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Portosystemic shunt for the treatment of portal vein thrombosis following orthotopic liver transplantation

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Abstract The efficacy of the portosystemic shunt operation for the treatment of portal vein thrombosis following orthotopic liver transplantation was demonstrated. From 1 July 1988 to 31 December 1991 42 portosystemic shunt operations were performed at our centre. In six of these cases portal vein thrombosis after orthotopic liver transplantation (OLT) was the indication for the procedure. All the patients retained adequate liver function but they demonstrated manifestations of significant portal hypertension, mainly variceal rebleeding. Two of the patients

were children. Three patients underwent distal splenorenal shunt (DSRS), one mesocaval and one side-to-side splenorenal shunt and the last one side-to-side splenorenal shunt which was converted to DSRS 2 weeks later. All these patients were doing well after 30 months mean follow-up time without rebleeding or other signs of portal hypertension and none had so far required retransplantation.

Key words Portal hypertension
Portosystemic shunt
Liver transplantation

Introduction

Thrombosis of the portal vein (PVT) after orthotopic liver transplantation (OLT) is an infrequent complication, with incidences in the range 1.2–2.2% [2, 8, 9]. When PVT occurs during the early postoperative course, the clinical presentation is that of severe allograft dysfunction, whereas the manifestations of late recognized PVT consist of variceal haemorrhage and the clinical setting of recurrent portal hypertension. In the latter situation hepatic graft function usually remains at satisfactory levels, mainly owing to the development of hepatopetal collateral circulation. Therefore, in these cases the liver allograft can be salvaged and portal hypertension can be treated with conventional medical and surgical methods [8]. We report six cases of porto-

systemic shunt operations performed for the management of PVT following OLT.

Patients and methods

From 1 July 1988 until 31 December 1991 42 portosystemic shunt operations were performed at the University of Pittsburgh Medical Center. In six cases the indication for the procedure was PVT after OLT. In all these cases this post-transplant complication was recognized after the first postoperative month during which no clinical or ultrasonographic evidence of PVT was revealed. At the time as the diagnosis of PVT in these patients hepatic synthetic function was almost normal. Portal hypertension presented mostly with variceal haemorrhage as the main clinical disorder needing treatment. Four patients were male and two female and their ages ranged from 4 to 58 years (mean 37 years). Two patients were children.

Ultrasonography was the main imaging method used to diagnose this complication, but when the findings were ambiguous angiography was also performed.

Results

All the patients were successfully operated on by the same surgeon (AT) without any significant perioperative morbidity. Three patients underwent a distal splenorenal shunt (DSRS), one a mesocaval and one a side-to-side splenorenal shunt (SSRS) and the last one a side-to-side splenorenal shunt which was converted to a DSRS 2 weeks later. After 12–44 months follow-up time (mean 30 months) all the patients were doing well without rebleeding or other manifestations of portal hypertension and none had so far required retransplantation.

Discussion

The treatment of PVT after OLT depends upon the viability of the hepatic allograft and the nature and timing of the clinical manifestations of this complication. In late recognized [4, 5, 7–9] PVT, when the hepatic reserve has not been compromised, the treatment varies according to the clinical presentation and the efficacy of the chosen therapeutic procedures [8]. When the recurrent portal hypertension is not severe and there is partial occlusion of the portal vein, secondary repair of the anastomosis can be attempted with good results [7]. Furthermore, in such cases sclerotherapy of the recurrent varices is also a reasonable choice, but usually a more definitive treatment

is required eventually [2, 4]. In our series three patients underwent sclerotherapy before a portosystemic shunt was indicated owing to the intractability of the variceal bleeding. A DSRS can be an effective treatment for bleeding oesophageal varices after OLT because it preserves the high intraportal pressure and the portosinusoidal gradient needed for the maintenance of collateral liver perfusion [4, 6]. In cases of profound intestinal varices and lower gastrointestinal bleeding or when the spleen has already been removed, the mesocaval shunt is a good alternative treatment [1, 3].

In our series, three patients underwent a DSRS and one a mesocaval shunt successfully, and no signs of hepatic encephalopathy were noticed thereafter. Two patients underwent a SSRS because of the development of ascites due to the PVT. One patient recovered well, but the other one developed encephalopathy with increased blood ammonia levels and the SSRS was converted to a DSRS with ligation of the proximal splenic vein limb 2 weeks later. This patient also did well and the encephalopathy subsided.

However, in cases of extensive late PVT compromising the collateral hepatopetal circulation or in cases of coexistent recurrent liver disease causing significant allograft dysfunction, retransplantation emerges as the only effective therapeutic intervention [8]. Therefore, very cautious and thorough estimation of the hepatic allograft vasculature and function is needed in order to select the appropriate treatment.

In conclusion, we believe that in cases of PVT after OLT associated with good hepatic reserve and portal hypertension as the main clinical manifestation, a portosystemic shunt operation is indicated with excellent results if it is cautiously selected.

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