International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2022): 7.942

Unveiling a Rare Association: Budd-Chiari Syndrome as a Consequence of Antiphospholipid Antibody Syndrome and Systemic Lupus Erythematosus

Disha Patel[1], Darsh Patel[2], Prachi Parikh[3], Parth Patel[4]

[1]MD Internal Medicine, Mercy-Fitzgerald Hospital, Darby, Pennsylvania, USA. 19023
Email: *disha.patel2093[at]gmail.com*

[2]MBBS, Medical College Baroda, Vadodara, Gujarat, India. 390001
Email: *dtp917[at]yahoo.com*

[3]MBBS, GMERS Medical College and Hospital Gotri, Gotri, Vadodara, Gujarat, India. 390021
Email: *prachi.gjo6[at]gmail.com*

[4]MBBS, GMERS Medical College and Hospital, Gotri, Gotri, Vadodara, Gujarat, India. 390021
Email: *parth7b[at]gmail.com*

Abstract: ***Budd-Chiari syndrome, arising from the obstruction of hepatic venous outflow, poses a significant medical challenge due to its varied causes. One infrequent cause is its link to Systemic Lupus Erythematosus (SLE) in conjunction with Anti-Phospholipid Antibody Syndrome (APLA), an autoimmune disorder characterized by abnormal blood clotting. We present a case report of an 18-year-old male who presented with abdominal distension, jaundice, and splenomegaly. Diagnostic investigations revealed hepatic vein thrombosis, consistent with Bud-Chiari syndrome, and further workup confirmed APLA associated with SLE. This rare association emphasizes the importance of considering antiphospholipid antibodies and SLE in young patients presenting with Bud-Chiari syndrome, even in the absence of typical SLE manifestations. Timely identification and early anticoagulation therapy play a crucial role in preventing potentially devastating complications of venous thrombosis in this context.***

Keywords: Budd-Chiari Syndrome, Systemic Lupus Erythematosus, Anti-Phospholipid Antibody Syndrome

1. Introduction

Budd-Chiari syndrome (BCS) is a rare but serious condition characterized by the obstruction of hepatic venous outflow, leading to liver congestion. It is caused by thrombosis in the major hepatic veins, resulting in various clinical manifestations such as abdominal pain, hepatomegaly, and ascites [1]. While the etiology of Budd-Chiari syndrome encompasses several factors, including malignancies and other underlying conditions, an uncommon association exists with systemic lupus erythematosus (SLE) and antiphospholipid antibody syndrome (APLA)[2].

Early identification, close monitoring, and appropriate management of APLA in SLE are essential to prevent and manage thrombotic events and improve overall patient outcomes. This case study explores the unusual correlation between BCS and SLE with APLA.

2. Case

A previously healthy 18-year-old male presented with a 20-day history of gradually worsening abdominal distension, yellowish discoloration of sclera and urine for 15 days, and abdominal pain for 7 days. The patient denied any past complaints of joint pain, facial rash, seizures, or generalized body pain. There were no previous surgical procedures, prolonged medication use, or history of substance addiction. Additionally, there was no family history of similar illnesses. Upon examination, the abdomen displayed notable distension with prominent dilated veins over the anterior abdominal wall. Palpation revealed splenomegaly accompanied by the presence of free fluid. Anthropometric measurements indicated a weight of 64 kg, height of 175 cm, and a BMI of 22.42. The patient had pallor, scleral icterus, ascites and bilateral pitting pedal edema. Vital signs were within normal limits, showing stable blood pressure at 108/60 mm-Hg. The temperature was normal, pulse rate was recorded at 90 beats per minute, and oxygen saturation on room air (RA) was 98%. The random blood sugar level was 121 mg/dL, with intact consciousness and orientation to time, place and person.

