

Abdominal aortic aneurysm mimicking as renal colic: Diagnostic challenges in emergency department

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SUMMARY

Abdominal aortic aneurysm (AAA) may mimic symptoms of renal colic. Challenges in emergency department setting would be prompt identification and management of atypical presentation of AAA especially in elderly patient. First presentation of renal colic in the elderly is rare. Patient who presents with acute abdominal pain, flank pain, or back pain should have a rapid bedside ultrasound. Bedside ultrasonography is one of the most valuable and practical tools for confirming or ruling out AAA. Delays in diagnosis and misdiagnosis contribute significantly to poor outcomes. We present an atypical presentation of AAA and a challenging diagnosis, especially in the elderly.

INTRODUCTION

Evaluation of acute abdominal pain in older adults can be challenging in the emergency department (ED).¹ Atypical or delayed presentations of abdominal diseases are much more common among older adults who are also at a higher risk of complications and mortality.¹ Abdominal aortic aneurysms (AAAs) are one of the most lethal diseases, especially in the elderly, if not detected and treated promptly.² Risk factors for AAA include advanced age, tobacco use, hypertension, hyperlipidemia, atherosclerosis, history of coronary artery disease, greater physical height of the patient, and having a first-degree relative with a history of AAA.³

Patient presentations can be variable and nonspecific, and too often misleading, mimicking other conditions such as appendicitis, cholelithiasis, diverticular disease, and bowel obstruction.³ The classic teaching has been that the patient with a ruptured AAA presents with the triad of abdominal pain, hypotension, and a pulsatile abdominal mass. In reality, this triad is present in less than one-half of patients.² It may mimic renal colic, characterized by unilateral flank pain radiating to the groin and microscopic hematuria.³ Any older adult who presents with new-onset renal colic symptoms should be evaluated for acute AAA.¹

The normal intra-abdominal aorta is approximately 2 cm in diameter and is considered small aneurysms if less than 4.0 cm in diameter, medium if 4.0 - 5.5 cm in diameter, large if 5.5 - 6.0 cm in diameter, and very large if > 6.0 cm in diameter.^{2,4} The risk of rupture increases with aneurysm size and rate of expansion, with small aneurysms having a negligible risk.⁴

Most patients are asymptomatic until the AAA expands or ruptures.³ Ruptured AAA is associated with a significant

morbidity and mortality. Delays in diagnosis and misdiagnosis contribute significantly to poor outcomes.² We present an atypical presentation of AAA and a challenging diagnosis, especially in the elderly.

CASE REPORT

A 69-year-old gentleman with hypertension, ischemic heart disease, and a history of a motor vehicle accident in 2011 with a spinal injury that required surgery, presented to ED with the chief complaint of bilateral flank pain. He claimed the pain had been radiating to the lower abdominal and scrotal region for the past 2 weeks with a pain score of 6/10. He also complained of dysuria, frequency, and 2 days history of haematuria. This was his third visit to ED within 1 week. Patient had presented with similar complaints on the previous two visits. At both times, the patient was diagnosed as renal colic and discharged with outpatient urology clinic appointment.

During current visit, patient's initial vital signs were BP 161/76 mm Hg, HR 83/min, T 37°C, and SpO2 99% under room air. On initial evaluation, the patient was comfortable under room temperature per abdomen revealed diffuse abdominal tenderness but without rebound or guarding and bilateral renal punch was positive. He was given IV Tramadol, IV metoclopramide and IV Ranitidine, basic labs were drawn, and he was sent to the Radiology department for CXR and AXR. All laboratory and radiology investigations were unremarkable but despite initial treatment, patient claimed only minimal improvement to the pain. Otherwise, there were no other active complaints.

Bedside point of care ultrasound was done by emergency physician, noted abdominal aorta 7 cm x 5 cm and no obvious free fluids were noted. Other ultrasound findings were unremarkable. We proceeded with computed tomography angiography (CTA) of the abdomen and findings revealed infrarenal AAA measuring approximately 8.1 cm x 7.1 cm x 9.6 cm (AP x W x CC). This was associated with mural thrombus with maximum thickness measuring 2.7 cm. Computed tomography (CT) features are possible for impending rupture. No CT evidence of aortic dissection.

Figures 1 and 2 show CT findings of this patient.

After review by primary team, patient was admitted to the ward. Patient and family members refused further intervention. During admission, patient's BP was stabilized and otherwise treated conservatively. Patient was discharge

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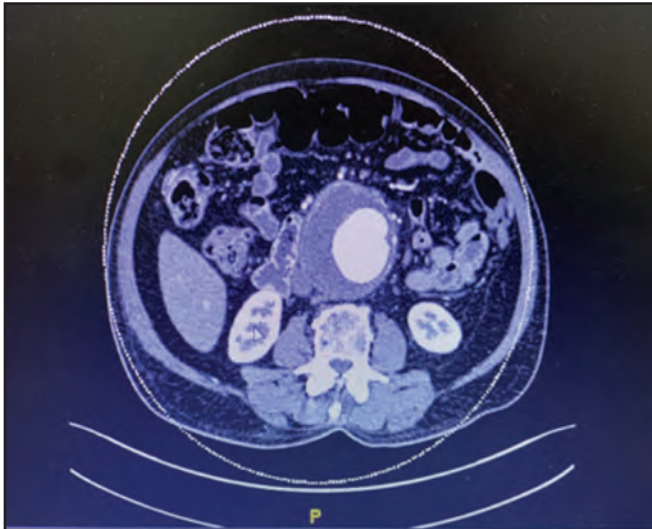


Fig. 1: Contrast enhanced CT in axial plane through the lower abdomen demonstrated a large AAA. Much of this aneurysm was filled with a clot, with the remaining lumen of the aorta being bright white due to opacification with intravenous contrast.

