



Brief Reports

Focused aortic ultrasound to evaluate the prevalence of abdominal aortic aneurysm in ED patients with high-risk symptoms

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Abdominal aortic aneurysms (AAAs) are the 10th most common cause of death for those men older than 55 years [1]. The mortality rate is excessive for those aneurysms that rupture, approaching 50% in those patients who present emergently without evidence of shock, whereas those operated on an elective basis have a mortality rate that is approximately 5% [2,3]. Prior studies have looked at the accuracy of ED performed ultrasound in patients with a high suspicion of having a symptomatic AAA, but this may be a different population than all patients with symptoms that may possibly be referable to an aneurysm. However, patients 50 years and older with symptoms that may be referable to the aorta may represent a significant population in the ED setting. Even if those patients have an unruptured aneurysm, its detection affords the patient a referral for elective repair. We undertook a limited focused abdominal aorta ultrasound screening program to determine the prevalence rate of aortic aneurysm (as defined by >3 cm) in a high-risk patient population, although not one in which the primary consideration was an aortic aneurysm.

This study was approved by the institutional review board for all patients able to give consent.

Patients were enrolled on a convenience basis when 1 of 2 physicians ultrasound credentialed according to American College of Emergency Physicians criteria were available. Informed consent was obtained from the patients. Any patient age 50 years or older that had 1 of the following 6 symptoms, (1) abdominal pain, (2) back pain, (3) flank pain, (4) groin pain, (5) syncope, or (6) hypotension, were considered for the study. Patients with a known AAA with

Table 1 Patient characteristics: patient symptoms*

Symptoms	Percentage
Abdominal pain	56
Back pain	25
Flank pain	16
Groin pain	4
Syncope	19
Hypotension	13
Referred pain	25.8
Known AAA	4

* Some patients had more than one symptom/characteristic.

Table 2 Aortic measurements

Measurements	Percentage (95% CI)
Max aorta diameter >3 cm	5.15 (1.3-10.4)
Max aorta diameter >5 cm	2.1 (3.2-6.4)

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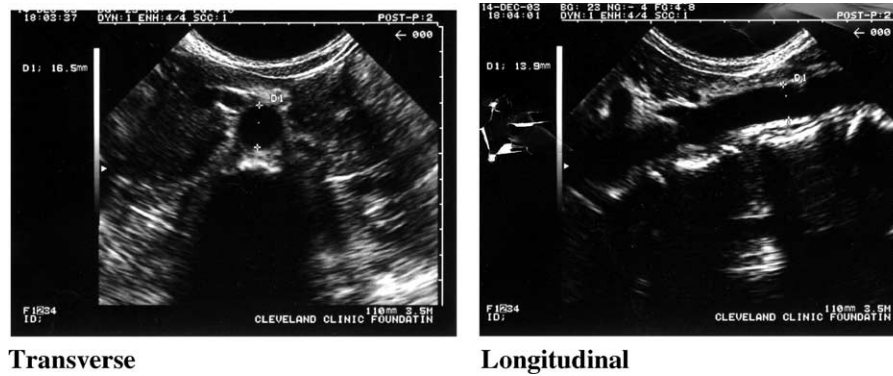


Fig. 1 Transverse and longitudinal view of a normal abdominal aorta.

new symptoms referred to the abdomen or back that may suggest a complication related to their known AAA were also evaluated.

Abdominal aortas were scanned in the long and short axis from the level of the superior mesenteric artery or renal arteries to the bifurcation. Diameters greater than 3 cm were considered aneurysmal. Data were analyzed using simple descriptive statistics. Means are reported as ± 1 SD.

Ninety-seven patients were entered in the study, of which 57% were male, 67% had a history of hypertension, and 38% had tobacco usage. The mean age was 67.4 ± 10.8 years, 4% had a prior history of AAA, and 8.7% had a prior self-reported family history of AAAs. The most common symptom was abdominal pain at 56%, followed by back pain at 25% and syncope at 19% (Table 1). Of the patients, 25.8% reported having some type of referred pain. The mean maximal aortic diameter was 2.0 ± 0.7 cm. There were 5 patients with a maximal aortic diameter of 3 cm or more, resulting in a prevalence of 5.15% (95% confidence interval [CI], 0.8%-9.6%) (Table 2). Two patients had a maximal diameter of greater than 5 cm (2.1%; 95% CI, 0.4%-8%) (Table 2). The outcome of the 2 patients with a maximal diameter greater than 5 cm was satisfactory. One patient who had a known history of AAA status post repair was admitted to vascular surgery and discharged 2 days later without intervention. The other patient had a newly diagnosed AAA, which vascular surgery evaluated, and

was discharged from the ED for outpatient follow-up. No patient had an aneurysmal dilation of the aorta that was found to be ruptured (Figs. 1 and 2).

This study has found a prevalence for unruptured AAA similar to that found in other settings screening asymptomatic patients. This highlights the utility of using the ED to screen patients at risk. Our prevalence was less than that found by Tayal et al [4], although the patient selection in this study was different than in his setting. That study is limited by the convenience sampling of the patients. Although AAA is present in a defined population in the department, the incidence of aortic rupture, even in patients with symptoms, which could suggest an aneurysm, is low. Emergency department ultrasound screening for aneurysms in asymptomatic geriatric patients found a similar prevalence [5]. The US Preventative Task Force has recommended a 1-time screening for AAAs by sonography for men 65 to 75 years of age who have ever smoked [6]. In the ED, more studies may need to be done to define the exact population needed to screen.

References

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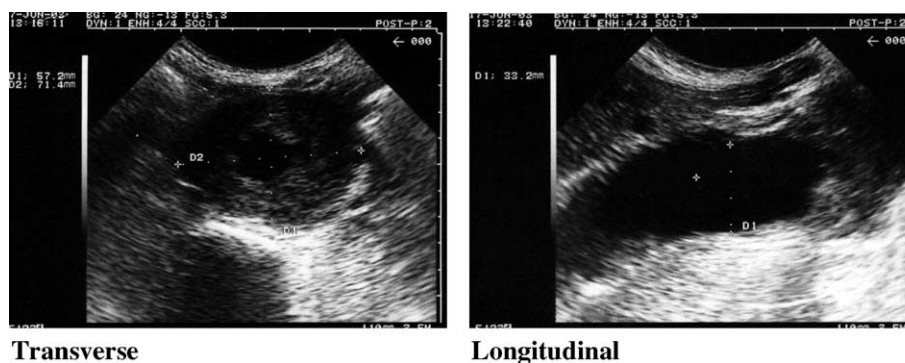


Fig. 2 Transverse and longitudinal view of an aneurysmal abdominal aorta.

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