CATHETERIZATION OF THE PORTAL VEIN IN MAN
FOLLOWING PORTO-CAVAL ANASTOMOSIS

CHARLES T. DOTTER, M.D., MARY ANN PAYNE, M.D., AND
WARD O'SULLIVAN, M.D.

NEW YORK, N. Y.
FROM THE DEPARTMENTS OF RADIOLOGY, MEDICINE AND SURGERY OF
THE NEW YORK HOSPITAL—CORNELL MEDICAL CENTER

It is the purpose of this report to describe a method for successful intro-
duction of a cardiac catheter into the portal vein of a patient following the
surgical creation of a porto-caval anastomosis.

CASE REPORT

The patient was a 49-year-old alcoholic who had been followed in The New York
Hospital for 2 years with a diagnosis of Laennec's cirrhosis. He had had recurrent
episodes of melena and of hematemesis over an 18 month period with esophageal varices
consistently demonstrable on the esophogram. Despite a persistent glycosuria, his liver
function was only moderately impaired; he had never had ascites or edema. On January
19, 1950, a side-to-side portal-caval anastomosis was performed (Dr. Frank Glenn),
with immediate reduction of portal vein pressure from a preoperative level of 390 mm.
saline to 230 mm. The postoperative course was uneventful and on February 3, 1950,
venous catheterization was carried out. Under sterile precautions, a No. 10f cardiac
catheter was introduced via the left saphenous vein into the inferior vena cava. It was
then manipulated under fluoroscopic control until the tip of the catheter lodged in a
position at the level of the twelfth dorsal vertebra and somewhat to the right of the
position normally occupied by the inferior vena cava. Further attempts to advance the
catheter caused buckling which would not have been anticipated had the catheter tip
been free within the inferior vena cava. An injection of 30 cc. of 75 per cent Neo-iopax
was made through the catheter and a film of the abdomen exposed at the termination
of the injection. This film (Fig. 1) demonstrated opacification of numerous vascular
channels which arborized in the region of the liver, joining together into a large trunk
which entered the inferior vena cava. A diffuse area of contrast substance was also
seen in the mid-epigastrium and was presumed to represent a perenchymal hepatic
infiltration. Aside from transient epigastric pain, there were no ill effects following
the procedure.

DISCUSSION

To our knowledge, this represents the first reported catheterization of
the portal vein in man other than those performed during laparotomy. The
procedure in this instance was not difficult and should be reproducible. This
report is made in order to draw attention to the method and to emphasize its
possible uses.

Portal vein catheterization (only possible in patients in whom an arti-
ficial shunt between the portal and peripheral venous systems has been cre-
ated) has two important, immediate implications. It affords a direct method
by which portal vein blood may be investigated in the unanesthetized, "intact"

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patient. Such studies are now in progress and should furnish basic information concerning changes in composition of portal venous blood under a variety of experimental conditions. Secondly, by means of this technic, it is now possible to demonstrate the patency of an anastomosis (although inability to catheterize the portal vein could not be construed as decisive evidence against such patency). This information will be of great assistance in subsequent evaluation of the efficacy of radical surgery for the relief of portal hypertension.

It is believed that catheterization of the inferior vena cava from below rather than through the heart affords better manipulative control of the catheter, but it is recognized that the route to be employed should be individu-