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Case Report

Budd Chiari Syndrome in a Fifteen-Year Old Girl with Systemic Lupus Erythematosus

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Abstract

Budd Chiari Syndrome is a rare disease that results from the complication of venous thrombosis. In this case report, the syndrome is being reported in a 15 year old young Pakistani girl first diagnosed with Systemic Lupus Erythematosus (SLE) two years earlier. She was one of those on a one year regular follow-up in the Rheumatology Department of Fatimah Memorial Hospital, Lahore, Pakistan. It is believed that in this patient, Budd Chiari Syndrome resulted from hepatic veinous thrombosis due to the presence of Lupus anticoagulants. As the young girl was suffering from antiphospholipid syndrome secondary to lupus, this milder form of Budd-Chiari Syndrome was later treated in India with surgical shunts.

Keywords: *Systemic lupus erythematosus; Budd-Chiari Syndrome; lupus anticoagulants; thrombosis; antiphospholipid syndrome.*

Abbreviations

SLE: Systemic Lupus Erythematosus
WBC: White blood Cells
RBC: Red Blood cells
MCV: Mean Cell Volume
MCH: mean corpuscular hemoglobin
MCHC: mean corpuscular hemoglobin concentration
ESR: Erythrocyte Sedimentation Rate
Sm: After the name of Smith
C3: Complement 3
C4: Complement 4
CO_2: Carbondioxide
IVC: Inferior Vena Cava
ANA: Antinuclear antibodies
dsDNA: Double Stranded Deoxyribonucleic acid
ELISA: Enzyme Linked Immunosorbent Assay
INR: International Normalized Ratio
Rib-P: Ribosomal P proteins

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Introduction

Budd Chiari Syndrome is a rare disease that results from the complication of venous thrombosis.[1] It is caused by obstruction of hepatic venous outflow at any level from the small hepatic veins to the junction of inferior vena cava in the right atrium. Worldwide, it occurs in 1/100,000 of the general population.[2,3] The syndrome was first described by Budd in 1845 and in 1899, Chiari presented 13 cases of this condition.[4,5,6] Etiologically, Budd-Chiari Syndrome can be classified into five groups on the basis of obstructive mechanism of inferior vena cava and veno-occlusive disease, primary lesions of the main hepatic vein, and benign/malignant invasion of the hepatic veins.[7]

In Budd-Chiari syndrome, high blood pressure in the hepatic veins leads to hepatomegaly and ascities. The most common presentation is ascities but can range from fulminant hepatic failure to asymptomatic forms.[8,9] Obstruction of hepatic venous outflow is mainly caused by primary intravascular thrombosis, which can occur suddenly or be repeated overtime, accompanied by some revascularization, accounting for the variable parenchymal hepatic damage and histologic presentation. Thus there is sinusoidal congestion, liver cell loss, and fibrosis, with all three predominating in the centrilobular areas.[10]

Lupus anticoagulant is an antiphospholipid antibody which is found in patients with autoimmune diseases particularly Systemic Lupus Erythematosus (SLE).[11,12] Antiphospholipid antibodies that inhibit the conversion of prothrombin to thrombin, are found in 30 to 40% of SLE patients and react with a variety of anionic phospholipids.[13,14] The association of Budd-Chiari Syndrome with SLE has rarely been reported.[15,16] The diagnosis of Budd-Chiari syndrome can be difficult because of the wide spectrum of presentation of the disease and the varying severity of liver damage especially when it occurs in combination with SLE. Here we describe a girl who developed Budd-Chiari Syndrome following a 2-year history of SLE.

Case Report

A 15 years old patient was diagnosed with SLE in April 2007 based on the 1982 revised criteria proposed by the American College of Rheumatology.[17] She was one of those on a regular follow-up group in the Rheumatology Department of Fatimah Memorial Hospital, Lahore, Pakistan for one-year. In January 2008, she had acute abdominal pain, fever, generalized fatigue, hurting in legs and knees, arms stiffness, gums bleeding and anemia. There was no family history of SLE. Her weight was 52 kg and the blood pressure was 120/70 mmHg. On physical examination, the liver was enlarged. An ultrasound scan revealed an abnormal pattern of the veins in the liver (Figure-1).

