

A Geant Abdominal Aortic Aneurysm Who Hides Others: A Case Report

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Abstract

Case Report

A 67-year-old man with a history of MCA (middle cerebral artery) aneurysm, smoking, and arterial hypertension, presented to the emergency department with abdominal pain and a pulsatile mass. The patient's vital signs were within normal ranges. On physical examination, the patient was mildly discomforted due to abdominal pain. His abdomen was soft, with tenderness in the right lower quadrant, and a pulsatile mass was present. A CT scan of the abdomen and pelvis with intravenous iodinated contrast revealed an aneurysmal dilatation of the abdominal aorta measuring 7 cm in diameter, beginning inferior to the level of the renal arteries and continuing to the iliac bifurcation with thrombosis of the right common iliac artery extending its branches. Associated with an aneurysmal dilatation of the celiac trunk and the splenic artery. There was extensive mural thrombus, a patent lumen, and no evidence of frank rupture.

Keywords: abdominal aortic aneurysm, celiac trunk aneurysm, superior mesenteric artery aneurysm, renal artery aneurysm.

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INTRODUCTION

Abdominal aortic aneurysms (AAAs) are defined as abnormal dilatation of the abdominal aorta up to more than 3 cm in the greatest diameter or dilatation of more than 50% of its diameter. It remains a leading cause of death in the United States, nearing just less than 5,000 deaths due to the most dreaded complication, rupture [1]. The risk factors include male gender, age >75 years, prior vascular disease, hypertension, cigarette smoking, family history, and hypercholesterolemia [2]. The most common location includes infrarenal with extension into iliac arteries. Atherosclerosis is the most common causative factor. Inflammatory abdominal aortic aneurysm, vasculitis such as Takayasu arteritis, connective tissue disorders such as Marfan syndrome and Ehlers-Danlos syndrome, mycotic aneurysm, traumatic pseudoaneurysm, and anastomotic pseudoaneurysm are other notable causes. Treatment options include conservative follow-up for aneurysms less than 5 cm to surgical open repair with graft placement as well as endovascular repair using stent graft placement.

OBSERVATION

We present a case of a 67-year-old man with a history of MCA aneurysm, smoking, and arterial hypertension, who presented to the emergency department with abdominal pain and a pulsatile abdominal mass. The patient's vital signs were within normal ranges. On physical examination, the patient was mildly discomforted due to abdominal pain. His abdomen was soft, with tenderness in the right lower quadrant, and a pulsatile abdominal mass was present. Abdominopelvic CT angiography was performed, which revealed an aneurysmal dilatation of the abdominal aorta measuring 7 cm in diameter (Fig A, B and C), beginning inferior to the level of the renal arteries and continuing to the iliac bifurcation with thrombosis of the right common iliac artery extending its branches. Associated with an aneurysmal dilatation of the celiac trunk (Fig D), the superior mesenteric artery (Fig E), and the prepyelic branch of the right renal artery (Fig F). There was extensive mural thrombus, a patent lumen, and no evidence of frank rupture.

