

# Use of the Left Renal Vein for Portal Decompression

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STIMULATED by the report of Erlick and Barzilai<sup>5</sup> in 1964, and Simeone and Hopkins<sup>9</sup> in 1967, we have used the divided left renal vein as an alternative route for portal decompression. In addition to the portal-renal shunt described by the above authors, we have found the left renal vein suitable for superior meso-renal, inferior meso-renal, and spleno-renal shunts. The availability of this large autologous vein increases the alternatives available to the surgeon and simplifies both the preoperative investigations and the surgical approach. The purpose of this report is to present our experiences in using the left renal vein for portal decompression in 12 patients and to explain some of the benefits which are provided by its availability.

## Material and Results

The 12 patients all had portal hypertension and had bled (six patients) or were bleeding (six patients) from esophageal varices. The portal hypertension was secondary to intrahepatic obstruction in nine, intrahepatic obstruction plus portal vein thrombosis in two, and isolated portal vein thrombosis in one. In each case, the abdomen was opened via a midline laparotomy.

In two patients, the left renal vein was

anastomosed to the side of the portal vein. Both patients had ascites, moderate in one and massive in the other, and the proposed double-barrelled or side-to-side porta-caval shunts could not be performed because of huge caudate lobes.

In each of seven patients, the renal vein was anastomosed to the side of the superior mesenteric vein as in Figure 1. One patient had portal vein thrombosis and in the other six it was either difficult or impossible to approach the portal vein because of massive adhesions secondary to previous biliary or gastric surgery.

In one patient, the left renal vein was anastomosed to the side of the splenic vein as shown in Figure 2. This procedure was chosen electively in order to provide a more peripheral shunt in a patient who was apprehensive over the possibility of post-shunt encephalopathy.

In each of two patients, the left renal vein was anastomosed to the side of the inferior mesenteric vein. Both patients had portal vein thrombosis which had also involved cephalad portions of the superior mesenteric and splenic veins.

Ten of the 12 patients have survived to the present (3 years to 3 months) and none have suffered from further hemorrhage or shown any evidence of encephalopathy. The patient with massive ascites treated with a porta-renal shunt died of hepatic failure on the eighth postoperative day.

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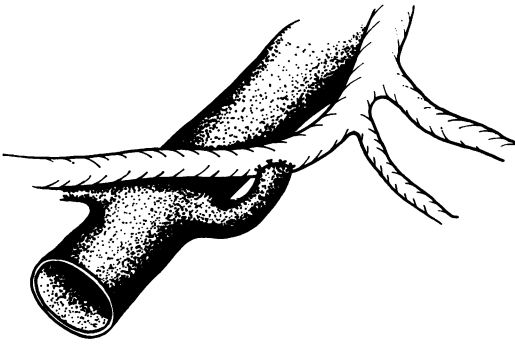


FIG. 1. The left renal vein anastomosed in an end-to-side fashion to the superior mesenteric vein.

One jaundiced patient treated by a superior meso-renal shunt as an emergency during massive esophageal hemorrhage, died of hepatic failure on the fourth postoperative day. In both patients the shunt was patent at autopsy.

Serial intravenous pyelograms and urine analyses in the other ten patients have shown no significant impairment of the function of the left kidney other than the initial enlargement and congestion noted previously.<sup>5, 9</sup>

#### Discussion

For several years, we have stressed the ease, speed, and versatility provided by the midline approach to portal-systemic shunts.<sup>1, 2, 3</sup> If the surgeon, using this approach, finds the portal vein thrombosed or unapproachable, he has the easy alternative of a meso-renal or spleno-renal shunt. A preoperative spleno-portogram to determine patency of the portal vein is no longer considered essential.

The superior mesenteric vein to left renal shunt can be performed without fear of congestive venous symptoms in the legs which may follow the standard Clatworthy meso-caval shunt.<sup>4</sup> The availability of the renal vein also allows the superior mesenteric vein to be decompressed without a prosthesis as suggested by Lord and Rossi<sup>7</sup>

or a venous homograft as suggested by Read *et al.*<sup>8</sup>

In the 3 years during which the 12 patients were operated upon, we also performed 45 standard porta-caval shunts. Despite the effectiveness of the standard shunt, we agree with the observation of Linton<sup>6</sup> that encephalopathy is less likely after a more peripheral shunt. The divided left renal vein allows a peripheral shunt to be performed with great ease and would appear to be a reasonable alternative to the standard spleno-renal or meso-caval shunt.

Our observations on the renal effects of division of the left renal vein to the right of its adrenal, gonadal, and lumbar tributaries are similar to those of Erlick and Barzilai<sup>5</sup> and Simeone and Hopkins.<sup>9</sup> We have not seen significant renal dysfunction

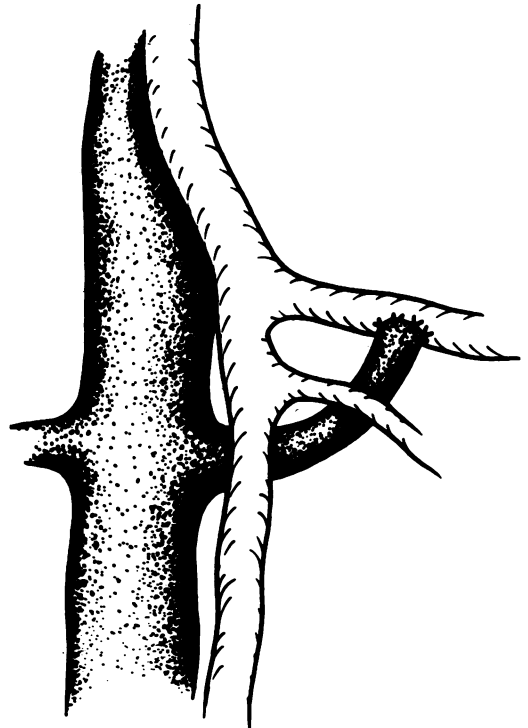


FIG. 2. The left renal vein anastomosed in an end-to-side fashion to the splenic vein.

in the nine patients reported in this article or in over 30 patients in whom this vein has been divided to facilitate repair of large aortic aneurysms.

### Summary

The divided left renal vein is a versatile conduit and increases the various alternatives for creation of a portal-systemic shunt. The renal vein may be anastomosed to the portal, the splenic, the superior mesenteric, or the inferior mesenteric vein. It is suggested that anastomosis of the end of the left renal vein to the superior mesenteric vein is a preferable alternative to the standard meso-caval shunt. It is also suggested that anastomosis of the end of the left renal vein to the splenic vein is a reasonable alternative to the standard spleno-renal shunt. An experience with 12 patients is reported.

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