Autoimmune Hepatitis in A Middle-Aged Female in the Background of Systemic Sclerosis with Overlap Syndrome

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Abstract
Patients with systemic sclerosis may have overlap or features of other autoimmune diseases. Autoimmune hepatitis is an inflammatory chronic liver disease of idiopathic origin. It has features of prominent autoimmunity, such as specific autoantibodies and hypergammaglobulinemia. Here we describe a case of a middle-aged female who presented with anorexia and jaundice who turned out to have a conundrum of autoimmune disorders.
Keywords: Autoimmune hepatitis, Systemic sclerosis, Systemic lupus erythematosus

1. Introduction

Autoimmune hepatitis is an inflammatory disease of the liver of chronic course which is denoted by elevated serum globulin and specific circulating autoantibodies [1]. The condition starts as acute onset of hepatitis and progresses to cirrhosis of liver. Autoimmune hepatitis can present at any age and occurs predominantly in women. Autoimmune hepatitis associated with Systemic sclerosis are very few in number with most of them described in limited systemic sclerosis type [2]. Most of the systemic sclerosis patients usually have gastrointestinal involvement, however hepatic involvement is rare, mostly consisting of primary biliary cirrhosis.

2. Case Presentation

A 47-year-old female presented with one month history of yellowish discoloration of eyes, high colored urine and right hypochondrial pain. History of on and off fever present which was also of one month duration. History of dryness of mouth and eyes present for past two months. She also complained of shortness of breath and extreme tiredness even for her routine activities which she was previously comfortable with. Weight loss of 10 kg present over the past 3 months associated with loss of appetite. There was no relevant family history or chronic alcohol intake or smoking. Patient is a known case of hypothyroidism on regular follow-up. On examination, vitals were stable, icterus was present and systemic examination revealed bilateral basal crackles, gross hepato-splenomegaly and mild ascites. Raynaud's phenomenon was positive. A provisional diagnosis of hepatocellular jaundice secondary to autoimmune pathology was made and relevant investigations were sent.

We proceeded to laboratory investigations wherein complete blood count revealed anemia and thrombocytopenia, grossly elevated ESR and CRP. Liver function test showed high direct bilirubin, altered liver enzymes and hypoalbuminemia with albumin: globulin ratio reversal.

Patient was further evaluated for autoimmune causes. Antinuclear antibody profile was done which showed positivity for anti-Sm Ab., anti-Ro Ab. and anti-La Ab. Anti-LKM antibody was also found to be positive (Table – 1 shows the summary of laboratory investigations). Contrast enhanced computed tomography of the abdomen showed features of early cirrhosis of liver and splenomegaly which was confirmed with PET-CT. Chest high resolution computed tomography showed features of interstitial lung disease and pulmonary function test revealed restrictive lung disease pattern.

Table. 1 showing summary of laboratory investigations

Investigations	Report
Hemoglobin (g/dL)	8.8
Platelet count (cells/mm3)	47,000
Erythrocyte sedimentation rate (mm in 1 hour)	97
C-reactive protein (mg/dL)	38.2
Bilirubin - direct (mg/dL)	4.6
Bilirubin - Indirect (mg/dL)	2.2
Albumin (g/dL)	3.0
Globulin (g/dL)	4.8
Albumin/ globulin ratio	0.6
SGOT (U/L)	99
SGPT (U/L)	155
GGT (U/L)	114
Anti-smith antibody	Positive (11.6 U/L)
Anti-Ro Ab.	Positive
Anti-La Ab.	Positive
Anti-LKM antibody	Positive

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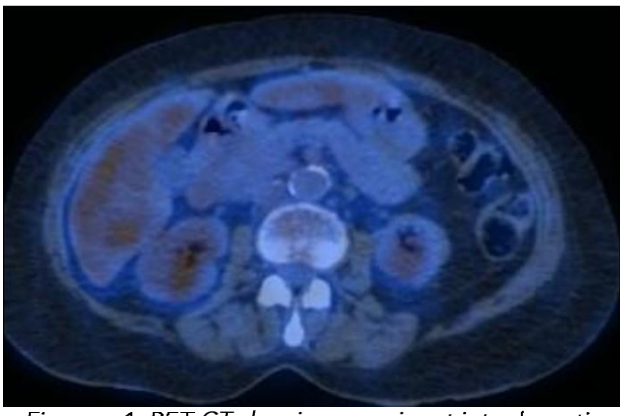

Figure – 1: PET-CT showing prominent intra-hepatic biliary radicals with multifocal hyperintense area surrounding the biliary radicals in both liver lobes with heterogeneously increased metabolic activity

A simultaneous diagnosis of autoimmune hepatitis and coexisting systemic sclerosis with overlapping systemic lupus erythematosus was duly made. Co-existing interstitial lung disease was also present.
Patient was started on oral methylprednisolone, hydroxy-chloroquine, ursodeoxycholic acid and other liver supportive medications. Carboxy-methylcellulose eye drops was started for dry eyes. Patient improved symptomatically within two weeks of treatment and went into remission within three months of treatment. Patient is under regular follow-up and currently doing well [3].

