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CASE REPORT / OLGU SUNUMU

A partially thrombosed dissecting aneurism of the splenic artery extending from the coeliac origin of the artery

Distal çölyak arterden origin alan splenik arter diseksiyonu ile kısmen tromboze proksimal splenik arter disekan anevrizması

Süha AKPINAR, Banu ALICIOĞLU

ABSTRACT
Splenic artery dissection is an extremely rare entity rarely diagnosed in living individuals. However, splenic artery aneurysms (SAA) are the most frequent vascular aneurysms of the abdominal viscera and they are asymptomatic, usually located in the middle or distal segment of the splenic artery. Splenic artery dissections are almost always diagnosed at postmortem usually in patients with previous unexplained upper abdominal symptoms. We report multidetector computed tomography (MDCT) scans of a splenic artery aneurysm with a dissecting flap extending from the distal end of the coeliac artery to the proximal one third of the splenic artery with a partially thrombosed false lumen. When we searched the English language literature this is one of the few cases reported as having been diagnosed in a living patient.

Keywords: Splenic artery dissection, Splenic artery aneurysm, Dissecting aneurysm

ÖZET
Splenik arter diseksiyonu oldukça ender rastlanan ve yaşayan hastalarda tanısı zor konan bir antitedir. Splenik arter anevrizması (SAA) ise en sık saptanan abdominal viseral anerizma olup asemptomatik seyretmekte ve genellikle splenik arterin orta veya distal segmentinde saptanmaktadır. Splenik arter diseksiyonları, büyük çoğunlukla postmortem çalışmalarda tanı konmakta öncesinde açıklanamamış üst abdomen semptomları ile seyretmektedir. Bu yazıda, hastamızın çöliak arter distalinden splenik arter 1/3 proksimaline uzanan diseksiyon flebi ile kısmen tromboze olmuş disekan anevrizmayı gösteren çok kesitli bilgisayarlı tomografi (ÇKBT) görüntüleri ile birlikte bu antite tartışılmıştır.

Anahtar Kelimler: Splenik arter diseksiyonu, Splenik arter anevrizması, Disekan anevrizma

Süha Akpınar (✉), Banu Alıcıoğlu
Department of Radiology, School of Medicine, Near East University, Lefkosa, Northern Cyprus
e-mail. akpinarsuha@hotmail.com

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Introduction

Visceral artery dissection without an accompanying dissection of the abdominal aorta, is a very rare entity. Among the visceral arteries, dissections of the superior mesenteric artery (SMA) are most common and dissections of the coeliac artery rank second. Dissections of the inferior mesenteric arteries are very infrequent. The natural history of these dissections is unpredictable: spontaneous resolution, occlusion, aneurysm formation or rupture may occur, hence they are known to have a poor prognosis [1,2]. When we searched the literature we found that splenic artery dissections are usually diagnosed at postmortem due to the fatal outcome of the hemorrhage [3]. Also, dissections of the SMA and coeliac arteries are reported as very rare. Published examples are not more than a hundred. Aneurysms of the abdominal visceral arteries which supply the organs other than the gut directly, are also rare. Most frequently visceral artery aneurysms (i.e. of the SMA, coeliac or, renal arteries) that extend to the splenic artery account for nearly 60% of the aneurisms of the splenic artery. Splenic artery aneurysms (SAA) represent the third most common aneurisms after aortic and iliac aneurysms [4]. With increased use of advanced noninvasive imaging methods, most patients are diagnosed incidentally by abdominal ultrasound or multidetector computed tomography (MDCT) as 80% of the cases are clinically asymptomatic. Historically, visceral artery dissections were underdiagnosed. Most of the cases have been reported after the 20th century. In symptomatic cases, clinical findings depend on the artery involved. Celiac artery dissection may cause epigastric pain, weight loss, rarely obstructive jaundice, pancreatitis and intestinal angina; SMA dissection is more frequently symptomatic than is celiac artery dissection [2]. We report a case presenting with acute backpain, with a dissection flap extending from the distal end of the coeliac artery to the proximal one third of the splenic artery with a partially thrombosed false lumen. The presence of aneurysm at the dissected segment is suggestive of a dissecting splenic artery aneurysm.

