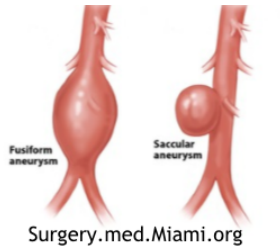
Joseph Botros
EMRG 401
8/21/2021

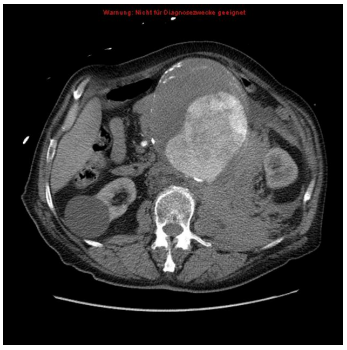
Bill is a 66 year-old male with past medical history significant for hypertension, diabetes, hypercholesterolemia, and obesity who was out taking his doberman pinscher, Sparky, for a walk on a humid night in North Philadelphia. As he puffed his cigarette and pondered whether new Marvel movies were still worth watching, he suddenly felt intense tearing pain in his abdomen. The pain went straight through him to his back and brought him to his knees. He began to feel lightheaded, and fumbled for his phone to dial 911. Little did he know, a time bomb that had been ticking away inside Bill for months had finally exploded.



Surgery.med.Miami.org

Abdominal aortic aneurysms (AAA) are a focal dilation of the abdominal aorta to greater than 1.5x the average diameter of 2cm. They come in two types, saccular and fusiform, and occur infrarenally in roughly 95% of cases (1). They generally affect men (2:1 M/F ratio) and are associated with smoking history (the most important risk factor), age (peak incidence of 60-70 years), atherosclerosis, and hypercholesterolemia (1). They are generally asymptomatic in their early stages, but can be associated with low back pain, abdominal bruits on auscultation, and a pulsatile abdominal mass at or above the level of the umbilicus. These AAA's are usually only found incidentally and are managed based on their risk of eventual rupture. The risk of rupture per year is correlated with the aneurysm's size. <5cm diameter is associated with a 4% annual risk of rupture, 5-7cm carry a 7% annual risk, and >7cm is associated with 20% annual risk (2). In contrast to the benign nature of AAA's in their early stages, ruptured AAA's are an emergency and must be aggressively managed and repaired by vascular surgery. Clinical features of a ruptured AAA include a triad of abdominal pain, hypotension, and a pulsatile abdominal mass, and may also show signs of retroperitoneal hemorrhage (Grey Turner and/or Cullen sign).

Bill arrives by ambulance to the ED and you assess him in the ambulance bay. As your sub-I tends to Sparky, EMTs relay to you his concerning vitals and story. Two large bore IVs are placed, and the patient is given IV fluids, packed rbc, and pain control with some improvement. Your exam is concerning for a ruptured AAA, and you emergently consult vascular surgery. They agree to admit him to the OR. As the OR is being prepped, you obtain a CTA of the abdomen and pelvis and visualize the adjacent image. Bill is taken to the OR with a door-to-OR time of 65 minutes, and his ruptured AAA is repaired.


Radiopaedia.org

Radiopaedia.org

When a ruptured AAA is suspected, urgent vascular surgery consultation is required with a door-to-OR time of <90 minutes. Bedside ultrasounds are commonly used to evaluate for AAA in asymptomatic patients and when rupture is not suspected. These have a sensitivity of 90% for detecting AAA's, however they are unable to distinguish between ruptured and unruptured AAA's. Therefore, CTA AP is the imaging modality of choice for patients who are hemodynamically stable enough to receive them. However, obtaining a CTA should not be done in hemodynamically unstable patients when clinical suspicion is high or when doing so would delay time to OR (1,3).

## References


1. Tintinalli, J. E., Stapczynski, J. S., Ma, O. J., Yealy, D. M., Meckler, G. D., & Cline, D. (2016). *Tintinalli's emergency medicine: A comprehensive study guide* (Eighth edition.). New York: McGraw-Hill Education.

2. Chaikof EL, Dalman RL, Eskandari MK, et al. The Society for Vascular Surgery practice guidelines on the care of patients with an abdominal aortic aneurysm. *Journal of Vascular Surgery*. 2018; 67 (1): p.2-77.e2. doi: 10.1016/j.jvs.2017.10.044

3. Abdominal aortic aneurysm - WikEM. (2021). Retrieved 21 August 2021, from https://wikem.org/wiki/Abdominal_aortic_aneurysm