SIGNA VITAE 2019; 15(2): 65-66

Misleading presentation of ruptured abdominal aortic aneurysm and the role of point-of-care ultrasound for diagnosis

MANJA KRAŠEVEC[1], TAJDA KEBER[2]

1 Faculty of Medicine University of Maribor, Slovenia
2 Department of Internal Medicine, General Hospital Slovenj Gradec, Slovenia

Corresponding author:
Manja Kraševec, Faculty of Medicine University of Maribor, Slovenia
Address: Taborska ulica 8, 2000 Maribor, Slovenia
Telephone number: +386 40 254 176
E-mail: manja.krasevec@student.um.si

ABSTRACT

If not recognized and treated early enough, the rupture of abdominal aortic aneurysm (rAAA) embodies a devastating medical emergency. It is associated with high morbidity and mortality which can reach up to 100 % in untreated individuals. Patients are usually hypotensive, shocked, complain of pain in the abdomen or back, and can have a palpable pulsatile abdominal mass. rAAA can be misdiagnosed due to patient's comorbidities, site of rupture, or unusual presentations. Unusual clinical presentations include transient lower limb paralysis, right hypochondrial pain, groin pain, testicular pain, iliofemoral venous thrombosis, and others. When ruptured abdominal aneurysm is suspected an emergency ultrasound should be performed. In this article we are going to present a patient with unusual presentation of ruptured abdominal aneurysm and the importance of point-of-care ultrasound in similar cases.

Key words: abdominal aortic aneurysm, rupture, point-of-care ultrasound

CASE REPORT

76-year old former male smoker with a history of cerebrovascular insult, hypertension, hyperlipidemia and chronic lumbar pain was brought to the emergency department in a sitting position by emergency medical service. A day earlier he had lumbar pain which he treated with regular doses of analgesics. He collapsed in his bathroom 30 minutes prior to presentation. He complained of chest pain radiating to the back. He was tachypneic, hypotensive (67/39 millimeters of mercury) and had atrial fibrillation with extreme tachycardia (180 beats per minute). Rapid hemoglobin check showed value of 136 grams per liter. Due to suspicion of hemodynamically important atrial fibrillation he was successfully electroconverted with 70 joules after midazolam and fentanyl premedication. After electroconversion he developed apnea. One ampule of flumazenil was administered intravenously, and he regained spontaneous breathing and complete consciousness. Afterwards, his major complaint was abdominal pain. His abdominal wall was hard on palpation. Lower extremities pulses were absent. Point-of-care abdominal ultrasound showed enlarged infrarenal aortic diameter of 7 centimeters without intraperitoneal fluid on typical sites. Computed tomography angiography was performed. It showed an infrarenal aneurysm starting at about 8 millimeters below the renal arteries and extending to aortic bifurcation. A large periaortic hematoma was present (22 x 15 centimeters), spreading in front of the aorta, in the right pararenal space, down the right common iliac artery, and by the right psoas muscle. There were also smaller aneurysms in both common iliac arteries. The patient was immediately transferred to a tertiary referral center by an ambulance. In the tertiary center aneurysmectomy, construction of aortobifemoral bypass with dacron prosthesis and excision of iliac aneurysms were performed. The procedure was uneventful, and the patient recovered completely.

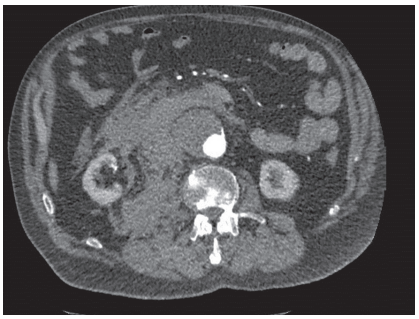

Figure 1. Scan showing a large AAA with rupture and periaortic hematoma.

Figure 2: Patient's AAA seen in sagittal plane.

DISCUSSION

A retroperitoneal tear of abdominal aortic aneurysm is the most common reason for misleading presentations of rAAA (1). The organs and increased pressure in the retroperitoneal space can tamponade the hemorrhage. Therefore, the patient can be hemodynamically stable. Because the classical diagnostic triad of hypotension, back pain, and pulsatile mass is found in only about a third of patients with retroperito-

neal rupture (2), the diagnosis can be seriously delayed. Patients with comorbidities that overlap or mask the symptoms of rAAA, for example lumbago or sciatica (3) like in our patient, present an additional diagnostical problem.

An important step in diagnostic process when ruptured aortic aneurysm is suspected is complete physical examination. There can be a presence of Cullen's sign (3) and/or Grey Turner sign both indicating a retroperitoneal bleed. The patient may or may not have weakened or absent peripheral pulses distal to the rupture and a pulsatile abdominal mass. Early recognition of those warning signs can be lifesaving (4). Our patient had absent lower limb peripheral pulses, which was found with delay due to incomplete initial physical examination.

Point-of-care ultrasound is another indispensable diagnostic tool when it comes to rAAA. Studies have shown that performing an ultrasound of the abdominal aorta in the emergency department improves early detection of rAAA (5). There are many advantages of ultrasound over a computed tomography (CT) scan: it is portable and can be taken into the operating room and performed while patient is being prepared for surgery (2); in experienced hands it takes only minutes and can be used in critical moments to make a quick approximate diagnosis. The performance of point of care ultrasound of the abdominal aorta was the breaking point in our case.

rAAA presents an indication for an immediate helicopter transportation to a referral center in Slovenia (6). It can lead to a better outcome in patients with rAAA because of exclusion of road-induced shaking and shorter door-to-door time. Helicopter is activated whenever possible in our institution. However, our patient was transported by the ambulance because helicopter was unavailable due to other emergencies across the country.

CONCLUSION

rAAA is often unrecognized due to misleading presentation which can lead to fatal outcome. The role of point-of-care ultrasound can be essential in unclear cases and institutions should invest in ultrasound equipment and education of doctors to improve patient's outcomes. It is also of the utmost importance that the country provides enough air support to shorten transport times for all critically ill patients.

Conflict of interest

The authors declare no conflict of interest.

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