Membranous Obstruction of the Inferior Vena Cava Treated by Percutaneous Balloon Angioplasty

Tsung O. Cheng, MD; Xue-liang Yang, MD; Chuan-rong Chen, MD

A 30-year-old Chinese man (case 5), who underwent surgical sympathectomy 12 years earlier for Budd-Chiari syndrome, developed recurrence of progressive ascites, dyspnea, leg edema, and esophageal varices over the past 5 years. Angiography revealed incomplete membranous obstruction of the inferior vena cava just below the right atrium (Fig 1A). The obstruction was successfully relieved by percutaneous transluminal angioplasty (Fig 1B). The patient remained asymptomatic for a follow-up period of 3.5 years.

A 32-year-old Chinese woman (case 9), with almost identical symptoms as the previous patient, was shown

---

Fig 1. Inferior vena cavogram (case 5) shows a membranous obstruction of the inferior vena cava (MOVC) 1 cm below the right atrium (arrowhead in A) with caval dilatation below the obstruction and ample collaterals. After percutaneous transluminal angioplasty (PTA), the caval diameter at the site of MOVC increases from 2 to 20 mm (arrowhead in B); the caval diameter below the MOVC decreases from 48 to 40 mm; the collaterals have completely disappeared; and the right atrium, which is barely visualized before PTA, is now well opacified.

From The George Washington University, Washington, DC (T.O.C.), 150th PLA Hospital, Luoyang, China (X.Y.), and Guangdong Cardiovascular Institute, Guangzhou, China (T.O.C., C.C.).

Correspondence to Dr Tsung O. Cheng, The George Washington University Medical Center, 2150 Pennsylvania Avenue, NW, Washington, DC 20037.

The editor of Images in Cardiovascular Medicine is Hugh A. McAllister, Jr, MD, Chief, Department of Pathology, St Luke’s Hospital and Texas Heart Institute, and Clinical Professor of Pathology, University of Texas Medical School and Baylor College of Medicine.

Circulation encourages readers to submit cardiovascular images to Dr Hugh A. McAllister, Jr, St Luke’s Episcopal Hospital and Texas Heart Institute, 6720 Bertner, MC 4-265, Houston, TX 77030.
on angiography to have complete membranous obstruction of the inferior vena cava just below the level of the diaphragm (Fig 2A). The obstruction was successfully relieved by percutaneous transluminal angioplasty (Fig 2B). The patient remained asymptomatic for a follow-up period of 2.5 years.

These two patients were among the 30 patients with membranous obstruction of the inferior vena cava whom we have successfully treated by percutaneous transluminal angioplasty with the Inoue balloon catheter. With the exception of one patient (case 8), who died from massive pulmonary embolism occurring immediately after percutaneous transluminal angioplasty, there were no complications. Long-term results with a follow-up period of as long as 5 years have been very satisfactory.

Fig 2. Inferior vena cavogram in case 9 shows complete membranous obstruction of the inferior vena cava (MOVC) just below the level of the diaphragm (arrowhead in A) with profuse collaterals below the MOVC; the right heart is opacified by simultaneous right atrial angiography through a National Institutes of Health catheter introduced through the superior vena cava. After successful PTA (B), the caval diameter below the MOVC decreases from 29 to 21 mm; the collaterals have disappeared; and the right heart can now be visualized readily after contrast injection into the inferior vena cava.
Images in cardiovascular medicine. Membranous obstruction of the inferior vena cava treated by percutaneous balloon angioplasty.

T O Cheng, X Yang and C Chen

Circulation. 1994;89:896-897
doi: 10.1161/01.CIR.89.2.896

Circulation is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
Copyright © 1994 American Heart Association, Inc. All rights reserved.
Print ISSN: 0009-7322. Online ISSN: 1524-4539

The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://circ.ahajournals.org/content/89/2/896.citation

Permissions: Requests for permissions to reproduce figures, tables, or portions of articles originally published in Circulation can be obtained via RightsLink, a service of the Copyright Clearance Center, not the Editorial Office. Once the online version of the published article for which permission is being requested is located, click Request Permissions in the middle column of the Web page under Services. Further information about this process is available in the Permissions and Rights Question and Answer document.

Reprints: Information about reprints can be found online at:
http://www.lww.com/reprints

Subscriptions: Information about subscribing to Circulation is online at:
http://circ.ahajournals.org/subscriptions/