Case Report

A young female of systemic lupus erythematosus with hepatic necrosis

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Abstract

Systemic lupus erythematosus (SLE) is a chronic inflammatory disease of unknown etiology which can affect the skin, joints, kidneys, lungs, nervous system and other organs of the body. Clinical and radiological liver diseases are uncommon in patients with SLE. We report a 40-year-old female with known SLE presented with fever, severe abdominal pain, progressive abdominal distension, vomiting & absence of bowel movement for 4 days. Laboratory tests revealed thrombocytopenia, elevated ALT, AST, Alkaline phosphatase and high titer anti ds-DNA. USG revealed mild hepatosplenomegaly. serum bilirubin, serum electrolyte, serum amylase, 24 hour urinary amylase and serum lipase were normal. Serum anti phospholipid antibody was negative. Computed tomography (CT) of abdomen showed hypodense lesions in the liver that mimicked multiple liver abscesses and CT abdominal angiography showed hepatic infarction. She was treated with pulse methylprednisolone followed by high dose oral prednisolone and intravenous pulse cyclophosphamide. Patient improved clinically; platelet count & liver enzymes returned to the normal range. This patient represents a rare case of SLE who had hepatic vasculitis mimicking multiple liver abscesses.

Key words : SLE, hepatic vasculitis, hepatic necrosis

Introduction

Systemic lupus erythematosus (SLE) is a chronic inflammatory disease of unknown etiology characterized by acute and chronic inflammation of various tissues of the body. Women, especially in their 20s and 30s are affected more. Gastrointestinal (GI) tract and hepatobiliary system involvement are not uncommon in SLE. Hepatic arteritis is a rare feature of liver involvement in SLE. Dubois described the first case of hepatic arteritis in 1953.[1] Other case series described this finding as being very rare. However, in a autopsy study of liver specimens from patients with autoimmune diseases performed in Japan, incidence of hepatic arteritis in patients with lupus was reported as15%.[2] The findings of this study have not been reproduced in other more recent studies of liver pathologic complications in lupus, suggesting that hepatic arteritis is indeed a rare complication of SLE and can be associated with ruptured hepatic aneurysms. In another studies among lupus patients, liver disease has been reported in 8% to 23% patients and is usually of modest clinical relevance.[3] Although biochemical evidence of liver disease is common in patients with SLE, clinical liver disease is uncommon.[2] Subclinical liver involvement is frequent in SLE.[4] Review of the literature shows that a very few reported cases of hepatobiliary involvements secondary to lupus were as a clinical presentation of the patients, i.e. hepatic vasculitis.[3] We report here a case of SLE that presented with right upper quadrant pain and multiple liver lesions secondary to hepatic vasculitis.

Case report

A 40-year-old woman was diagnosed as a case of SLE 12 years back on the basis of photosensitivity, oral ulcer, arthritis, extensive purpuric rash, positive ANA and positive anti-ds DNA antibody. She was on hydroxychloroquine and low dose prednisolone. Six month later she developed swelling of the body. Urine routine examination revealed active sediment with urinary total protein of 1.6 gm in 24 hours. Then she received pulse methylprednisolone, 1 gm daily for three days followed by oral prednisolone, 1 mg/kg body weight per day. She also received pulse cyclophosphamide monthly for 6 month followed by azathioprine 50 mg 12 hourly. Now patient is getting Azathioprine 50 mg daily. Two years back she developed hypothyroidism & getting thyroxin 100 µgm daily. Recently the patient has developed fever, severe abdominal pain, progressive abdominal distension, vomiting & absence of bowel movement for 4 days. Laboratory test revealed platelet count 35,000/cmm, ALT 150 U/L, AST 220 U/L,

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Alkaline phosphatase 300 U/L, Anti ds-DNA 435 IU/ml & an USG evidence of mild hepatosplenomegaly. Serum bilirubin, S. electrolyte, S. amylase, 24 hour urinary amylase, S. lipase were normal & S. anti phospholipids antibody was negative. Initially two differential diagnoses were made: liver abscess & lupus Gut. Treatment has begun with stoppage of azathioprine & introducing empirical antibiotic along with 3 pulses of Methylprednisolone. Significant improvement was noted after 1st dose of Methylprednisolone. CT abdomen revealed the multiple low density spots in right lobe of liver mimicking liver abscess or early necrotizing lesion at right lobe of liver (Figure-1). CT angiogram of whole abdomen confirmed multifocal hepatic infarction in segment V & VIII (Figure-2). Liver biopsy couldn't be done due to thrombocytopenia.

