Antegrade Retroperitoneal Descending Thoracic Aorta to Mesenteric Artery Bypass

NOTES

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The low prevalence of symptomatic chronic mesenteric ischemia and the increasing acceptance of transluminal angioplasty for its treatment have made surgical revascularization of the mesenteric arteries an unusual procedure. Transluminal balloon angioplasty/stenting is currently the favored initial treatment for chronic mesenteric ischemia in most cases. However, transluminal treatment may not be feasible or successful in some patients. The optimal surgical approach for mesenteric revascularization is not well established, and the different surgical procedures available for mesenteric artery revascularization have individual advantages and disadvantages. Antegrade mesenteric artery bypass from the supraceliac abdominal aorta has the theoretic advantages of providing a favorable hemodynamic graft orientation and an anatomic configuration that prevents graft kinking. In patients with hostile abdominal conditions or in those with an inadequate source of inflow in the abdominal arteries, the transabdominal approach for mesenteric revascularization may be contraindicated. The descending thoracic aorta provides an excellent source of inflow in most patients, even when the abdominal aorta is heavily diseased. Descending thoracic aorta to mesenteric artery bypass requires a limited thoracoabdominal incision through the ninth or tenth intercostal space. This technique allows wide exposure of the distal descending thoracic and suprarenal aorta, and permits ample dissection of the celiac trunk and of a lengthy segment of the superior mesenteric artery. In addition, simultaneous left renal artery revascularization or abdominal aortic reconstruction can be done via this approach if needed. Occasionally, descending thoracic aorta to mesenteric artery bypass may be useful for the treatment of type IV thoracoabdominal aneurysms associated with mesenteric ischemia, or when re-implantation of the celio-mesenteric orificial patch into the aortic graft is not advisable, and it may help to reduce celio-mesenteric ischemia during the aortic reconstruction. Our preference is simultaneous celiac and mesenteric bypass, whenever possible, with two separate ring-reinforced PTFE grafts using partial aortic clamping. Descending thoracic aorta to mesenteric artery bypass allows positioning of the celiac and mesenteric bypass grafts in a hemodynamically favorable configuration and places the grafts in a retroperitoneal, well-protected location. This operation can be done with a reasonably low mortality and morbidity and provides excellent long-term graft patency and symptomatic relief. Attention to technical detail and knowledge of the anatomy are essential to the success of this procedure.