

Case Blog

Title: Sonographic Images of a Massive Abdominal Aortic Aneurysm with Contiguous Supra and Infrarenal Involvement

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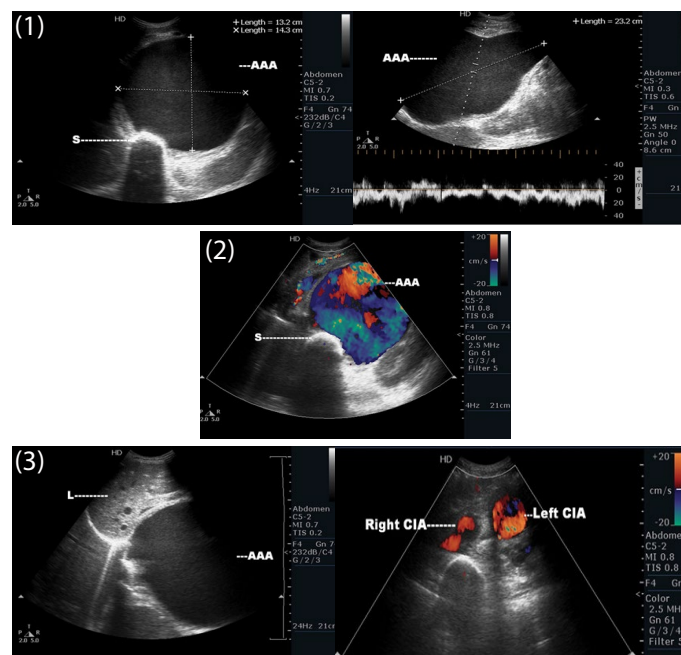


Figure 1: (A and B) Abdominal ultrasound of a 40 years old female with pulsatile abdominal lump shows a large abdominal aortic aneurysm (AAA) measuring 13.2 cm x 14.3 cm x 23.2 cm (A and B) in front of the spine (S). Note the abnormal pulse wave doppler pattern in B.

Figure 2: Abdominal ultrasound of a 40 years old female with pulsatile abdominal lump: On colour doppler the lesion present with swirling flow consistent with aneurysm without sonographic evidence of leak.

Figure 3: Ultrasound of a 40 years old female with a abdominal aortic aneurysm: The aneurysm involve the abdominal aorta diffusely superior and inferior to the origin of the renal arteries from 3A: The level of the diaphragm behind the liver (L) seen in the sagittal section to B: the bifurcation of the abdominal aorta extending into the proximal left common iliac artery (CIA) sparing the right CIA.

Abstract

We present sonographic imaging findings of a massive abdominal aortic aneurysm in a 40 year old female extending from the diaphragmatic opening to the aortic bifurcation.

Clinical Presentation

A 40 year old female patient present with history of chronic abdominal pain for approximately 1 year with increasing intensity of 1 week duration. She is non hypertensive, non smoker and has no history of diabetes. Palpable large pulsatile abdominal lump noted. Ultrasound shows a large abdominal aortic aneurysm (Figure 1A and 1B). On colour flow imaging the aneurysm shows typical swirling flow (Figure 2). The aneurysm involve the abdominal aorta diffusely extending from the diaphragmatic opening to the bifurcation (Figure 3A and 3B). On pulse doppler abnormal waveform pattern was noted in the aneurysm (Figure 1B).

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Known risk factors include advanced age, smokers, males, high blood pressure, atherosclerosis, obesity and history of aneurysm in close relatives. Larger the aneurysm more is the growth rate per year. Ultrasound is the first investigation of choice for any abdominal pathology especially in the emergency environment including cases of suspected abdominal aortic aneurysm. Ultrasonographic scanning of the aorta takes below ten minutes with close to 100% sensitivity and specificity [1]. Other investigations like digital subtraction angiography (DSA), magnetic resonance angiography (MRA) and computed tomography angiography (CTA) are indicated for pre and peri-operative imaging. Four mechanisms relevant to abdominal aortic aneurysm (AAA) formation include proteolytic degradation of aortic wall connective tissue, inflammation and immune responses, biomechanical wall stress, and molecular genetics [2]. Histologically, AAAs are characterized by destruction of elastin and collagen in the media and adventitia, smooth muscle cell loss with thinning of the medial wall, infiltration of lymphocytes and macrophages, and neovascularization [3]. Treatment options include surgical or endovascular approach. Ultrasound because of its rapid, cheap, easy availability along with high sensitivity and specificity is an important first diagnostic tool for abdominal aortic aneurysm and a versatile tool for its follow up.

References

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