The patient was put on high dose steroid (1mg/kg/day) & monthly pulse Cyclophosphamide (750mg/ m2 body surface area) with a strong provisional diagnosis of hepatic arteritis due to SLE. With the 1st cycle of cyclophosphamide the patient has developed pancytopenia. So cyclophosphamide was withdrawn. After recovery of blood counts, azathioprine was restarted. Her condition was found to be improved both clinically and biochemically in the last follow up after 5 months of treatment. Follow up ultrasonogram of the liver was normal except mild hepatomegaly. Liver enzymes also returned to normal.

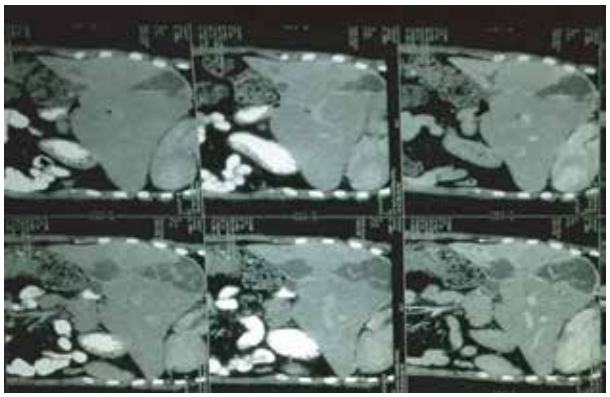

Figure-1: *CT abdomen showing multiple low density spots in the right lobe of liver*

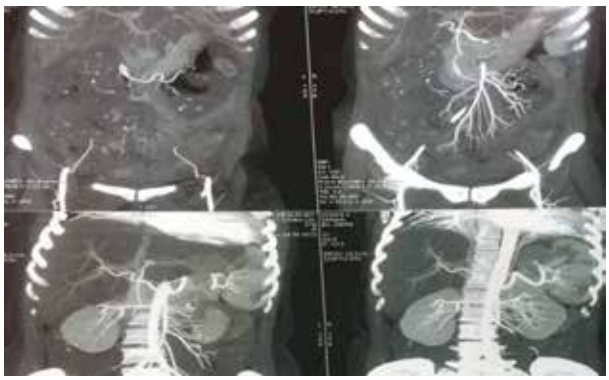

Figure-2: *CT angiogram of whole abdomen showing multifocal hepatic infarction in segment V & VIII*

Discussion

Although overt liver disease has been rarely described in patients with SLE, subclinical manifestations or biochemical abnormalities are not uncommon. In one retrospective study of 238 SLE patients, 60% were found to have liver function abnormalities, with 24% presented with symptoms consistent with hepatitis. The diagnosis of liver disease in SLE usually occurred one or more years after the diagnosis of SLE.[5] The presence of elevated liver enzymes and clinical symptoms of hepatitis correlated with a lupus flare in 21%.[6] In another retrospective study of 81 cases, liver abnormality might have been related to SLE itself in 19 of 45 cases who had abnormal liver enzymes.[7] Hepatomegaly (39% to 42%) and jaundice (24%) were often seen at the onset of liver disease.[4,5] Various forms of hepatic pathology related to SLE have been described and they include fatty liver,[5,2] portal inflammation,[5] chronic active hepatitis,[4,5] chronic persistent hepatitis,[4,2] cirrhosis,[4] Cholestasis,[4,2] hepatic necrosis associated with antiphospholipid antibody syndrome,[8] granulomatous hepatitis,[4] non-specific reactive hepatitis, nodular regenerative hyperplasia, hepatic infarction[2] and arteritis.[9,10]

Conflicting data on the incidence of hepatic vasculitis in SLE have been reported. In a report of the 33 histologically proved liver diseases in SLE by Runyon et al, none had vasculitis.[4] In contrast, hepatic arteritis was found in 11 cases from 52 (21%) pathologically proved liver diseases in SLE from the Japanese autopsy registry.[2] Miyake et al reported a young Japanese man with acute SLE, elevated transaminase, and multiple hypodense spots in the liver in a CT study.[11] A biopsy specimen from a low-density spot lesion showed mild inflammatory cell infiltration and piecemeal necrosis. These hypodense lesions may be due to vasculitis, as corticosteroid therapy improved the patient's clinical status, normalized laboratory abnormalities and caused the liver lesions to disappear. Fehr et al reported a case of liver necrosis in an SLE patient with antiphospholipid syndrome, who also had HELLP like syndrome. A CT scan of the liver also showed multiple hypodense lesions, and biopsy revealed periportal necrosis with fibrin deposit and accumulation of sinusoidal granulocytes. Anticoagulant and

immunosuppressive therapy improved the patient's clinical status.[8] The hypodense lesion in this case might be related to hepatic infarction secondary to antiphospholipid syndrome. Spontaneous rupture of the liver, secondary to hepatic vasculitis, has been reported by Levitin et al.[9]

