Simultaneous Radical Surgical Treatment for Membranous Obstruction of the Inferior Vena Cava and the Coincident Hepatocellular Carcinoma -the First Successful Case-

Eizo OKAMOTO, Fumiya SUZUKI, Keiji KUWATA, Yukihiko SHIMIZU, Akihiro TOYOSAKA and Shiro FUJIWARA

ABSTRACT: To our knowledge, this is the first report of a patient for whom a successful radical treatment for both membranous obstruction of the inferior vena cava (MOVC) and coincident hepatocellular carcinoma (HCC) were simultaneously carried out. A 36 year old Japanese man with Budd-Chiari syndrome due to MOVC was found to have HCC in the right hepatic lobe during a shunt operation between the inferior vena cava (IVC) and the right atrium (RA), using a vascular prosthetic graft. He was referred to us from another institute for further operative procedures. Both the mediastinum and the abdomen were entered through a long midline incision with longitudinal splitting of the sternum. The graft that had been occluded by thrombus was removed. Transcardiac membranotomy was achieved by manual manipulation and then by Tubb's dilator. The hepatic tumor with an abundant surgical margin of the liver was resected. The tumor of 2.5 × 2.5 × 2.0 cm was a well differentiated clear cell type HCC associated with congestive liver cirrhosis. Postoperative contrast and pressure studies through IVC showed satisfactory results. Serum α-fetoprotein levels decreased from 503 to 12 ng/ml. The patient is well at least for 44 months after the surgery without any recurrence at the time of completion of this writing.

KEY WORDS: simultaneous radical surgery, Budd-Chiari syndrome, membranous obstruction, inferior vena cava, transcardiac membranotomy, hepatocellular carcinoma

INTRODUCTION

Budd-Chiari syndrome described in the western countries is most often due to thrombotic occlusion of the hepatic vein. In the majority of patients in Japan, however, this syndrome is due to a membranous obstruction of the inferior vena cava (MOVC), with or without hepatic vein obstruction.1

During the chronic course of this disease, congestive liver change and subsequent liver cirrhosis frequently ensue. In addition, a surprisingly high incidence of association with hepatocellular carcinoma (HCC) has been reported.1–4 Most of these reports concerned findings obtained at autopsy. To
our knowledge, there is no documentation of successful simultaneous surgical treatment for both lesions.

We now report a patient for whom our surgical treatment of MOVC and HCC were simultaneously carried out.

**Case Report**

A 36 year old man was admitted to a central hospital for cardiovascular disease, under the diagnosis of Budd-Chiari syndrome due to MOVC, in August, 1978. He underwent a by-pass operation between the inferior vena cava (IVC) and the right atrium (RA). A vascular prosthetic graft was made. During this operation, a hepatic tumor was detected in the right lobe and proved to be hepatocellular carcinoma. The patient was

---

**Fig. 1.** Preoperative CT scan at the level 8 cm below the xiphoid process (upper) and a sketch (lower). A round low density area of roughly 3 cm in diameter is seen at the anterior edge of the right hepatic lobe. Just behind the left hepatic lobe, density of the vascular prosthesis grafted in the previous operation is apparent.

**Fig. 2.** Preoperative coeliac angiography. A round hypervascular tumor is visualized in the right hepatic lobe, as indicated by arrows.

**Fig. 3.** Preoperative simultaneous visualization of the thoracic and abdominal portions of IVC through catheters placed above and below the obstruction. Marked collateral veins are seen below the obstruction. The vascular prosthetic graft is not visualized.