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Case Report

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Concomitant Symptomatic Aneurysms of Celiac Trunk and Superior Mesenteric Artery

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Abstract

A 64-year old man with intermittent, paraumbilical pain which is lasting for 6 months, radiating to the back with no other symptoms underwent resection of the celiac trunk and superior mesenteric artery aneurysms. According to their size and location the aneurysms were not suitable for radiological embolisation or stentnig. Elective surgical procedure was performed. End-to-end anastomosis was created between the origin of the celiac trunk and splenic artery and the vascular continuity of the superior mesenteric artery was achieved using great saphenous vein interpositum. Intraoperative samples and histological findings were consistent with atherosclerosis. The patient made a good recovery and remained well after 2 years.

Introduction

Visceral artery aneurysms (VAAs) are relatively rare but more are being reported. Although detection is usually coincidental, about 25% of cases present as vascular emergencies that are frequently fatal [1,2].

In order of decreasing frequency, the arteries involved are the splenic artery (60%), hepatic artery (20%), superior mesenteric arteries (SMA) (5.5%), and celiac trunk (CT) (4%) [3,4]. Aneurysms of a celiac trunk (CT) is extremely rare accounting for less than 1% of all abnormalities of visceral arteries [5,6]. SMA aneurysm is the 3rd most common splanchnic aneurysm, accounting for 5,5% of splanchnic aneurysm and <0.5% of all intrabdominal aneurysms [1]. Until today, sex predilection has not been confirmed. Mycotic etiology accounts for more than half of these aneurysms [7]. Non-mycotic aneurysms more often affects patients over 60 years old who frequently present with intestinal angina. In the present report we describe a case of concomitant CT and SMA aneurysms.

Case Report

A 64-year old man was admitted to vascular surgery department with mid-epigastric pain that had recurred episodically for 6 months, and progressed over the previous month. The patient general condition was satisfactory and physical examination was normal. Physical and radiological evaluations were normal. A mesenteric color duplex scan revealed a saccular 24x1.8-mm aneurysm located 1.5 cm from the origin of CT and 1x2x3-cm aneurysm of the SMA. Abdominal multi-slice CT-scan (MSCT) visualized circulating calcified aneurysm seemingly developed on the CA and aneurysm at the bifurcation of the AMS that pressed against the body of the pancreas but did not cause pancreatitis (Figure 1).

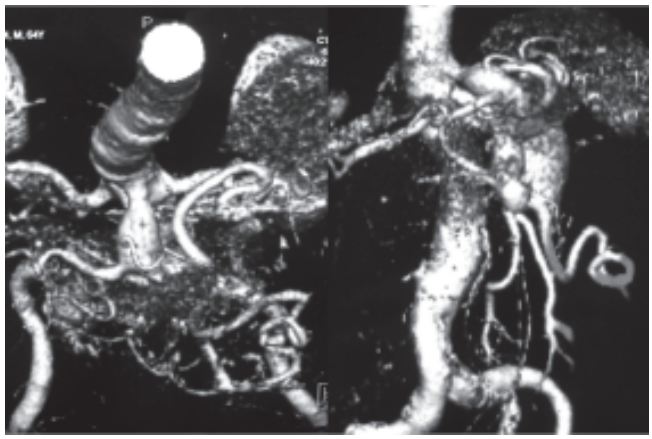

Figure 1: Preoperative CT-angiography showes aneurysms of coeliac trunk and superior mesenteric artery.

There was no associated cardiovascular risk factor or history of trauma or infectious or inflammatory disease. There was no evidence of arterial dystrophy or systematic disease. Anatomical position, size and location of the aneurysms were not suitable for radiological embolisation or stentnig.

Surgical repair was performed through a mercedes laparotomy. Division of diaphragmatic crura were performed for the better exposure of supraceliac aorta, the CT and the aneurysm were dissected. The lesion was a calcified saccular aneurysm 2 cm in diameter located 1 cm distally of the aorta at the CT. Normal lienal, left gastric and common hepatic artery originated from aneurysm sacc. Vascular clamp was placed on the base of the celiac trunk and aneursym was resected. End–to-end anastomosis was made between lienal artery and the base of celiac trunk. A saphenous vein graft was used to connect supraceliac aorta and hepatic artery. The left gastric artery was ligated.

