also noted, due to secondary hyperparathyroidism.

With the diagnosis of secondary non-ST-elevation myocardial infarction, the patient was transferred to the acute cardiac unit. Blood transfusion was required and anti-ischaemic therapy was initiated. An abdominal CT showed an important perirenal haematoma in the implanted graft, so an emergent percutaneous arterial embolisation was successfully performed. During the next few days, the patient remained stable.

However, four days later, the patient complained of acute abdominal pain and presented progressive respiratory distress. He became haemodynamically instable requiring endotracheal intubation and treatment with vasopressors. On physical examination, an extensive ecchymosis on the right flank was noted (*figure 1a*). Contrast-enhanced abdominal CT was repeated revealing low-attenuation areas of pancreatic glandular necrosis in more than 40% of the gland and multiples fluid collections (*figure 1b*).

In our case, a diagnosis of acute pancreatitis secondary to hypercalcaemia was made. Unfortunately, despite aggressive medical treatment, the patient died.

Grey Turner's and Cullen's signs convey the same message, which is that intraperitoneal or retroperitoneal haemorrhage is present. Cullen's sign is described as superficial oedema with bruising in the subcutaneous fatty tissue around the peri-umbilical region.



Figure 1A. Area of ecchymosis in the right flank consistent with the Grey-Turner's sign



Figure 1B. Contrast-enhanced abdominal CT showing low-attenuation areas of pancreatic glandular necrosis in more than 40% of the gland and multiples collections of fluid (yellow star)

Grey Turner's sign refers to ecchymosis of the flanks and may occur in conjunction with Cullen's sign, especially in patients with retroperitoneal haemorrhage. The common pathway leading to the occurrence of this subcutaneous ecchymosis is retroperitoneal bleeding followed by tracking of blood from the retroperitoneum through a defect in the transversalis fascia to the abdominal wall musculature and then to the periumbilical subcutaneous tissue. With Cullen's sign, blood diffuses from the retroperitoneum along the gastrohepatic and falciform ligaments to the umbilicus. With Grey Turner's sign, blood diffuses from the posterior pararenal space to the lateral edge of the quadratus lumborum muscle.^[1-3]

These signs may be found in 1-3% of all cases of acute pancreatitis and are not specific, as they have been described in a wide variety of situations including rectus sheath haematoma, splenic rupture, perforated ulcer, intra-abdominal cancer, ruptured ectopic pregnancy, and complications of anticoagulation. Various theories have been proposed to explain the chemical properties required to develop these signs, including a direct role of pancreatic enzymes on the soft tissues and abdominal wall.^[4]

On average, it takes three days for the appearance of Grey Turner's or Cullen's sign after the onset of pancreatitis, and it signals severe disease, with a mortality estimate as high as 40%, as in our case.^{3,4} Thus, although not often encountered in daily clinical practice, knowledge of these clinical signs and their visual appearance seems to be crucial, as this could be the clue to perform relevant investigations to arrive at a clinical diagnosis.

Disclosures

All authors declare no conflict of interest. No funding or financial support was received.

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Vrijdag 10 maart 2017 Vrijdag 8 september 2017
 Vrijdag 30 juni 2017 Vrijdag 15 december 2017

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