Isolated Dissecting Aneurysms of the Abdominal Aorta and the Superior Mesenteric Artery. A Case Report and Literature Review

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Supracoeliac abdominal aortic dissections are rare and require complex interventions for repair. Superior mesenteric artery (SMA) dissections are also rare and even less frequently reported to involve aneurysmal change. We present the case of a 65-year-old man with a dissecting supracoeliac aortoiliac aneurysm and a separate dissecting aneurysm of the SMA The surgical intervention performed and a review of the literature on the management of SMA dissection in the endovascular era are presented.

Dissecting aneurysms of the abdominal aorta and its branches are rare and may require complex interventions for repair. The case presented describes the management of an isolated dissecting aneurysm of the superior mesenteric artery (SMA) presenting concurrently with a supracoeliac dissecting abdominal aortoiliac aneurysm.

CASE REPORT

An asymptomatic abdominal aortoiliac aneurysm containing a dissection (Fig. 1) was discovered on computed tomography (CT) in a 65-year-old man prompted by the finding of a left testicular lesion (subsequently deemed to be benign) on ultrasound in a 65-year-old man who had presented with hematospermia and bilateral inguinal hernia. Apart from hypertension, he possessed no cardiovascular risk factors: there was no family history of aneurysmal disease. He had sustained left-sided thoracic and abdominal trauma during a road traffic collision 20 years previously requiring no intervention. He was commenced on aspirin and statin therapy.

CT angiography (CTA) showed that the thoracic aorta was normal. The aortic dissection commenced 2 cm proximal to the coeliac axis origin and extended distally into both internal iliac arteries (IIA). The maximum diameter of the suprarenal and infrarenal aortic aneurysm was 4.4 and 4.3 cm, respectively. Both common iliac arteries (CIA) were aneurysmal (left, 5.5 cm; right, 4.4 cm diameter). The dissection involved a nonaneurysmal left renal artery while the mesenteric and both renal arteries all arose from the true aortic lumen. A separate dissecting aneurysm of the SMA (3 cm diameter) arose beyond a 2-cm proximal segment of normal artery (Fig. 2). Carotid duplex, inflammatory markers, and a serum autoimmune screen were negative. The genetic counseling service was unable to identify an underlying connective tissue disorder.

Arterial reconstruction was undertaken by inlay infrarenal aortoiliac grafting, whereby both lumens of the dissected aorta were run into the main body of a bifurcated Dacron graft. The right and left limbs of the graft were anastomosed to the external iliac artery and common femoral artery, respectively; the latter was ligated proximally. Jump grafts were taken from each limb as IIA inlay grafts. The inferior mesenteric artery was reimplanted into the body of the graft. An inlay SMA interposition Dacron graft was anastomosed to

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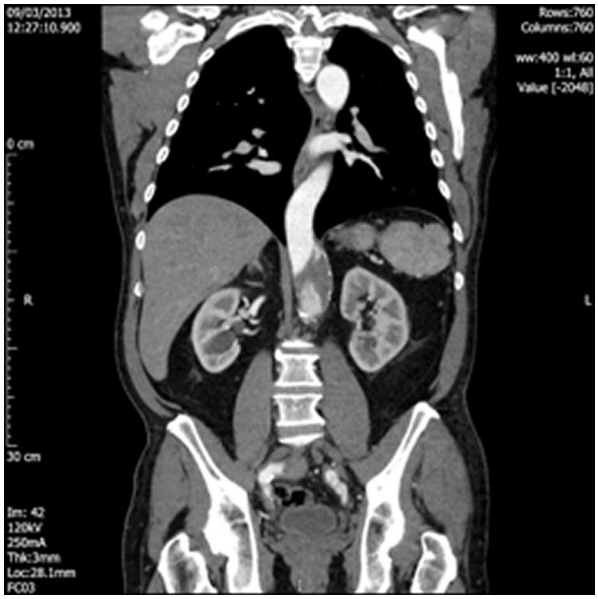

Fig. 1. CT angiography: coronal section showing the supracoeliac dissection of the aorta.