Rest of the systemic examination was unremarkable. Laboratory Investigations revealed Hemoglobin -6.2 g/dl, White Blood Cell count 6,370 cells/mm^3, Platelets 1,45,000 cells/mm^3, ESR- 90 mm/hr, Creatinine-0.62 mg/dL, Urea-24 mg/dL, Serum Electrolytes - WNL, Aspartate Amino Transferase (AST) - 65U/L, Alanine Amino Transferase (ALT) - 68U/L Albumin-2.8 gm/dL, Total Protein- 4.2 gm/dL, Total Bilirubin 4.37 mg/dL, Direct Bilirubin 3.05 mg/dL, Serum. Lactate Dehydrogenase (LDH) 442 IU/L. Urinalysis indicated proteinuria of +2, with no evidence of hematuria. The 24-hour urinary protein excretion was measured at 700 mg/day. Coagulation profile was normal. Chest X-ray findings were suggestive of congestive changes

Licensed Under Creative Commons Attribution CC BY

and Bilateral blunting of costophrenic angles. Abdominal and pelvic ultrasonography indicated evidence of liver parenchymal disease, along with splenomegaly with spleen measuring 14.5 cm and gross ascites. Diagnostic and therapeutic tapping of the ascitic fluid was performed, and the analysis showed an ascitic protein level of 3.08 g/dL, albumin level of 1.57 g/dL, and sugar level of 135.78 mg/dL. The fluid analysis also indicated 0% polymorphs and 100% lymphocytes, with a serum-ascites albumin gradient (SAAG) ratio of 1.37, suggestive of portal hypertension. The electrocardiogram (ECG) exhibited non-specific ST-T changes, while echocardiography revealed a left ventricular ejection fraction (LVEF) of 55%, with normal LV size and fair LV function.

Doppler study of portal venous system revealed changes of chronic thrombosis in hepatic vein with caudate lobe hypertrophy, portal hypertension and gross ascites. CECT (Image:1) abdomen showed-non visualization of intrahepatic inferior vena cava and all hepatic veins with hepatomegaly and heterogeneous mottled enhancement of parenchyma, suggesting the possibility of Budd-Chiari syndrome. Additional investigations for Budd-Chiari syndrome were conducted, revealing the following results: Direct Antiglobulin Test (DAT) showed a grade 4 positive result. Indirect Antiglobulin Test (IAT) showed a grade 2 positive result. Antinuclear Antibody (ANA) test was positive with a homogeneous pattern at a titer of 1:80 by immunofluorescence. Additionally, the tests for Anti-dsDNA, Anti-Histone, Anti-Nucleosome, Anti-Phospholipid IgM, Anticardiolipin IgM, Anticardiolipin IgG, Beta 2 Glycoprotein 1 IgG & IgM, showed positive findings. Lupus anticoagulant test was positive. Complement levels C3 and C4 were low.

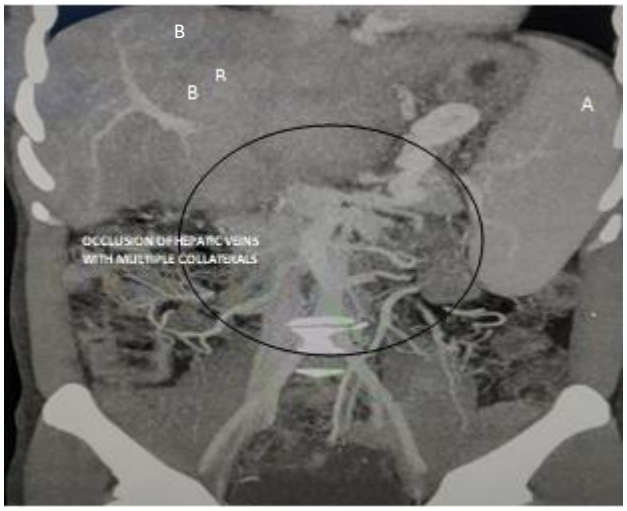

Image 1: Contrast CT showing Hepatic vein occlusion with Hepatomegaly (B) and massive splenomegaly (A)

Based on the above investigations, patient was diagnosed with Secondary Budd-Chiari Syndrome with Antiphospholipid Antibody Syndrome due to systemic lupus erythematosus [11] (Image 2). Patient was treated with IV Methylprednisolone and LMWH. Thrombolysis was attempted but due to significant delay, we were not able to sufficiently restore blood flow. Hence ultimately, we opted for TIPS. There was significant improvement. Gradually the patient was shifted to oral steroids and warfarin. Patient followed up for one year and had no new complaints.

