Budd-Chiari Syndrome With Complete Occlusion of the Inferior Vena Cava: Percutaneous Recanalization by Angioplasty and Stenting

Ángel Sánchez-Recalde, Nicolás Sobrino, Guillermo Galeote, Luis Calvo Orbe, José L. Merino, and José A. Sobrino

Unidad Médico-Quirúrgica de Cardiología, Hospital Universitario La Paz, Madrid, Spain.

INTRODUCTION

Budd-Chiari syndrome is a heterogeneous group of diseases characterized by occlusion of the hepatic veins or the inferior vena cava, producing portal hypertension. The most frequent cause in Western countries is thrombotic occlusion in a hypercoagulable state. The present case illustrates percutaneous recanalization of complete inferior cava occlusion by angioplasty and stent implantation in a patient with primary antiphospholipid syndrome.

CASE STUDY

A 47-year-old man was diagnosed with primary antiphospholipid syndrome and Budd-Chiari syndrome (membranous complete obstruction of the intrahepatic inferior vena cava), with edema and ascites refractory to medical treatment. The inferior vena cava membrane was punctured with a Brockenbrough needle under multidirectional fluoroscopic guidance via a transfemoral approach. The occlusion was dilated with balloons of increasing size and was subsequently stented successfully. At 1-year follow-up venography showed patency of the stent, and the patient remains asymptomatic 2 years after the procedure.

Key words: Angioplasty. Stent. Inferior vena cava. Budd-Chiari syndrome. Catheterization.

Síndrome de Budd-Chiari por obstrucción completa de la vena cava inferior: recanalización percutánea mediante angioplastia e implante de stent

Presentamos el caso de un varón de 47 años diagnosticado de síndrome antifosfolípido primario con síndrome de Budd-Chiari asociado (obstrucción completa membranosa de la vena cava inferior intrahepática), que presentaba ascitis y edemas rebeldes al tratamiento médico. Por vía percutánea se recanalizó la vena cava inferior atravesando la membrana con una aguja de Brockenbrough bajo guía fluoroscópica; posteriormente, se dilató con balones de tamaño creciente y, por último, se implantó un stent con éxito. En el control angiográfico realizado 1 año más tarde no se observó reestenosis y después de más de 2 años, el paciente se encuentra asintomático.

Scimed, Plymouth, Minnesota, USA) was inserted through the Brockenbrough needle and the needle was withdrawn (Figure 1C). Subsequently, balloons of increasing caliber were advanced through the Mullins sheath over the guidewire, dilating the obstruction in successive steps. We first used a 3-mm CrossSail balloon (Guidant Corp., Temecula, California, USA) and then a 5-mm Diamondback balloon (InSitu Technologies, Inver Grove Heights, Minnesota, USA) (Figure 2A). Finally, a 16-mm Bonhoeffer Multitrack balloon for mitral valvuloplasty (NuMED, Hopkinton, New York, USA) was inflated (Figure 2B) and the formation of a new lumen became visible (Figure 2C). Nevertheless, there was significant elastic recoil, leaving a residual peak-to-peak gradient of 10 mm Hg. Given the outcome, the decision was made to perform a second procedure with stent implantation.

DISCUSSION

The angiographic study in this patient showed complete membranous occlusion of the inferior vena cava.
cava. Formerly, this type of occlusion was considered to have a congenital origin. However, based on findings obtained with new imaging techniques and histological studies, it has been postulated that the membranes are the sequelae of a thrombotic process. This theory is logical in the patient presented, with a hypercoagulable state and primary antiphospholipid syndrome.

Treatment for Budd-Chiari syndrome varies according to the etiology and level of the obstruction. In cases of complete or segmental occlusion of the inferior vena cava, the use of percutaneous revascularization procedures is increasingly more common, whereas surgery is reserved for cases that cannot be resolved percutaneously. The procedure can be performed safely under fluoroscopic guidance in several views to assure proper angling of the needle as it perforates the membrane. Balloon angioplasty offers good initial results, although the rate of restenosis varies from 3% to 48% according to the series. As compared to results with the balloon, stenting improves the long-term outcome as it reduces the incidence of restenosis.

In conclusion, percutaneous revascularization for complete vena cava occlusion in a patient with Budd-Chiari syndrome was a safe procedure that proved long-term effectiveness.

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REFERENCES