Spontaneous splenic rupture in a patient who received haemodialysis: case report and a review of the literature

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ABSTRACT

Spontaneous splenic rupture is an extremely rare complication in patients who received haemodialysis. We describe a 51-year-old woman who underwent regular haemodialysis and was admitted because of sudden onset of abdominal pain, hypovolemic shock and dizziness. Haemoperitoneum caused by spontaneous rupture of spleen was found on abdominal CT scan. Emergency splenectomy was performed, and the patient was discharged 9 days after the admission. This report demonstrates that spontaneous splenic rupture requires a high index of suspicion for diagnosis in a patient who received haemodialysis with abdominal pain and should be considered in the differential diagnosis when a patient who received haemodialysis without any trauma history has abdominal pain with unexplained hypovolemic shock.

Spontaneous splenic rupture is an uncommon but a life-threatening entity.[1 2] Immediate diagnosis and surgical treatment can be life-saving. Unfortunately, the diagnosis is often missed because there is no history of trauma. Spontaneous rupture of spleen is an unusual fatal complication in patients with end-stage renal disease treated with haemodialysis and continues ambulatory peritoneal dialysis. Herein, we report a case of spontaneous splenic rupture in a patient who received haemodialysis, who denied any trauma history or precipitating factors that could cause bleeding, who was treated with splenectomy.

CASE

A 51-year-old woman who received haemodialysis presented to our emergency department with a complaint of abdominal pain and fullness for 5 h. She had medical history of hypertension with medical control for 2 years and had also received haemodialysis for 2 years. She received haemodialysis three times per week. The morning of the presentation, she should have come to our hospital for haemodialysis, but she did not come. She reported that after breakfast, which was not very heavy, she suddenly experienced abdominal pain around the periumbilical area. The pain was sharp and did not radiate to other parts of her body. After that, she felt a little better for a while, and then she developed generalised weakness, dizziness and fatigue. When she arrived to our emergency department, she looked pale and her vital signs were the following: blood pressure, 97/42 mm Hg; temperature, 35.9°C; heart rate, 68 beats/minute; respiratory rate, 17 per minute. Oxygen saturation was 99% on room air. Her abdomen showed diffuse tenderness, muscle guarding, no rebounding pain on palpation, no flank ecchymosis and a normoactive bowel sound. Heart and lung examination results were unremarkable. Initial laboratory finding revealed a haemoglobin level of 4.8 g/dl, white blood cell count of 4720/μl, neutrophil count of 79.2% and a platelet count of 103 000/μl. Her prothrombin time and activated partial thromboplastin time were within normal range. Abdominal CT scan revealed haemoperitoneum and splenic rupture. The patient received 6 units of packed red blood cells during the preparation for the surgical intervention. Then, the patient was taken for urgent splenectomy. In the operating room, we found haemoperitoneum of about 3000 cc, a ruptured overlying capsule, with the ruptured area measuring 2×2 cm in dimension, and a hematoma measuring 4×4×2.5 cm found within the parenchyma. There were no perisplenic adhesions. Microscopic examination showed a picture of fresh haemorrhage with hematoma formation in the splenic parenchyma. The spleen showed unremarkable white pulp and red pulp with focal haemosiderin deposition. There was no morphologic evidence for malignancy. She was extubated on the first postoperative day and was discharged on the ninth postoperative day.

DISCUSSION

Spontaneous splenic rupture in a patient who received haemodialysis is an extremely rare complication. The aetiology is still unknown, but there are many different speculations about it. These theories are forgotten or unnoticed trauma; activities that involve a sudden increase in abdominal pressure that leads to rupture, such as eating heavy meal, lifting and engaging in sexual intercourse; defecation; localised involvement of the spleen with a pathological process, in which, upon rupture, cell evidence of pathological changes are destroyed; portal venous congestion with chronic splenic congestion; abnormal mobile spleen that undergoes recurrent torsions and the resultant congestion that leads to rupture; reflex spam of splenic vein, causing acute splenic congestion; and rupture of a degenerative or aneurismal splenic artery.

Risk factors associated with spontaneous splenic rupture in uraemic patients who received haemodialysis are the use of the heparin during haemodialysis; uraemic coagulopathy; susceptibility to infective disease such as septicaemia, malaria, rubella and infectious mononucleosis; impaired immulogic functions; and amyloidosis, which occurs as a long-term complication of haemodialysis.[5 6]

Figure 1 Splenic rupture with spontaneous hemoperitoneum.

When a uraemic patient who received haemodialysis presents with abdominal pain, especially pain in the upper left quadrant of the abdomen, with unexplained hypovolemic shock and regardless of any trauma history, spontaneous splenic rupture should be considered. Ultrasonography, CT scan, nuclear imaging and angiography could be diagnostic tools.

The indication for surgical intervention is increasing amounts of intra-abdominal blood, intraparenchymal bleeding, secondary delayed splenic rupture, increasing subcapsular haematoma and non-traumatic intrasplenic pseudoaneurysm. But not all spontaneous rupture of spleen requires splenectomy.[3 5] In those who are haemodynamically stable and have no sign of impending rupture, conservative treatment, such as embolisation of the splenic artery, subsegmental resection or transposition of the spleen, is the first choice. These alternative therapies offer the possibility of spleen preservation and avoid postsplenectomy infection. The disadvantages of these therapies are delayed spleen rupture and prolonged hospital stay and cost.

CONCLUSION

Spontaneous rupture of spleen requires a high index of suspicion for diagnosis in a patient who received haemodialysis with abdominal pain, with or without referred pain, absence of any previous trauma history and unexplained hypovolemic shock. Abdominal CT scan is very helpful in detecting and confirming this potentially fatal complication. We must keep in mind this possibility when we evaluate patients undergoing haemodialysis with the abovementioned symptoms.

Early detection and adequate approach to management of this kind of patients play a very important role in reducing mortality rate.

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