Entry criterion
Antinuclear antibodies (ANA) at a titer of ≥1:80 on HEp-2 cells or an equivalent positive test (ever)

↓

If absent, do not classify as SLE
If present, apply additive criteria

↓

Additive criteria
Do not count a criterion if there is a more likely explanation than SLE.
Occurrence of a criterion on at least one occasion is sufficient.
SLE classification requires at least one clinical criterion and ≥10 points.
Criteria need not occur simultaneously.
Within each domain, only the highest weighted criterion is counted toward the total score§.

Clinical domains and criteria	Weight	Immunology domains and criteria	Weight
Constitutional		***Antiphospholipid antibodies***	
Fever	2	Anti-cardiolipin antibodies OR	
Hematologic		Anti-β2GP1 antibodies OR	
Leukopenia	3	Lupus anticoagulant	2
Thrombocytopenia	4	***Complement proteins***	
Autoimmune hemolysis	4	Low C3 OR low C4	3
Neuropsychiatric		Low C3 AND low C4	4
Delirium	2	***SLE-specific antibodies***	
Psychosis	3	Anti-dsDNA antibody* OR	
Seizure	5	Anti-Smith antibody	6
Mucocutaneous			
Non-scarring alopecia	2		
Oral ulcers	2		
Subacute cutaneous OR discoid lupus	4		
Acute cutaneous lupus	6		
Serosal			
Pleural or pericardial effusion	5		
Acute pericarditis	6		
Musculoskeletal			
Joint involvement	6		
Renal			
Proteinuria >0.5g/24h	4		
Renal biopsy Class II or V lupus nephritis	8		
Renal biopsy Class III or IV lupus nephritis	10		
Total score:			

↓

Classify as Systemic Lupus Erythematosus with a score of 10 or more if entry criterion fulfilled.

Image: 2 2019 EULAR/ACR Classification Criteria for Systemic Lupus Erythematosus[11]

3. Discussion

Budd-Chiari syndrome, an infrequent yet potentially severe condition, arises from obstructed hepatic venous flow, primarily attributed to thrombosis affecting the hepatic veins or, less commonly, the inferior vena cava[1]. While diverse etiologies may underlie this syndrome, myeloproliferative diseases, such as polycythemia rubra vera, represent the most prevalent cause. Other conditions contributing to this disorder are filariasis, amoebic liver abscess, aspergillosis, schistosomiasis, hepatocellular carcinoma, renal cell carcinoma, adrenal adenoma, leiomyosarcoma of the inferior vena cava, and antiphospholipid syndrome [2].

Budd-Chiari syndrome typically manifests with a constellation of clinical features, including abdominal pain, abdominal distention, hepatomegaly, and splenomegaly. The condition often leads to portal hypertension, resulting in the development of massive ascites, caput medusae, esophageal varices and hemorrhoids [3].

Systemic lupus erythematosus (SLE) is a multi-system autoimmune disease that predominantly affects women of childbearing age and its incidence is about 10 times more common in females than in male population [4]. Only a few cases have reported Budd-Chiari syndrome as the initial manifestation of SLE [5].

The underlying mechanisms for hypercoagulability in SLE are multifactorial and involve a complex interplay of immune dysregulation, endothelial dysfunction, and the presence of antiphospholipid antibodies (APLA) [6]. Antiphospholipid Antibody Syndrome (APLA) is an acquired autoimmune disorder characterized by the presence of antiphospholipid antibodies, including lupus anticoagulant, anticardiolipin antibodies, and anti-beta-2 glycoprotein I antibodies [7]. The

Licensed Under Creative Commons Attribution CC BY

coexistence of APLA with SLE significantly increases the risk of thrombotic events and pregnancy complications[6].

Most of the cases presenting as Budd-Chiari already had some previous manifestations of SLE. Contrarily, the patient in our study did not exhibit any clinical manifestations of systemic lupus erythematosus prior to the development of Budd-Chiari syndrome. Similar findings were reported by Espinosa G et al., and Ilkgül O et al., showed Budd-Chiari syndrome as an initial manifestation [8,9] Management involves restoring the blood flow either through thrombolysis or through balloon angioplasty with stenting. Transjugular intrahepatic portosystemic shunting (TIPS) should be done if complications of portal hypertension develop. In case of liver failure, liver transplant is the ultimate option [2]. Patients with SLE require lifelong immunosuppression [10].

