

Case Report

Diagnostic dilemma of hyperamylasaemia in acute abdominal emergencies

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Measurement of serum amylase is commonly used to diagnose acute pancreatitis. Moderate hyperamylasaemia is frequently seen both in acute pancreatitis and other conditions causing acute abdominal pain such as mesenteric infarction.^{1,2} However, grossly elevated serum amylase levels (>five times normal) are rare in non-pancreatic causes of abdominal pain.³ We report two cases of mesenteric infarction with serum amylase levels greater than ten times normal.

CASE REPORTS

Case 1 An 85 year old lady presented with a short history of severe generalised abdominal pain. She had a tachycardia of 125/min and was hypotensive (BP 59/38mmHg) with right iliac fossa and epigastric tenderness and normal bowel sounds.

Serum amylase was 2876 IU/L (range 0-220). White cell count was $14 \times 10^9/L$ and she was acidotic with a pH of 7.16 (pCO₂ 6.9Kpa, pO₂ 6.9Kpa and HCO₃ 18.7mmol/L). Other blood parameters were normal. Erect chest and abdominal radiographs revealed no abnormality. A diagnosis of acute pancreatitis was made.

Despite resuscitation efforts she died six hours following admission. Autopsy confirmed ischaemic gangrene of the terminal ileum, caecum, ascending and proximal transverse colon. The pancreas was normal.

Case 2 A 75 year old man was admitted six weeks following a laparoscopic cholecystectomy with severe upper abdominal pain. He was haemodynamically stable and had epigastric tenderness with reduced bowel sounds.

White cell count was $21 \times 10^9/L$, glucose 11.8 mmol/L). Serum amylase was 4861 IU/L (range 0-220). Other blood parameters were normal. An

erect chest and abdominal radiographs were unremarkable. A diagnosis of acute pancreatitis was made.

He was treated conservatively but over the next 48 hours he deteriorated and was transferred to the intensive care unit. But he died before a contrast enhanced CT scan could be performed. Autopsy revealed 135 cm of infarcted ileum, secondary to a band adhesion causing strangulation. The pancreas was normal.

DISCUSSION

Elman *et al* in 1929 demonstrated that a raised serum amylase has a diagnostic value in acute pancreatitis, and it remains the most widely used diagnostic test of acute pancreatitis.⁴ Moderate hyperamylasaemia has been reported in numerous extrapancreatic causes of acute abdominal pain such as acute cholecystitis, ischaemic bowel, perforated viscus, ruptured ectopic pregnancy and ruptured abdominal aortic aneurysms.^{1,2} Chase *et al* reported that 13% of patients presenting with acute abdominal pain of non pancreatic origin had a moderately elevated serum amylase.² Hyperamylasaemia of greater than five

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times the upper limit of normal is highly specific for pancreatitis and often considered diagnostic and is rarely seen in extrapancreatic causes of acute abdominal pain.³

Since markedly elevated serum amylase levels (>5 times normal) are not always associated with acute pancreatitis, new biochemical tests and radiological imaging modalities such as ultrasound, CT and MRI maybe helpful diagnostic aids. Previous investigators have concluded that using a combination of biochemical assays, such as amylase, lipase and trypsin, does not clearly improve the diagnostic accuracy.⁵ Ultrasonography adequately visualises the pancreas in only 60 to 70% of patients with acute pancreatitis.⁶ The diagnostic accuracy of computed tomography (CT) is much better. Ninety percent of contrast enhanced CT scans performed within 72 hours of admission tend to be abnormal in patients with acute pancreatitis.⁷

Recent guidelines from the British Society of Gastroenterology suggest CT scanning in acute pancreatitis should be performed when the diagnosis is uncertain, for assessment of severe cases (within 3-10 days) and when clinical deterioration occurs.⁴ Our experience suggests that mesenteric infarction can produce markedly raised serum amylase levels, and early contrast enhanced CT scanning should be considered more readily in order to help confirm the diagnosis and prevent inappropriate non-operative treatment of mesenteric infarction.

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