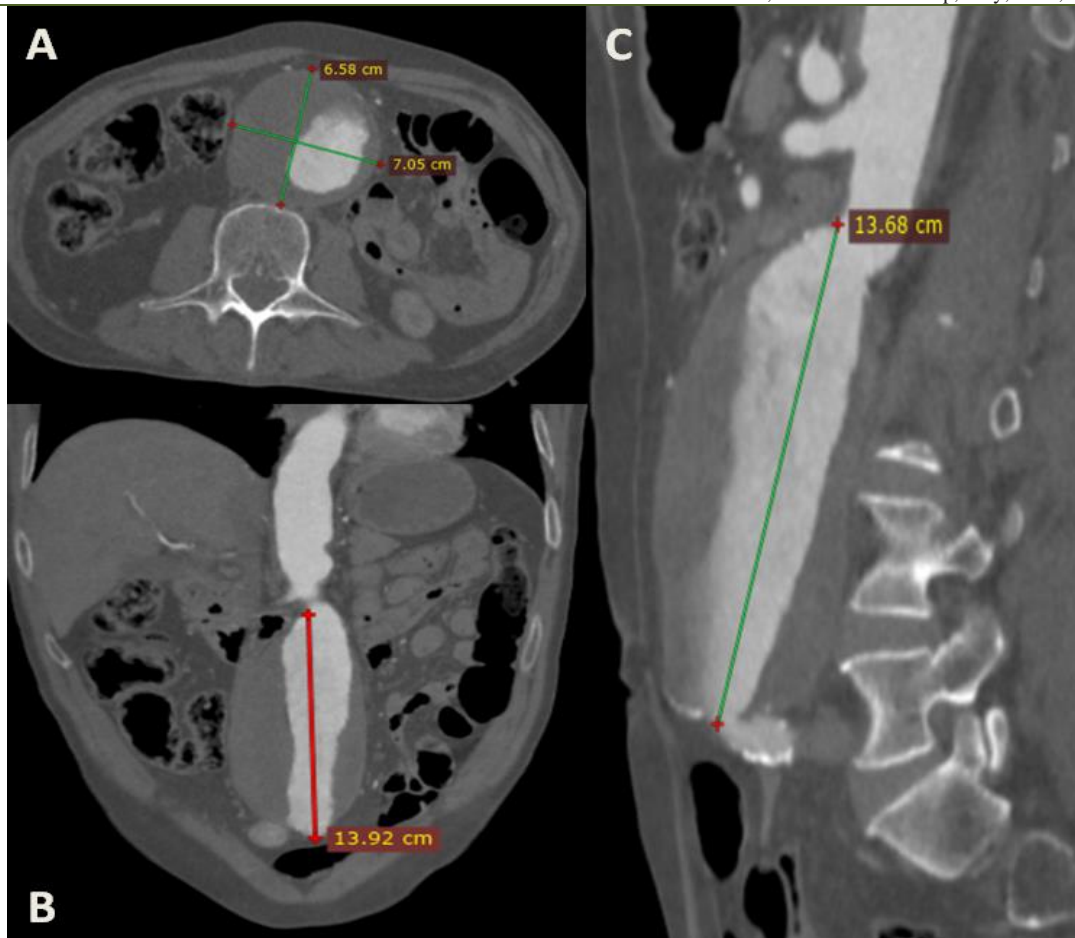


Figure A, B and C: A fusiform aneurysmal dilatation of the infrarenal aorta in axial, sagittal, and coronal arterial phase

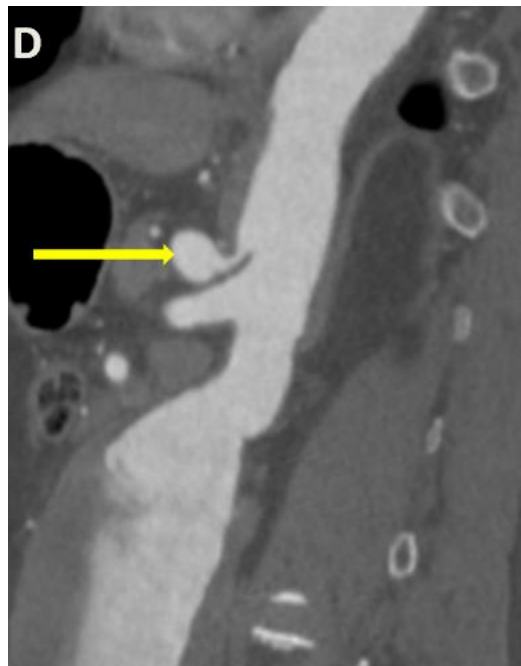


Figure D: The sagittal arterial phase image shows an aneurysmal dilatation of the celiac trunk

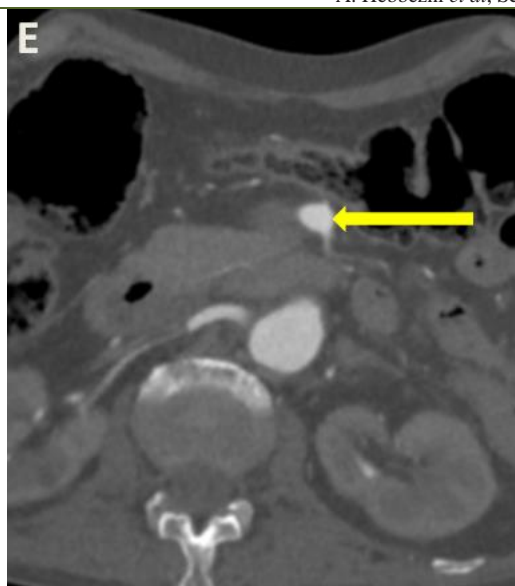


Figure E: The axial arterial phase image shows an aneurysmal dilatation of the superior mesenteric artery