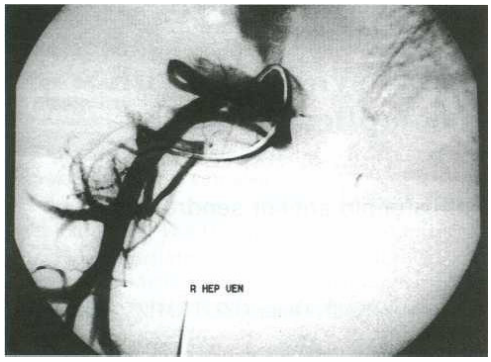

Figure 1: Right hepatic venous thrombosis of a Pakistani patient with Budd-Chiari syndrome

Results of laboratory investigation were as follow: Hematological parameters were hemoglobin-12.9g/dl, WBC count-9x10^9 cells/L, RBC count-3.9x10^{12} cells/liter, MCV-94.6fl, MCH-33pg, and MCHC-34.9%. Platelet count was 147x10^9/L suggesting thrombocytopenia and ESR done using Westergen method was 56mm/hr. The biochemical parameters including Urea-12mg/dl (15-40mg/dl), Creatinine-0.6 mg/dl (0.5-1.2 mg/dl), albumin-3.5g/dl (3.2-5g/dl), and random glucose-109 mg/dl (80-120mg/dl) were almost within normal limits

except ALT-46 IU/L (3-33 IU/L) that was high. Urine analysis revealed 20 red blood cells and traces of protein. Immunological parameters such as ANA, dsDNA, anti-cardiolipin were positive. The presence of auto-antibodies towards Sm, Ro, La, Rib-P, anti-histone were tested by ELISA using commercially available kit (Orgentec Diagnostic, Germany) and were negative. Complement level of C3 (111mg/dl; 50-120mg/dl) was normal while C4 (14.2mg/dl; 20-50mg/dl) was low. C-reactive protein and rheumatoid arthritis factor (determined by routinely available agglutination kit) were negative. The diagnosis of Budd-Chiari syndrome in an SLE patient was confirmed by performing hepatic venography, trans-jugular liver biopsy, and retrograde CO_2 portography. Further, inferior vena cava pressure measurements were performed simultaneously with therapies in the Radiology Department of Fatimah Memorial Hospital (Figure 2).

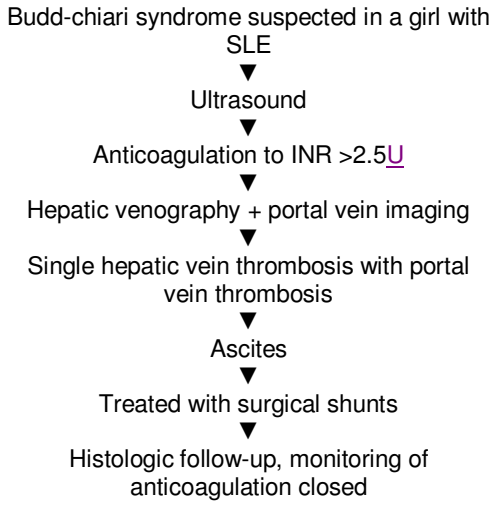

Figure 2: Inferior vena cava pressure measurements procedure in SLE patient in Radiology Department of Fatimah Memorial Hospital, Lahore, Pakistan

Prothrombin time (45 sec) was significantly high. Phospholipids are required for blood clotting but this patient had antiphospholipid antibodies therefore there was prolongation of *in vitro* clotting time. The patient was treated with an anticoagulant, warfarin (15mg daily till the daily life get resumed); for the prophylaxis of thrombosis, Plaquenil (400mg per day), Qaban and with Deltacortil (1mg/kg body weight) that contain a synthetic corticosteroid, prednisolone were administered. Finally, the patient was treated with surgical shunts; a side-to-side portacaval shunt not only decompressed the liver ascities, but also relieved ascities and removed the risk of variceal bleeding. A differential of 10mmHg or more between the portal vein and intrahepatic IVC was considered essential.

