Portal vein occlusion following pancreaticoduodenectomy and portal vein resection: treatment by percutaneous portal vein stent

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BACKGROUND

Pancreaticoduodenectomy with portal vein resection is associated with an improved prognosis when compared with palliative treatment.¹ Occlusion of the portal vein is a well recognised post-operative complication.^{2,3} We describe a technique that allows portal vein stenting to treat non-thrombotic occlusion following pancreaticoduodenectomy and portal vein resection.

TECHNIQUE

Using ultrasonography guidance, the intrahepatic portal vein is accessed percutaneously. Portal vein angiography is performed to

Figure 1 Percutaneous access through a branch of the right portal vein demonstrates portal vein stenosis at the level of the anastomosis, non-occlusive thrombus in the superior mesenteric vein and reversed flow down the inferior mesenteric vein.

confirm that the portal vein anastomosis is occluded (Fig 1). The portal vein is then stented with two overlapping stents (Protégé® peripheral self-expanding stent; eV3 Endovascular, Plymouth, MN, US) (Fig 2) and the transhepatic track is embolised carefully with small coils (VortX® 35 [Boston Scientific, Natick, MA, US] and gelfoam [Johnson & Johnson, New Brunswick, NJ, US]).

Figure 2 Portal vein flow from the superior mesenteric vein after stent insertion (close-up view)

DISCUSSION

Surgical thrombectomy has been described as the preferred treatment in acute post-operative portal vein thrombosis² although in 2011 Kim *et al* reported a series of 11 patients with portal venous stenosis as a complication of pancreaticobiliary surgery that was treated successfully by percutaneous stent placement.⁴ We have used this technique successfully in a patient who experienced immediate acute liver failure one day after surgery due to a non-thrombotic occlusion of the portal vein following pancreaticoduodenectomy and vascular resection. The end-to-end anastomosis was twisted, causing a stenosis of the vein. In this case, endovascular stenting of the portal vein was carried out successfully, as described above, 28 hours after the end of the operation, resulting in restoration of portal blood flow and subsequent good recovery with discharge home on the 17th post-operative day.

References

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