Suparaporn et al reported a patient with SLE who had hepatic vasculitis with necrosis mimicking multiple liver abscesses as an initial presentation. Because of suspicion of pyogenic liver abscess the patient was not given steroid therapy and unfortunately she died. A biopsy specimen showed necrotizing granuloma with a large area of necrosis.[12] In our case the main concern was putting the patient on a high dose of corticosteroid because the pyogenic liver abscess was one of the differential diagnosis. However, because of the clinical scenario, the presence of autoimmune thrombocytopenia, high titer anti-DS DNA that indicates active SLE and negative work-up for sepsis, the decision was to give the patient pulse steroid and cyclophosphamide was made. In addition, patient was initially covered with intravenous antibiotics for three days, which were discontinued because of the dramatic response to pulse steroids in a very short time. The lack of significant enhancement of the lesion is supportive of the absence of an infectious component and the linear fashion suggested possible periportal vascular insult. The negative test for anticardiolipin antibody and lupus anticoagulant made the possibility of hepatic infarction secondary to antiphospholipid syndrome unlikely.

The patient was discharged on high dose of oral steroid for one month. The CT scan after four weeks showed complete resolution of liver lesions. The presence of active SLE and the complete recovery (clinically and radiologicaly) with high-dose steroid supported the diagnosis of hepatic vasculitis as a cause of this patient's multiple liver lesions. In this case liver biopsy couldn't be done due to thrombocytopenia & moribund condition of the patient.

Hepatic involvement due to SLE should be considered in female of reproductive age, who present with severe abdominal pain, vomiting and other features of SLE.Antiphospholipid antibody may be responsible, but if serology is negative for antiphospholipid antibody, hepatic vasculitis should be considered and SLE is one of the most connective tissue diseases that have a relationship with this phenomenon. Therefore, it is better to perform CT scan of abdomen as well as anticardiolipin antibody tests where there is high suspicious of hepatic necrosis in young women with a background of active SLE.

References

1. Dubois EL. Effect of LE cell test on clinical picture of systemic lupus erythematosus. Ann Intern Med 1953;38:1265-1294
2. Matsumoto T, Yoshimine T, Shimouchi K, Shiotu H, Kuwabara N, Fukuda Y, et al. The liver in systemic lupus erythematosus: pathologic analysis of 52 cases and review of Japanese Autopsy Registry Data. SO Hum Pathol. 1992;23(10):1151
3. Caramaschi P, Biasi D, Botto M, Carletto A, Manzo T, Bambara LM. Liver involvement in systemic lupus erythematosus. Recenti Prog Med. 1993; 84(10):673–8.
4. Chowdhary VR, Crowson CS, Poterucha JJ, Moder KG. Liver involvement in systemic lupus erythematosus: case review of 40 patients. J Rheumatol. 2008;35(11):2159–64.
5. Runyon BA, LaBrecque DR, Anuras S. The spectrum of liver disease in systemic lupus erythematosus: Report of 33 histologically-proved cases and review of the literature. Am J Med. 1980;69:187–94
6. Gibson T, Myers AR. Subclinical liver disease in systemic lupus erythematosus. J Rheumatol. 1981;8:752–9
7. Miller MH, Urowitz MB, Gladman DD, Blendis LM. The liver in systemic lupus erythematosus. Q J Med. 1984;53:401–9
8. Fehr T, Cathomas G, Weber C, Fontana A, Schaffner A. Foetal loss, liver necrosis and acute lupus erythematosus in a patient with antiphospholipid antibody syndrome. Lupus. 2001;10:576–9
9. Levitin PM, Sweet D, Brunner CM, Katholi RE, Bolton WK. Spontaneous rupture of the liver. An unusual complication of SLE. Arthritis Rheum. 1977;20:748–50.
10. Harvey AM, Shulman LE, Tumulty PA, Conley CL, Schoenrich EH. Systemic lupus erythematosus: Review of the literature and clinical analysis of 138 cases. Med (Baltimore). 1954;33:291–437
11. Miyake Y, Tada S, Nakamura Y, Kojima K, Takeda N, Jitsunari F. A young male of systemic lupus erythematosus with hepatic lesions showing multiple low density spots in CT of liver. Nihon Rinsho Meneki Gakkai Kaishi. 1999; 22:23–9.
12. Suparaporn W, Nirush L, Anon C, Worawit L. Hepatic vasculitis presenting with multiple sterile liver abscesses in a patient with systemic lupus erythematosus. APLAR J Rheumatol. 2007; 10:64–8.