3. Discussion

Systemic sclerosis is a chronic disorder diagnosed by widespread vasculitis, skin fibrosis and multi-organ involvement. The diagnosis of systemic sclerosis is based primarily upon characteristic clinical findings and supported by specific autoantibodies [4].
Major disease subsets:
Limited cutaneous SS – Patients typically present with swollen fingers and ultimately develop sclerosis of skin distal to the elbows and knees, while the trunk and proximal extremities are spared. These patients generally have prominent vasculitis, including Raynaud phenomenon (RP) and muco-cutaneous telangiectasia [5].
Diffuse cutaneous SS – Patients typically present with puffy hands and develop skin thickening that extends to the arms, thighs, and trunk. These patients are more prone to have rapid skin thickening, lung fibrosis, renal crisis and cardiac involvement [6].
Systemic sclerosis sine scleroderma – A small group do not have no involvement of skin but have Raynaud's Phenomenon, multiple ulcers over digits, and pulmonary hypertension.
Systemic sclerosis with overlap syndrome – People with systemic sclerosis (of any of the above subsets) may also have overlap or features of another systemic rheumatic disease [7].
On the basis of profiles of autoantibodies, patients are divided into two subtypes: type 1 or 2:
Type 1 autoimmune hepatitis [8]:

- Antinuclear antibody.
- Anti-smooth muscle antibody
- Anti-actin antibodies.
- Anti-mitochondrial antibodies (AMA)
- Anti-soluble liver antigen
- Anti-single-stranded DNA
- Atypical perinuclear anti-neutrophil cytoplasmic Ab.

Type 2 autoimmune hepatitis — Antibodies specific to this type anti LKM-1 alone or accompanied by ALC-1 Ab. Titers are considered positive if it is >1:20 for ANA and ASMA, whereas titers of 1:10 may be considered positive for anti-LKM-1.
Based on the physical findings, laboratory and radiological investigations our patient was found to be having diffuse systemic sclerosis with co-existing type 2 autoimmune hepatitis. The mainstay therapy is anti-inflammatory regimens to which our patient responded well [9].

4. Conclusion

Autoimmune hepatitis is considered as the rare hepatic manifestation of diffuse systemic sclerosis, the other being primary sclerosing cholangitis. Our case has a coexisting systemic lupus erythematosus and interstitial lung disease which is considered an even more rare combination of ailments [10]. Timely diagnosis and prompt treatment is required to restrict the progression of the disease and keep the patient in remission for longer periods.

References

McFarlane IG. The relationship between autoimmune markers and different clinical syndromes in autoimmune hepatitis. Gut. 1998;42:599–602.
Toyoda M, Yokomori H, Kaneko F, Yoshida H, Hoshi K, Takeuchi H, et al. Primary biliary cirrhosis-autoimmune hepatitis overlap syndrome concomitant with systemic sclerosis, immune thrombocytopenic purpura. Intern Med. 2009;48:2019–2023.
Assandri R, Monari M, Montanelli A. Development of systemic sclerosis in patients with autoimmune hepatitis: an emerging overlap syndrome. Gastroenterol Hepatol Bed Bench. 2016;9:211–9.
West M, Jasin HE, Medhekar S. The development of connective tissue diseases in patients with autoimmune hepatitis: a case series. Semin Arthritis Rheum. 2006;35:344–348.
Liberal R, Krawitt EL, Vierling JM, Manns MP, Mieli-Vergani G, Vergani D. Cutting edge issues in autoimmune hepatitis. J Autoimmun. 2016;75:6–19.
Rodrigues CE, Borges CL, de Carvalho JF. Diffuse systemic sclerosis and autoimmune hepatitis: a unique association. Clin Rheumatol. 2010;29:799–801.
You BC, Jeong SW, Jang JY, Goo SM, Kim SG, Kim YS, et al. Liver cirrhosis due to autoimmune hepatitis combined with systemic sclerosis. Korean J Gastroenterol. 2012;59:48–52.
Johnson SR. New ACR EULAR guidelines for systemic sclerosis classification. Curr Rheumatol Rep.

2015;17:32.
Marie I, Levesque H, Tranvouez JL, Francois A, Riachi G, Cailleux N, et al. Autoimmune hepatitis and systemic sclerosis: a new overlap syndrome? Rheumatology (Oxford) 2001;40:102–106.
Hennes EM, Zeniya M, Czaja AJ, Pares A, Dalekos GN, Krawitt EL, et al. Simplified criteria for the diagnosis of autoimmune hepatitis. Hepatology. 2008;48:169–176.
Conflicts of Interest: None
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