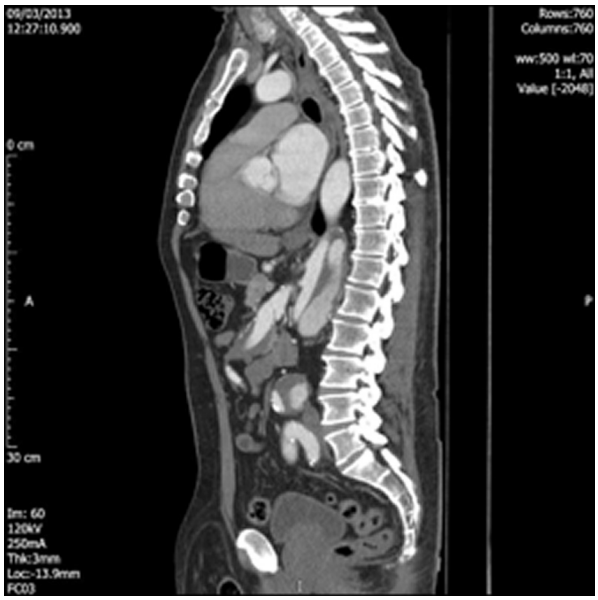

Fig. 2. CT angiography: sagittal section showing the SMA aneurysm and dissection. The supraceliac aortic dissection is seen to extend into the aneurysmal infrarenal aorta.

normal SMA proximally and distally beyond the limit of the dissection. A jump graft was taken from this interposition graft to a large proximal jejunal artery, the origin (arising from the dissected segment of the SMA) having been oversewn. Finally, preperitoneal mesh repair of both inguinal herniae was performed.

Postoperatively, the patient had a transient rise in serum creatinine but otherwise made an uncomplicated

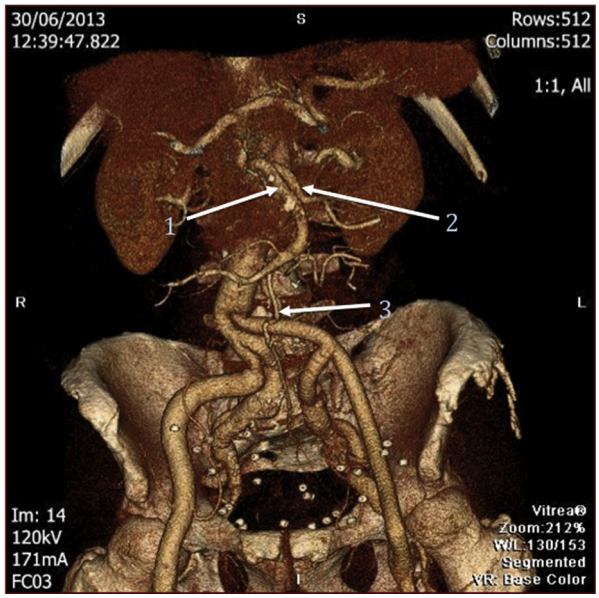

Fig. 3. Postoperative CT angiography showing the SMA and aortoiliac reconstruction. 1, SMA inlay graft; 2, jejunal jump graft; 3, inferior mesentric artery.

recovery being discharged on the 11th postoperative day. The patient is well at 6-month follow-up with CTA having demonstrated patency of all graft systems (Fig. 3).

DISCUSSION

Spontaneous dissections of the abdominal aorta are rare entities and constitute only 1–4% of all aortic dissections.[1] The largest reported series describes only 92 cases.[1] The disease can be associated with aortic wall degeneration, hypertension, and aneurysmal change although 50% can be found in nonaneurysmal vessels.[2] Acute events can lead to visceral organ or limb ischemia resulting in substantial mortality rates. Chronic dissections may lead to aneurysm formation. Trauma accounts for only 17% of the overall cases reported.[2] Kouvelos[3] have proposed that aortic dissection diagnosis may become more frequent with the increased use of abdominal imaging.

Treatment options remain divided between endovascular and open surgical repair dependent on the presentation, the anatomy of the abdominal aortic dissection, and the experience of the operating center.[3] Jonker reported 73% of cases required intervention of which 50% had open surgery and 20% an endovascular intervention.[2] Recent published series suggest that technical success of endovascular intervention is very high (100%) but that these patients are at high risk; for instance, 14% in