Case Report

A 52–year-old male, non smoker applied to our hospital with a sudden and short duration of backpain. He was hypertensive and he had no history of trauma, connective tissue disease or

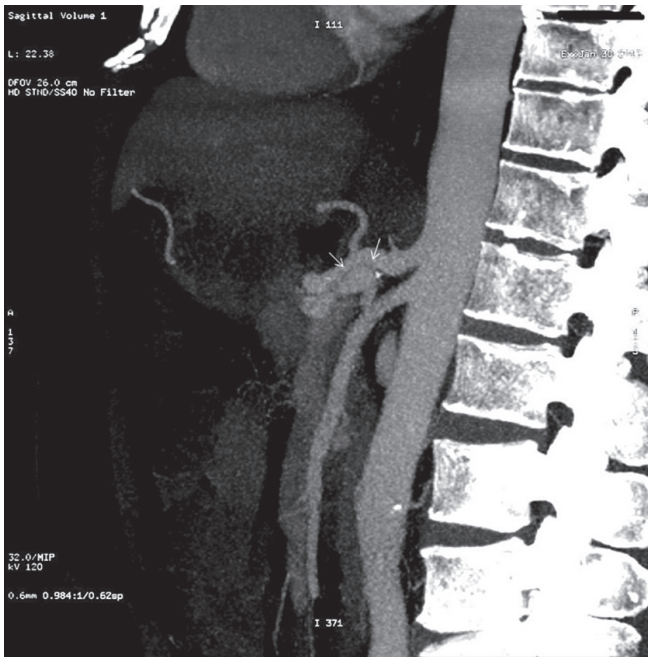

Figure 1. Dissection flap at the proximal splenic artery (MDCT sagittal reformat)

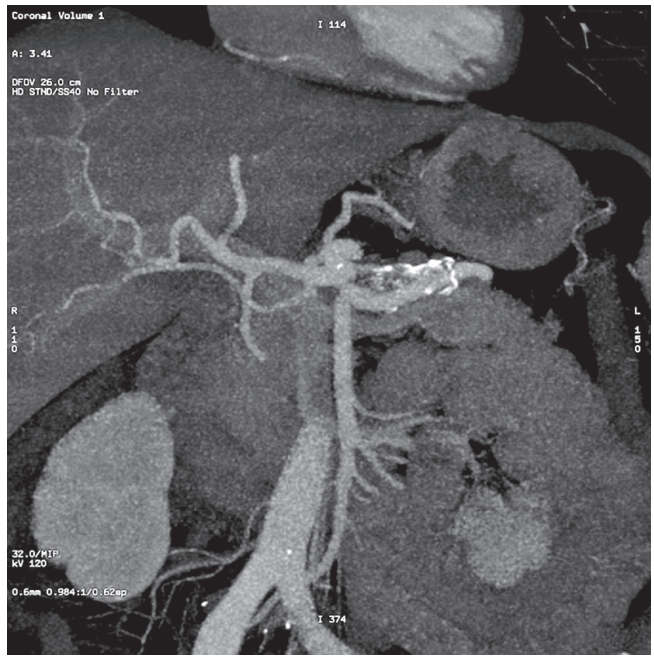

Figure 2. Splenic artery dissecting aneurysm with partial thrombosis and calcified walls (MDCT coronal MIP appearences).
MIP= maximum intensity projection

pancreatitis. On physical examination, no additional abnormality was found and all the laboratory tests and ultrasound scan findings were within normal limits. As his pain was not relieved in a reasonable time with analgesic medications, we decided to obtain a MDCT scan.

On MDCT scan a dissection flap at the proximal 1/3 of the splenic artery was detected originating from the coeliac bifurcation (Figure 1). The lumen of the splenic artery was partially thrombosed (Figure 2). There was also an aneurysmatic expansion of the proximal splenic artery which measured 2x4.4cm (Figure 3). There was no bleeding or hematoma around the dissecting aneurysm. The fatty plane surrounding the splenic aneurysm was clear. The pancreas and other abdominal organs were all normal with a normal sized abdominal aorta. Although there was a partial thrombosis of the dissected lumen, no evidence of infarction was noted at the spleen.

Discussion

Arterial dissection in an artery ends up with an interstitial hemorrhage into the media of the vessel wall which can lead to occlusion, aneurysm formation at the artery itself or a thromboembolism. When the dissection extends from intima to the media of the vessel it should be considered as a subintimal dissection which usually causes luminal narrowing. Infrequently in a subadventitial dissection there is an extension from intima to the adventitia of the vessel causing an aneurysm of the artery itself. Considering the aetiology of either SAA and of the visceral artery dissections atherosclerosis is the most common aetiologic factor. Cystic degeneration, trauma, fibromuscular dysplasia, pregnancy, connective tissue diseases and periarterial inflammation in cases of pancreatitis are the other etiologic factors [1-5].

