

Clinical significance of mesenteric arterial collateral circulation in patients with celiac artery compression syndrome.

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OBJECTIVE:

Although extensive collateral arterial circulation will prevent ischemia in most patients with stenosis of a single mesenteric artery, mesenteric ischemia may occur in these patients, for example, in patients with celiac artery compression syndrome (CACS). Variation in the extent of collateral circulation may explain the difference in clinical symptoms and variability in response to therapy; however, evidence is lacking. The objective of the study was to classify the presence of mesenteric arterial collateral circulation in patients with CACS and to evaluate the relation with clinical improvement after treatment.

METHODS:

Collateral mesenteric circulation was classified on the basis of angiographic findings. Collaterals were categorized in three groups: no visible collaterals (grade 0), collaterals seen on selective angiography only (grade 1), and collaterals visible on nonselective angiography (grade 2). Surgical release of the celiac artery in patients with suspected CACS was performed by arcuate ligament release. Clinical success after surgical revascularization was defined as an improvement in abdominal pain.

RESULTS:

Between 2002 and 2013, there were 135 consecutive patients with suspected CACS who were operated on. In 129 patients, preoperative angiograms allowed classification of collateral circulation. Primary assisted anatomic success was 93% (120/129). In patients with grade 0 collaterals, clinical success was 81% (39 of 48 patients); with grade 1 collaterals, 89% (25 of 28 patients); and with grade 2 collaterals, 52% (23 of 44 patients; $P < .001$).

CONCLUSIONS:

Patients with CACS and with extensive collateral mesenteric arterial circulation are less likely to benefit from arcuate ligament release than are patients without this type of collateral circulation. The classification of the extent of mesenteric collateral circulation may predict and guide shared decision-making in patients with CACS.