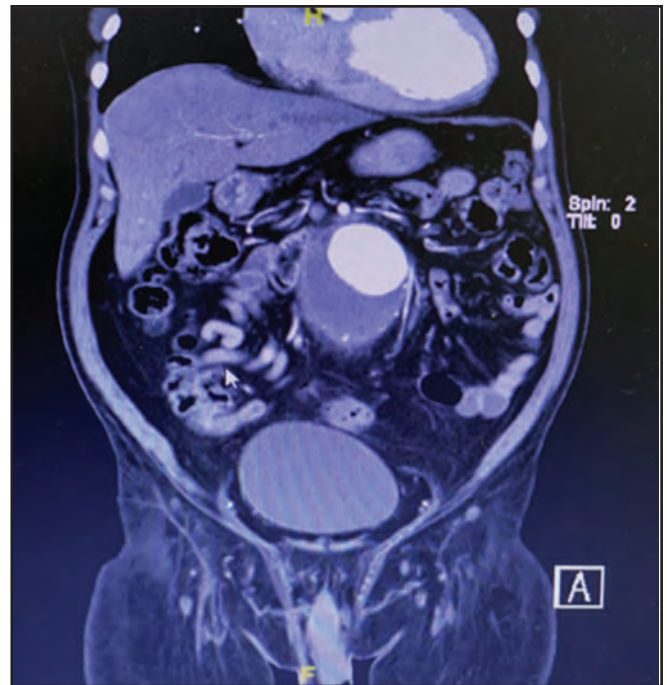


Fig. 2: CTA Abdomen Coronal view, showing abdominal aortic aneurysm (AAA). The infrarenal AAA measured approximately 8.1cm x 7.1cm x 9.6cm (AP x W x CC). This was associated with mural thrombus with maximum thickness measuring 2.7cm. Both common iliac arteries were dilated up to the bifurcation.

after a few days of admission with 1 week of vascular clinic appointments to recounsel patient for operation.

DISCUSSION

The patient presented with an atypical AAA clinical presentation. Any elderly patient who presents to the ED complaining of abdominal pain, back pain, or symptoms consistent with renal colic or diverticulitis should be considered to have a ruptured AAA until proven otherwise.² Misdiagnosis and delay in diagnosis AAA is quite common, with some studies reporting misdiagnosis rates as high as 44.9%.⁵

AAA may mimic renal colic with unilateral flank pain radiating to the groin and microscopic hematuria when the artery dissects in response to an expanding aneurysm.^{1,7} First presentation of renal colic in the elderly is rare.⁶ Any older adult who presents with new-onset renal colic symptoms should be evaluated for acute AAA.¹ Fortunately, this patient arrived at the ED clinically stable, with a CTA showing no dissection. The classic presentation of AAA includes the finding of a palpable pulsatile abdominal mass; however, this largely depends on the size of the aneurysm and the patient’s body habitus. On average, only 40% of AAA in patients who are not obese are discovered when relying on this physical examination finding.³ In this case, a classical pulsatile mass was not present. Abdominal examinations have a low sensitivity for AAA on non-specific palpation.⁶

Beside ultrasound has emerged as the test of choice in this case. In the hands of a skilled clinician, ultrasound has a sensitivity of approximately 100% and a specificity of approximately 96% for AAA, making it one of the most valuable and practical tools for confirming or ruling out AAA.⁷ Limitations to ultrasound include patient obesity, significant bowel gas, being unable to visualize significant portions of the aorta and operator’s skill.⁷ The abdominal CT is 100% sensitive and is more reliable than ultrasound at determining size and extent of involvement, and visualizing adjacent structures, and is not impaired by bowel gas or obesity. However, CT is more expensive, takes longer (delaying treatment), and is invasive if contrast is used, which is a problem for older adults who have comorbidities, particularly chronic kidney disease.⁷ Angiography provides the best visualisation of aortic anatomy, but it is invasive, time-consuming, and poses the risks of embolisation, perforation, and bleeding. As a consequence of these issues, angiography is not recommended as a first-line diagnostic tool for asymptomatic or symptomatic patients.^{3,7}

Regardless of vital signs, patients with ruptured AAA should be considered unstable and should be aggressively resuscitated. A ruptured AAA has a mortality rate > 80%.⁸ Endovascular aneurysm repair (EVAR) has become the preferred method for the elective repair of AAA in patients at high peri-operative risk, and it has recently become more commonly applied for ruptured AAA as well. Although randomized trials have not borne out improved mortality rates for EVAR in this setting, it does appear that peri-operative morbidity is decreased and thus EVAR is favored for

anatomically suitable patients.⁹ Rupture risk was substantial for all AAA greater than 5.5 cm and increased markedly when initial diameter exceeded 6.5 or 7.0cm.¹⁰ This patient aneurysm is greater than 7 cm and high risk for rupture; however, patient refused for any active intervention and was discharged with early vascular clinic appointment.

CONCLUSION

AAA are surgical emergencies, early identifications, and treatment can help reduce the high mortality rate. Consider and rule out atypical presentation AAA in patients (especially those > 50 years of age) with acute abdominal pain, flank pain, or back pain. Bedside ultrasound is the key to early diagnosis in high-risk patients. Maintaining a high level of suspicion for AAA in similar scenarios will prevent unnecessary deaths.

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