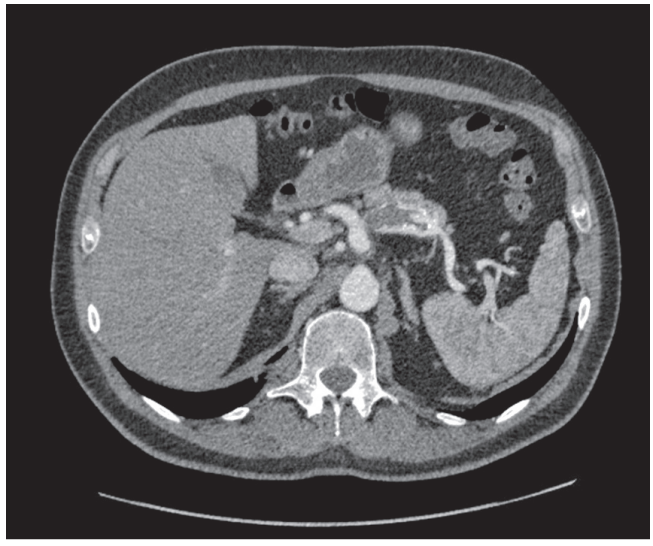

Figure 3. Aneurysm at the proximal splenic artery with dimensions 20x44.4mm (MDCT axial MIP). MIP= maximum intensity projection.

However, portal hypertension, trauma and pregnancy in multiparous women have been shown to be related to SAA.

Spontaneous dissections of the splanchnic arteries in decreasing order are from the superior mesenteric artery, the celiac artery and the hepatic artery. A splenic artery dissection was reported by Takayama et al. as a coeliac dissection extending to the splenic artery [1]. In our case, the dissecting flap extended from the distal bifurcation of the coeliac artery to the proximal one third of the splenic artery.

Although SAAs are more common in females than in men with a ratio of 4:1, the ratio is reversed for dissections of splanchnic arteries which are more common in males accounting 88% of the cases [1,4].

Treatment alternatives are conservative treatment, endovascular repair or open surgery similar to that for other isolated visceral artery dissections [6]. Treatment strategies for an SAA depends on the location and extent of the disease: Surgery is the preferred method for medial and distal SAA whereas for aneurysms and dissections located at the proximal splenic artery, endovascular treatment is recommended and succesful results have been reported [5,7,8]. For aneurysms with a limited dissection which do not exceed 2 cm in diameter in clinically stable patients, without a perivascular hematoma, annual follow-up is recommended [1,4]. The recent literature reveals that most of the isolated coeliac or superior mesenteric artery dissections could be treated conservatively in stable patients [1,9,10].

In the acute stage, continuous heparin administration is recommended until the abdominal pain is relieved and then later therapy may be changed to oral warfarin until an improvement appears. Since, lifelong warfarin therapy has no proven benefit in patients with coeliac artery dissection, when the need for anticoagulative therapy exceeds 6 months, invasive strategy should be recommended. In the acute stage, antiplatelet therapy should also be preferred, because subendothelial injury can trigger thrombosis [11]. Blood pressure control may prevent extension of the dissection. Follow-ups through physical examination, Doppler ultrasonography, or CT angiography is mandatory to display the patency of the arterial lumen and distal organ perfusion. There is no information about which treatment is more effective [6]. Endovascular intervention has been successful in treating spontaneous dissection of the superior mesenteric artery. Endovascular therapy includes placement of a self-expandable or balloon-expandable stent via common the femoral artery approach and antiplatelet therapy following intervention. Balloon fenestration and transcatheter embolization with coils have also been reported. Despite of the low number of treated cases and the short term follow-ups, the results were successful [11]. Classical surgical repair indications are distal organ ischemia or arterial rupture [6]. But because of the advantages (shorter hospital stays, less need of anticoagulation)the treatment strategies are for endovascular stenting to be the primary treatment in patients with an uncomplicated spontaneous visceral artery dissection. The complications are stent thrombosis, restenosis and the complications of angiography. When angiography is contraindicated or lesions are not accessible angiographycally, surgery would be the choice of treatment [11] .

Visceral organ vessel dissections and aneurysms are infrequent findings with a normal size abdominal aorta without aortic dissection and atherosclerotic changes whereas our patient had a normal size abdominal aorta without any dissection or significant atherosclerotic findings. There were no clinical or hemodynamic changes in his early weekly evaluations. As the patient's symptoms resolved we decided to make a monthly follow up with blood pressure control and there was no change in size of the lesion for the first 3 months in colour Doppler US studies.

Conclusion

Isolated coeliac artery disseciton extending to the splenic artery resulting with a dissecting aneurysm is a very rare entity almost always having a fatal outcome due to the massive hemorrhage. Immediate surgery, and endovascular stenting are the proposed solutions whereas conservative management with close follow up may be an option in stable patients which we did in our case.

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