Splenic Abscess in a Patient on Hemodialysis

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Dear Sir,

A splenic abscess is an unusual condition seen in immunocompromized patients or associated with intravenous drug abuse [1]. Several conditions including trauma, immunodeficiency, corticosteroid and/or immunosuppressive therapy and diabetes mellitus have been listed under the predisposing factors for a splenic abscess [1]. Splenic abscesses have not been reported in hemodialysis patients without any of these predisposing factors reported previously [1], although 2 hemodialysis patients with diabetes mellitus or immunosuppressive therapy were reported to develop splenic abscesses acquired through access site infection [2].

A 36-year-old man who had been on hemodialysis for 3 years was admitted with left hypochondralgia and fever. There was no history of trauma, blood access site infection, diabetes mellitus or immunosuppressive therapy. Nine years previously, he had had hematuria, proteinuria and hypertension. Renal biopsy confirmed mesangial proliferative glomerulonephritis. Over the next 6 years, he progressed to end-stage renal failure. After 3 years of maintenance hemodialysis, he had general fatigue and fever. He was treated with antibiotics (MINO, ENX, CXD, CEZ), since leukocytosis was found at the hemodialysis clinic. The symptoms did not respond to these antibiotics, and he was transferred to the renal unit in our hospital.

On examination, there was tenderness in the left hypochondrium. There was no sign of hepatomegaly or ascites. There was no infected needle site related with A-V fistula. The white blood cell count was 26,300/mm³ with a severe left shift. Hb was 9.3 g/dl. ESR was 117/161 mm. CRP was 6 + . S-GOT, S-GPT, ALP and LDH were normal. Chest X ray was normal. An ultrasound scan showed multiple hypoechoic lesions in the spleen (fig. 1a), and normal findings in liver, gallbladder and kidney. A computed tomography also showed multiple nonenhanced low density lesions in spleen (fig. 1b), and normal findings in other intra-abdominal organs. No organism was grown from the blood. As shown in figure 2, he was treated with latamoxef (LMOX) for 8 days sequentially, and the fever resolved. Subsequently, he was treated with LMOX only after hemodialysis. An ultrasound scan examination revealed that the splenic abscess was getting smaller and finally resolved on the 30th hospital day. Antibiotic therapy was stopped when the ultrasound scan examination and

the inflammatory signs including white blood cell count, CRP and ESR were confirmed to be normal after the resolution of a splenic abscess.

Splenic abscesses have been reported in patients with trauma, immunodeficiency, corticosteroid and/or immunosuppressive therapy and diabetes mellitus [1]. In our patient, there was no history of trauma, blood access site infection, diabetes or immunosuppressive therapy. Since our patient had inflammatory signs and a left hypochondria pain, an ultrasound scan was first employed and revealed

Fig. 1. a Ultrasound scan showing splenic abscesses (*). b Computed tomography showing abscesses (*) in spleen but not in liver.

the presence of hypoechoic lesions. Computed tomography is reported to have a sensitivity of 96%, which is superior to ultrasonography [1]. Computed tomography was used to confirm the presence of hypoechoic lesions in spleen and showed that there were hypo-

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0028-2766/92/

0602-0255\$2.75/0

Fig. 2. Clinical course of our patient.

echoic lesions in spleen but not in other intra-abdominal organs. Inflammatory signs and hypoechoic lesions in spleen responded to antibiotic therapy very well and this patient was diagnosed as having a splenic abscess.

Untreated splenic abscesses are fatal, and total splenectomy is the mainstay of treatment. Needle aspiration under radiological guidance is increasingly used, but infection of neighboring organs is a known complication [1]. Although antibiotic therapy alone is reported to be rarely effective [2], administration of LMOX was continued since inflammatory signs and splenic abscesses responded very well to this antibiotic therapy. This patient was administered a much higher dose of the antibiotics than that usually given to hemodialysis patients, suggesting that a persistent high blood level of the antibiotics might be effective.

More than 50% of infections were due to aerobic organisms, with *Staphylococcus*, *Escherichia coli* and *Salmonella* being the predominant flora. One fourth was due to fungi, and 18% was due to anaerobic organisms [1]. Splenic abscesses in hemodialysis patients were reported to be due to *Staphylococcus* [2]. LMOX, but not other antibiotics used, was effective in curing our patient of this disease, and LMOX has been reported to have higher activity against gram-negative bacilli including *Haemophilus influenzae*, *E. Coli* and *Bacteroides* in comparison with other cephalosporins [3]. Therefore, the splenic abscess could be considered to be due to gram-negative bacteria, although bacteria which caused splenic abscesses could not be identified.

Hemodialysis patients have been reported to have an impaired immune system [4] and a tendency to develop various infectious diseases [5]. Therefore, we conclude that patients on hemodialysis may be at risk of developing a splenic abscess. Clinical features may be subtle and early radiological investigation of the spleen may be essential in hemodialysis patients who develop a severe unexplained fever.

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