4. Conclusion

Systemic lupus erythematosus (SLE) may first manifest as Budd-Chiari syndrome, even before other typical symptoms appear. Therefore, in young patients presenting with Budd-Chiari syndrome features, it is crucial to screen for antiphospholipid antibodies (APLA), regardless of the presence of other SLE manifestations. Maintaining a high level of suspicion and promptly initiating anticoagulation can be advantageous in preventing severe complications associated with venous thrombosis.

References

[1] Pavri TM, Herbst A, Reddy R, Forde KA. Budd-Chiari syndrome: a single-center experience. World J Gastroenterol. 2014 Nov 21;20(43):16236-44. https://doi.org/10.3748/wjg.v20.i43.16236. PMID: 25473178; PMCID: PMC4239512 .

[2] Lai M., “Etiology of the Budd-Chiari syndrome”, Uptodate.com, para. 3, Jul. 19, 2023. [Online].Available:https://www.uptodate.com/contents/etiology-of-the-budd-chiari-syndrome. [Accessed: Aug. 21, 2023].

[3] Valla, DC. Budd–Chiari syndrome/hepatic venous outflow tract obstruction. Hepatol Int 12 (Suppl 1), 168–180(2018).https://doi.org/10.1007/s12072-017-9810-5

[4] Stojan, George; Petri, Michelle. Epidemiology of systemic lupus erythematosus: an update. Current Opinion in Rheumatology 30(2):p 144-150, March 2018.https://doi.org/10.1097/BOR.0000000000000480.

[5] Pandiaraja J, Sathyaseelan A. Budd- Chiari Syndrome as an Initial Manifestation of Systemic Lupus Erythematosus. J Clin Diagn Res. 2016 Apr;10(4):OD01-2.https://doi.org/10.7860/JCDR/2016/16623.7532Epub 2016 Apr 1. PMID: 27190864; PMCID: PMC4866162.

[6] Bazzan M, Vaccarino A, Marletto F. Systemic lupus erythematosus and thrombosis. Thromb J. 2015 Apr 23;13:16. https://doi.org/10.1186/s12959-015-0043-3 PMID: 25908929; PMCID: PMC4407320.

[7] Willis, R., Pierangeli, S.S. Pathophysiology of the antiphospholipid antibody syndrome. Autoimmun Highlights 2, 35–52 (2011). https://doi.org/10.1007/s13317-011-0017-9

[8] Espinosa G, Font J, García-Pagan JC, Tàssies D, Reverter JC, Gaig C, Cervantes F, Cervera R, Bosch J, Ingelmo M. Budd-Chiari syndrome secondary to antiphospholipid syndrome: clinical and immunologic characteristics of 43 patients. Medicine (Baltimore). 2001Nov;80(6):345-54.https://doi.org/10.1097/00005792-200111000-00001 PMID: 11704712.

[9] Ilkgül O, Içöz G, Dayangaç M, Tokat Y, Ozütemiz O. A case of antiphospholipid antibody syndrome with Budd-Chiari and colonic ulcers complicated with gastrointestinal hemorrhage. Turk J Gastroenterol. 2004 Jun;15(2):115-6. PMID: 15334324.

[10] Fanouriakis A, Kostopoulou M, Alunno A, et.all 2019 update of the EULAR recommendations for the management of systemic lupus erythematosus. Ann Rheum Dis. 2019 Jun;78(6):736-745. https://doi.org/10.1136/annrheumdis-2019-215089 . Epub 2019 Mar 29. PMID: 30926722.

[11] Aringer M, Costenbader K, et.all. 2019 European League Against Rheumatism/American College of Rheumatology Classification Criteria for Systemic Lupus Erythematosus. Arthritis Rheumatol. 2019 Sep;71(9):1400-1412.https://doi.org/10.1002/art.40930. Epub 2019 Aug 6. PMID: 31385462; PMCID: PMC6827566.

Author Profile

Darsh Patel did his MBBS from Maharaja Sayajirao University Vadodara in February 2022 He has completed 1 year internship from SSG Hospital Vadodara. He worked as a Junior resident in GMERS Hospital and is currently in the United States gaining clinical experience. He will be applying for Internal Medicine residency in the 2023-2024 ERAS match cycle.

Licensed Under Creative Commons Attribution CC BY