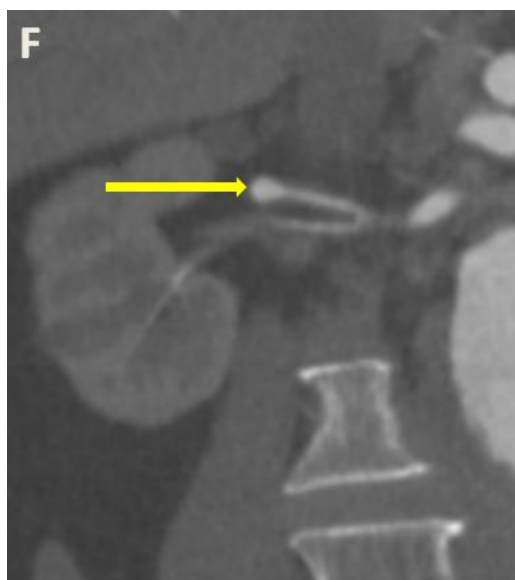


Figure F: The coronal arterial phase image shows an aneurysmal dilatation of the prepyelic branch of the right renal artery

DISCUSSION

Abdominal aortic aneurysms (AAA) are defined as abnormal dilatation of the abdominal aorta up to more than 3 cm in the greatest diameter or dilatation of more than 50% of its diameter. Most AAAs are asymptomatic and discovered incidentally [3]. However, large AAAs may present as a pulsatile abdominal mass. Atherosclerosis is the most common risk factor that can cause AAAs. Other possible etiologies include trauma, infections (Salmonella, Brucella, and Tuberculosis), chronic aortic dissection, vasculitis, and connective tissue disorders. On plain radiographs, an aneurysm may be visible as an area of curvilinear calcification in the paravertebral region on either abdominal or lumbar spine radiographs [3]. Ultrasound has been recommended in population screening to detect abdominal aortic aneurysms. Ultrasound can also be used as a follow-up

to detect any increase in diameter in diagnosed cases of aortic aneurysm. Most aneurysms have a growth rate of less than 5 mm per year. However, ultrasound measurements at the renal and infrarenal level have greater intra- and interobserver variability than measurements at other levels of the aorta. This reduced accuracy is expected and may be due to obesity, bowel gas, and difficulties in identifying the renal arteries [6]. CT angiography (CTA) is considered the gold standard for evaluation but exposes the patients to radiation. It is excellent for pre-operative planning as it accurately delineates the size and shape of the AAA and its relationship to branch arteries and the aortic bifurcation [4]. Signs of frank rupture include retroperitoneal hematoma, para-aortic fat stranding, and contrast extravasation from the aorta into the retroperitoneum. Signs of impending rupture or contained leakage include

the draped aorta sign (contained rupture), high-attenuation crescent sign, thrombus fissuration, and focal discontinuity of intimal calcification. Management options include close surveillance, endovascular aneurysm repair, and resection [5].

CONCLUSION

Most patients with AAA are asymptomatic, and the diagnosis is made incidentally. Imaging findings of aortic aneurysm rupture vary along a spectrum from impending rupture to contained rupture and from small aortic leaks with subtle infiltration of retroperitoneal fat to frank retroperitoneal or intraperitoneal extravasation. Aortic aneurysms most commonly occur as a consequence of atherosclerotic disease of the aorta. Alternatively, they may be associated with infectious seeding of the native or surgically repaired vessel [7]. Prompt detection of abdominal aortic aneurysm rupture is critical because survival is improved by emergent surgery. Identification of impending or contained rupture is equally important because these patients are at risk for frank rupture but can generally benefit from a more thorough preoperative assessment, followed by urgent surgery.

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