Discussion

The Budd Chiari syndrome is a known complication of venous thrombosis; its association with SLE was first reported in 1986 by Averbuch and Levo.[18] The association of this syndrome with lupus anticoagulant was reported in one patient in 1984 but the patient did not fulfill the required criteria proposed for the diagnosis of SLE.[19] Our patient satisfied the criteria proposed for the diagnosis of SLE; here the cause of hepatic vein thrombosis is the presence of lupus anticoagulant that interferes with the normal function of blood vessels causing vasculopathy and ultimately thrombosis.

The pathogenesis of thrombosis is unknown but the proposed mechanisms include direct endothelial cell injury, antigen-antibody mediated platelet activation, and inhibition of endogenous anticoagulants such as protein C.[20,21] Previous studies have suggested that the anticoagulant reacts with a phospholipid related-antigen shared by clotting factors, platelets, cardiolipin, and other cell membranes. The reaction between antibody and the antigen could result, on the one hand, in inhibition of clotting factors and thrombocytopenia and on the other hand, in inhibition of prostacyclin production, release of procoagulant activity, and enhanced thrombosis [22,23]

Pulsed-Doppler ultrasound is diagnostically sensitivity and was considered to be the first

line of investigation of Budd Chiari syndrome in the patient. Hepatic venography was considered to be the accurate diagnostic imaging as it determined the extent of thrombosis as well as caval pressures. Our Lupus patient with Budd-Chiari was later referred to an Indian doctor for treatment with surgical shunts in order to divert blood flow around the obstruction or the liver itself and for best results shunt was placed early after diagnosis.

Evidence of abnormal blood clotting in the patient required a blood thinner, warfarin, to prevent the blood clotting of small and large blood vessels. The administration of oral anticoagulant warfarin was expected to improve the prognosis for our patient. Good clinical response to oral anticoagulants illustrates the importance of testing the presence of lupus anticoagulants in such a patient but the need is to find out the pathogenesis of thrombosis. There is no permanent cure for SLE and the goal of treatment was to relieve symptoms and to protect organs by decreasing inflammation and/or the level of autoimmune activity in the patient body. Plaquenil, is one of the better tolerated anti-rheumatic drug and was given to the patient because she was at more risk for blood clots in veins and arteries Deltacortil is one of a group of medicines called steroids which are used to treat several illnesses including Lupus. In the present study, treatment with Delatcortil provided relief for inflamed areas of the body and lessens swelling.

Conclusion

Thus this conclude that the lupus patients with Budd-Chiari Syndrome should be tested for Lupus anticoagulants and anticardiolipin antibodies as Budd-Chiari Syndrome resulting from this cause may have a good response to treatment with oral anticoagulants. Secondly, the patients of Budd-Chiari syndrome especially when it occurs with SLE; it should be managed in a Pakistani center able to offer all the interventional radiologic techniques as surgical shunt and liver transplantation; because improvement or progression of the liver disease is unpredictable and worsening liver failure can occur. Currently, radiologic intervention and liver transplantation are the mainstays of treatment. Management of such patients can be difficult but management of the primary disease is as important as the secondary complication that is Budd-Chiari syndrome.

