Delayed splenic rupture as a cause of haemoperitoneum in a CAPD patient with amyloidosis

Sir,

Approximately 6% of patients maintained on chronic peritoneal dialysis therapy develop haemoperitoneum, which is usually of no serious clinical significance [1]. We report a case illustrating the need to be vigilant of an unusual, but potentially life-threatening cause of haemoperitoneum.

*Case*. A 59-year-old woman was maintained on peritoneal dialysis for end-stage renal failure due to primary amyloidosis complicated by acute crescentic glomerulonephritis. She had suffered no previous complications related to peritoneal dialysis. She had a minor fall down two stairs and attended the casualty department on the following day with right hip pain. Her peritoneal dialysis fluid was clear. No serious injuries were detected and she was discharged. Four days later she was admitted acutely with confusion and generalized abdominal and left-sided chest pain. She was shocked with a blood pressure of 70/45 mmHg, pulse rate of 115. Full blood count revealed a haemoglobin level of 7.2 g/dl (previously 11 g/dl). The peritoneal dialysate was heavily bloodstained suggesting intra-peritoneal haemorrhage. Microscopy of the peritoneal fluid revealed $3 \times 10^6$ white cells and $12 195 \times 10^6$ red cells per litre. No organisms were seen and subsequent culture was sterile. CT scan of the abdomen revealed an enlarged spleen with intrasplenic haematoma. The splenic capsule had ruptured, resulting in a profound intra-peritoneal bleed. The patient was resuscitated and underwent emergency splenectomy but died of numerous infective complications 6 weeks later.

The removed spleen was enlarged and focally haemorrhagic. The capsule was lacerated, and partially enveloped underlying haematoma. Microscopic examination of the specimen confirmed the presence of amyloid deposition within the splenic substance. It appeared that our patient had suffered minor trauma to an abnormal, amyloid infiltrated spleen, resulting in a subcapsular bleed. The clinical presentation was delayed until the splenic capsule ruptured.

*Comment*. Common causes of haemoperitoneum include menstruation, ovulation, and infection [1]. Peritoneal haemorrhage following splenic rupture is rare, but there is an increased risk of this complication in patients with underlying systemic amyloidosis. Involvement of the spleen is common [2] and, although this is usually of no clinical significance, it is recognized that such abnormal spleens may rupture spontaneously [3], or following minor injury. Several pathogenetic mechanisms appear to be responsible for the haemostatic defects that increase the bleeding tendency in systemic amyloidosis. These include clotting abnormalities [4] and amyloid substance deposition in the perivascular region leading to vascular fragility. The presenting features of splenic rupture include abdominal and left shoulder tip pain, with clinical findings of abdominal tenderness and haemodynamic compromise. Our case demonstrates that there may be a delay in the evolution of these clinical manifestations after splenic injury. Minor trauma to the spleen results in subcapsular haematoma formation, but laceration of the capsule is delayed until the haematoma increases in size following continued subcapsular bleeding [5].

We conclude that splenic rupture should be considered in the differential diagnosis of haemoperitoneum complicating peritoneal dialysis; patients with underlying amyloidosis are particularly susceptible. Injury may precede clinical presentation by a number of days as initial haemorrhage is contained beneath the splenic capsule.