Abdominal Angina Caused by Kinking of the Superior Mesenteric Artery

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ABSTRACT

Abdominal angina followed by an active vascular intervention constitutes an infrequent sequence of events. The limited experience in the active management of this, potentially lethal, condition prompted us to present the case of a 54 year old man with an exceedingly rare etiology of mesenteric ischemia. The underlying cause was kinking of the superior mesenteric artery in combination with ostial stenosis of the celiac trunk. The initial management strategy included an interventional radiological procedure because patient initially declined the surgical treatment. The second intervention was a surgical revascularization of the diseased segment of the abdominal vasculature. The surgical treatment led to complete resolution of his symptoms.

Key words: kinking, superior mesenteric artery, chronic visceral ischemia, visceral revascularization

Introduction

Abdominal angina is an infrequent manifestation of atherosclerotic disease. Atherosclerotic occlusive disease of the visceral arteries is a relatively common finding in the general population, as opposed to mesenteric ischemia which occurs less frequently. The correct diagnosis is often made late1,2. The gold standard in defining the pathology remains invasive angiography3, which may be complemented by an interventional procedure such as a percutaneous balloon angioplasty with or without stenting the lesion. There are also some new promising imaging modalities4. The surgical venue of management includes a direct revascularization procedure. The contemporary management strategy includes a multidisciplinary approach for patients suffering from either acute5 or chronic subtype of mesenteric ischemia.

Case Report

We present a 54 year old patient who presented with postprandial abdominal discomfort accompanied by a recent weight loss of 13 kilograms. An extensive spectrum of gastroenterological studies which included blood test analysis, ultrasound, gastroscopy, colonoscopy and computed tomography did not reveal any pathology. He was referred to an abdominal surgeon who made a hypothetical diagnosis of chronic mesenteric ischemia. A color Doppler study of his abdominal vascular structures at an outside hospital was indicative of superior mesenteric artery (SMA) stenosis. The repeat study at our institution revealed a clear stenosis of the celiac trunk and an accelerated flow velocity in the SMA. This was further corroborated by angiography which confirmed the celiac trunk stenosis and showed a kinking of the SMA. The patient was offered a surgical intervention which he declined at that point. An interventional radiological procedure was undertaken and two stents were placed in the celiac trunk. This was performed while acknowledging the fact that our patient was not an ideal candidate for this procedure (category 3 lesion – ostial lesion of the superior mesenteric and/or celiac arteries). The initial postprocedural course was satisfactory. The patient gained 2 kilograms over the next two months. Unfortunately, the symptoms recurred after that time and the patient was studied angiographically in order to determine the etiology of his relapse. Migration of one of the stents distally was found with a 60% residual celiac trunk stenosis. The patient was again offered surgery, which he then accepted. The surgical revascularization included a bypass...
from the distal abdominal aorta to the SMA (termino-lat-

eral anastomosis) and common hepatic (termino-lateral

anastomosis) artery with a bifurcation prosthesis (Colla-
gen coated knitted vascular prosthesis, 12/6, CE 0088,

US Federal Law restricts, Manufacture by Intervascular

Z.I. Athelia 1, 13705 La Ciotat, Cedex, France). The post-

operative course was unremarkable. A follow up angio-

graphic study demonstrated a patent graft anastomosed

to the SMA, and thrombosis of the graft directed at the

celiac trunk vascular bed. A repeat angiography a year

later showed the same result. The patient has gained 10

kilograms of body weight, and is currently asymptomatic.

Discussion

The scarce data on the optimal diagnostic and treat-

ment strategies make it difficult to unequivocally define

the best way to manage chronic mesenteric ischemia.

There has been an increasing trend in percutaneous in-

terventions, which have now been advocated as the first

line therapy for mesenteric ischemia by some authors5–8.

The patency rate after percutaneous interventions at 3, 6

and 12 months is 83%, 79% and 70%6, respectively. Many

patients treated with percutaneous interventions require

reinterventions. Surgical revascularization is still, how-

ever, considered the gold standard. The typical surgical

options include bypass grafts as well as transaortic or lo-

cal endarterectomies and visceral artery reimplanta-

tions8–15. The early and late results are good. The choice

of conduits may include autologous tissue. The superfi-
cial femoral vein has shown superior results to the grea-
ter saphenous vein16. The distal thoracic aorta may be

used as the inflow17. Alternatively, a celiac to SMA bypass

may be constructed18. A non-atherosclerotic etiology of

abdominal angina is very rare, and may include sponta-

eous celiac trunk dissection19, among other causes. In

the present case, the pathology leading to mesenteric

ischemia was SMA kinking and celiac trunk stenosis.

Even though celiac trunk stenosis is typically considered

a surgical indication, our patient had initially declined

the surgical treatment. He, hence, underwent a percu-

taneous intervention supplemented with the placement

of two stents. It was not until his symptoms recurred

that he consented to be operated on. The surgical treat-

ment led to complete resolution of his symptoms. It is

our opinion that kinking of the superior mesenteric

artery in the setting of celiac trunk stenosis constitutes a

clear indication for surgical management.
REFERENCE