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.
Scimed, Plymouth, Minnesota, USA) was inserted through the Brockenbrough needle and the needle was withdrawn (Figure 1C).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. In this second procedure, again via the right femoral vein, predilation with a Maxi LD balloon (20×80 mm) (Cordis, Johnson & Johnson, Miami, Florida, USA) was performed at 4 atm, and a 40-mm length Palmaz stent (P 4014) (Cordis, Johnson & Johnson, Miami, Florida, USA) was inserted over the balloon catheter. The procedure was successful and there was no residual gradient (Figure 3A and B). Right-sided follow-up catheterization at 12 months after stent implantation showed no significant restenosis (Figure 3C). At the follow-up over two years later, the patient remains asymptomatic and has not required diuretic treatment.

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