The left renal vein crossing the aorta was mobilized to facilitate exposure of the SMA. There was a firm pulsatile saccular aneurysm of the SMA, which was 2 cm in diameter and within 1.5 cm of the SMA origin. Following circumferential control proximal and distal to the aneurysm, a occluding vascular clamps were applied to isolate the aneurysm. The aneurysmal arterial wall was resected completely and the SMA continuinity was obtained with interposition of the piece of the great saphenous vein. Two termino-terminal anastomoses were made with a continuous 6/0 polypropylene sutures. The two proximal branches originated from the aneurysm was ligated. Samples of the aneurysmal wall and contents were obtained for pathological examination. All specimens were Gram stained and showed degenerative atherosclerotic changes, marked medial and intimal thickening. Pathological and microbiological evaluation of vascular specimens from the surgical closure site revealed a healthy, normal arterial structure.

The patient's postoperative course was uneventful. Gastrointestinal activity resumed on the 2nd day, and normal oral nutrition began on the 3rd postoperative day. His epigastric pain was relieved completely. He was discharged from the hospital on the 7th postoperative day with 6 weeks of anticoagulant oral therapy. He remained well during 2 years of follow-up. CT-angiography 2 years after the repair revealed completely normal aortic and mesenteric vasculature (Figure 2).

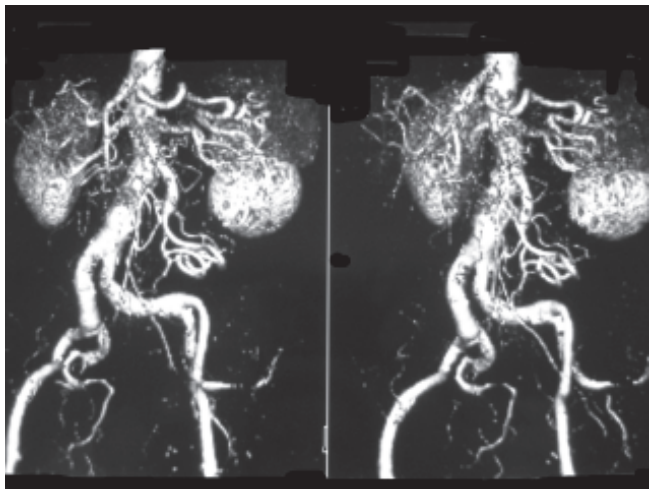

Figure 2: Postoperative CT-angiography two years after repair.

Discussion

Aneurysms of CT and SMA were first described in 1745 [3]. These aneurysms are usually mycotic and account for 58% to 63% of cases [8]. The infection is most

commonly caused by nonhemolytic streptococcus, secondary to leftsided endocarditis. Atherosclerosis accounts for 20% of CT and SMA aneurysms. Trauma is a rare cause (1% to 2%) [4].

The most common symptom is intermittent abdominal pain. Pain is pertinent with the mobilization of the thrombus formation inside the aneurysmal sac due to flow stasis beyond the main thrombus, occludes the collateral circulation and causes intestinal angina [1,2]. Antemortem diagnosis of an uncomplicated case is unlikely, and most cases have been diagnosed by radiography for unrelated diseases. Today's vascular radiology protocols play a major role in the detection, characterization and depiction of visceral artery aneurysms. MSCT-angiography is prefered method in depicting the aneurysms and excluded other aortic, visceral, or peripheral aneurysms which can occur in 1/3 of cases of visceral aneurysms [2], and in the same time it allows assessment of the extent of the aneurysm and aids planning of the extent of the surgical procedure.

Because of the high risk of rupture or thrombosis (50%), surgical treatment is reasonable in the absence of complicating factors [9,10].

The usual treatment methods are aneurysmoraphy and ligation. Aneurysmectomy may be hazardous because of the close proximity of the superior mesenteric vein and pancreas, and serious risk of bleeding from such a high-flow system [1,2]. Transcatheter occlusion has proven useful in patients with medial degenerative disease, and in some saccular aneurysms or pseudoaneurysms with a discrete neck connected to the SMA [9,10].

The incidence of rupture for visceral arteries aneurysms is aproximally about 22%, with high mortality rate, 15% for superior mesenteric artery aneurysm, 21% for hepatic, 36% for splenic and 40-100% for celiac artery aneurysm.

Because of high mortality rate after rupture of visceral artery aneurysms an active surgical treatment should be preferable choice. Since the CT and SMA remains critical in chronic mesenteric ischemia, arterial reconstruction with an interposition graft or aorto-mesenteric bypass has been preferred [2,6,10]. Altough prosthetic grafts used to be recommended to avoid potential kinking of saphenous vein grafts, the high incidence of mycotic etiology increases the risk of graft infection. Therefore, in our opinion, saphenous vein bypass with preservation of graft configuration is favored.

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