References

1. Valla DC. Hepatic vein thrombosis (Budd-Chiari syndrome), *Semin Liver Dis.* 2002; 22:5-14.
2. Valla DC. The diagnosis and management of the Budd-Chiari syndrome: consensus and controversies. *Hepatology.* 2003; 38:793-803.
3. Harris EN, Boey ML, Mackworth-young CG, Gharavi AE, Patel BM, Loizou S. Anticardiolipin antibodies: detection by radioimmunoassay and association with thrombosis in systemic lupus erythematosus. *Lancet.* 1983; 2:1211-4.
4. Kotzin BL. Systemic Lupus Erythematosus. *Cell Biology.* 1986; 85:303-306.
5. Kurniadhi D, Pujwati Wijaya LK, Setiyohadi B, and Atmakusuma DC. Cerebral thrombosis in SLE with the antibody antiphospholipid syndrome. *Acta Mstened Indones.* 2007; 39:82-5.
6. Mitchell MC, Boitnott JK, Kaufman S. Budd-chiari syndrome: etiology, diagnosis and management. *Medicine.* 1982; 61:199-218.
7. David PD. Systemic Lupus Erythematosus. *B M J.* 2006; 15: 890-894.
8. Asherson RA, Khanashta MA, Huges GRV. Antiphospholipid antibodies, lupus like disease and the primary antiphospholipid syndrome. *Clin Rheumato,* 1989; 8:115-117.
9. Carreras LO, Defreyn G, Machin SJ. Arterial thrombosis intrauterine death and lupus anticoagulant: detection of immunoglobulin interfering with prostacyclin formation. *Lancet.* 1981;1: pp.244-6.
10. Budd G. On disease of the liver. London, J. Churchill, 1845, pp. 135.
11. Mahmoud AE, Mendoza A, Meshikes AN. Clinical spectrum, investigations, and treatment of Budd Chiari syndrome. *Q J M.* 1996; 89:37-43.
12. Janssen HL, Garcia-Pagan JC, Elias E. Budd-Chiari syndrome: a review by an expert panel. *J Hepatol.* 2003; 38:364-71.

13. Bogin V, Marcos A, Shaw-stiffel T. Budd-Chiari syndrome: in evolution. *Eur J Gastroenterol Hepatol*. 2005; 17:33-5.

14. Murad SD, Valla DC, De Groen PC, Zeitoun G, Hopmans JA, Haagsma EB, van Hoek BE, Hansen E, Rosendaal FR, Janssen HL. Determinants of survival and the effect of protosystemic shunting in patients with Budd-Chiari syndrome. *Hepatology*. 2004; 39:500-8.

15. Orloff MJ, Daily PO, Orloff SL, Giard B, Orliff MS. A 27-year experience with surgical treatment of Budd-Chiari syndrome. *Am Surg.* 2000;232:340-52.

16. Elias M, Eldor A. Thromboembolism in patients with the lupus-type circulating anticoagulant. *Arch Intern Med*. 1984; 144:510-5.

17. McShane DJ, Rothfield NJ. The 1982 revised criteria for the classification of SLE. *Rheumatic Dis.* 1986; 45:435-437.

18. Averbuch M, Levo Y. Budd Chiari Syndrome as a major thrombotic complication of SLE with lupus anticoagulant. *Ann Rheumatic Dis.* 1986;45:435-437.

19. Pomeroy C, Knodell RG, Swain WR, Arneson P, Mohawald ML. Budd-chiar syndrome in a patient with lupus anticoagulant. *Gastroenterology*. 1984; 86:158-61.

20. Janssen HL. Budd-Chiari syndrome: a review by an expert panel. *J Heptol.* 2003; 38:364-371.

21. Cucurull E, Gharavi AE, Diri E, Mendez E, Kapoor D, Espinoza LR. IgA anticardiolipin and anti-beta 2-glycoprotein I are the most prevalent isotypes in African American patients with Systemic Lupus Erythematosus. *Am J Med Sc.* 1991; 31:55-60.

22. Hadengue A. The changing scene of hepatic vein thrombosis: recognition of asymptomatic cases. *Gastroenterology*. 1994; 106:1042-1047.

23. Byron MA. The clotting defect in SLE. *Clin Rheum Dis.* 1982; 8:137-51.