Budd-Chiari Syndrome in Early Pregnancy

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The association of veno-occlusive disease of the liver and pregnancy has been occasionally reported in the medical literature. Since the initial description of hepatic vein thrombosis by Lambroan (1) and afterwards by Budd (2) and Chiari (3), several etiologic mechanisms have been proposed. The association of Budd-Chiari syndrome and pregnancy is very rare (4,5); it's presentation, especially in western countries, is sporadic and usually considered a clinical anecdote (6,7). We describe such association in one of our patients, since it has never been reported in the local medical literature.

Case Report

A 21 year-old caucasian woman, without history of previous illness, was admitted to the University Hospital of Puerto Rico complaining progressive bilateral leg swelling, yellowish coloration of the skin and mucosa and abdominal girth increment for the past four days. She was in the 10th week of her first pregnancy, intrauterine fetal death was confirmed and evacuation was performed. In our initial evaluation the patient denied any toxic habits, use of oral contraceptives, foreign travels, or ingestion of herbs or dietetic products. She presented no history of vein thrombosis or phlebitis and family history of thromboembolic episodes was negative.

The physical exam revealed an acutely ill, jaundiced, slender woman with normal vital signs. Upon auscultation there were decreased breath sounds at both bases. The abdomen was distended with ascitic fluid wave and collateral circulation. Both legs were swollen, showing pitting edema. The pelvic exam showed hypertrophy of the external genitalia and bloody mucous vaginal discharge. Cytologic evaluation of the peritoneal fluid yielded no atypical cells, and stains for bacteria, fungi and mycobacteria were negative. Results of laboratory tests performed are shown in table 1.

Table 1. Laboratory results upon admission

Laboratory	Serum	Peritoneal fluid
WBC	8.6x103/mm³	129/mm³
Hemoglobin	12.3 g/dl	
Platelets	146,000/mm³	
INR	1.43	
APTT	33/32"	
PT	12/12"	
AST	77 U/dl	
ALT	48 U/dl	
Total bilirubin	3.4 g/dl	
Direct bilirubin	2.2 g/dl	
Serum protein	6.4 g/dl	1.58 g/dl
Albumin	3.4 g/dl	0.7 g/dl
Glucose	50 mg/dl	84 mg/dl

Although the abdomino-pelvic sonogram upon admission did not reveal any abnormality, a flow-Doppler study, 24 hours later, showed an almost complete occlusion of the inferior vena cava and dilatation of infrahepatic vessels (Figure 1). The complete absence of the hepatic venous flow was confirmed by digital substraction angiography, demonstrating the obstruction of the suprahepatic portion of the inferior vena cava (Figure 2).

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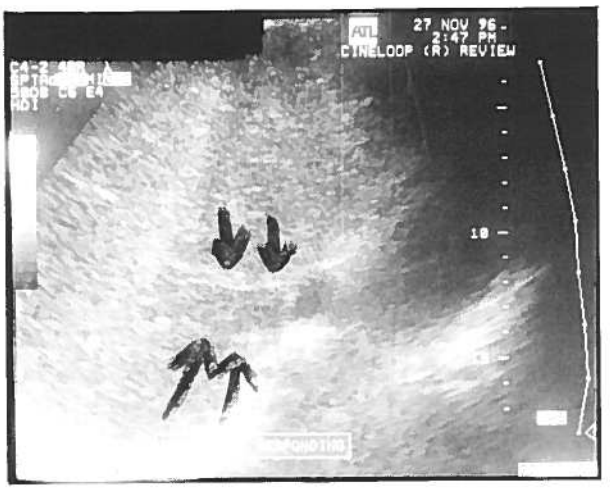

Figure 1. Sonographic view of the inferior vena cava showing lumen dilatation (arrow).

Examination of peripheral blood smears and fresh myeloaspirates excluded the presence of myeloproliferative disorders and chromosomal studies were normal. C-protein, S-protein, coagulation factor quantification were in the lower range of normal, as seen in patients with hepatic failure. Serum protein and immunoglobulin electrophoresis were normal and lupus anticoagulant activity, antinuclear antibodies and anti-DNA antibodies excluded Lupus erythematosus.

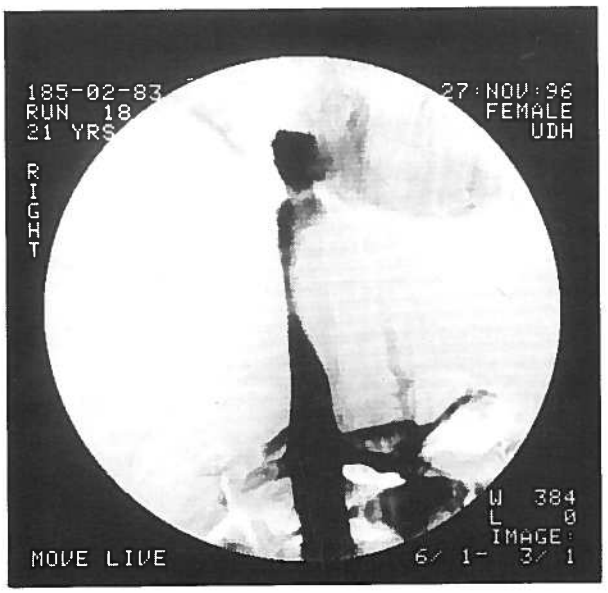

Figure 2. Digital substraction angiography showing the narrow of the lumen (thrombus) at the suprahepatic level of the inferior vena **cava.**

After several days of treatment with heparin, warfarin and diuretics, ascites and edema decreased. A follow up sonogram, ten days after admission revealed coarse hepatic texture, suggestive of hepatocellular disease. Because of the poor prognosis of her disease, she was referred for liver transplant evaluation. No definitive etiology was established for the abrupt hepatic vein thrombosis in this woman.

Discussion

In 1899 Thran was the first to describe the association between pregnancy and Budd-Chiari syndrome (8), although others have also documented this association (4, 7, 9). Its usual presentation has been in the early postpartum and only a few cases presented during pregnancy (4,5,10).

Pregnancy-related Budd-Chiari Syndrome is more common in India (11,12,13). Several mechanisms have been proposed to explain this higher incidence including the membranous obstruction of the inferior vena cava (MOVC) and cultural practices, especially the costume of prolonged in-bed post-partum and fluid restriction (13-15). Different causes have been advocated in western countries although the small number of reported cases does not allow the establishment of clear relation links between Budd-Chiari syndrome and pregnancy (4, 16-19).

Membranous obstruction of inferior vena cava is the most frequent cause of Budd-Chiari Syndrome (14). In western countries most cases are related to myeloproliferative disorders (20,21), other causes include oral contraceptives, hypercoagulable states, and solid malignancies (22-24). Rare causes are described occasionally such as paroxysmal nocturnal hemoglobinuria (25) or Behçet's disease (26). Recently a new etiologic role has been given to the presence of a mutation in the gene that codifies the Factor V (6). A single base pair mutation of this gene results leads to factor V Leiden variant (27), a natural cause of protein C-activity resistance (28). The use of oral contraceptives in persons with factor V Leiden variant has been associated with an even higher incidence of venous thrombosis (29).

Budd-Chiari syndrome is very infrequent in western countries and is not commonly considered as a cause of hepatic failure. A high index of suspicion is required for its diagnosis. The singularity of our case rests in its unusual presentation in early pregnancy. The physician must always be aware of this syndrome in *de-novo* ascites presentation, even in pregnant woman. Extensive work up must be employed in every case although the etiology may, as in our case, remain concealed.

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