Comments on "Why do emergency department clinicians miss acute aortic syndrome? A case series and descriptive analysis"

Andrea Vercelli,[1] Eleonora Berardi,[2] Erika Poggiali[1]

[1]Emergency Department, Guglielmo da Saliceto Hospital, Piacenza; [2]Emergency Department, University Hospital of Parma, Italy

Dear Editor,

In the recently published article by McLatchie *et al*., the authors state that emergency clinicians may miss acute aortic syndrome (AAS) by not considering it as a possibility, being falsely reassured by atypical or resolved symptoms, or mistaking it for other more common conditions.[1] The authors emphasise the importance of always considering AAS in the differential diagnosis of chest, back or abdominal pains, collapse, perfusion deficits or neurological compromise and suggest a risk stratification scoring system such as ADD-RS in combination with D-dimer to standardise the approach and help physicians discern which patients to scan.

Correspondence: Andrea Vercelli, Emergency Department, "Guglielmo da Saliceto" Hospital, Via Giuseppe Taverna 49, Piacenza, Italy.
Tel.: +39.0523.303044.
E-mail: A.Vercelli@ausl.pc.it

Key words: aortic dissection, aorta, point-of-care ultrasound, ultrasound.

Contributions: AV and EB, wrote the manuscript; EB and EP, took care of the patient and performed point-of-care ultrasound; EP critically revised the draft. All the authors approved the final version.

Conflict of interest: EP is member of the editorial board of Emergency Care Journal. The authors declare no potential conflict of interest, and all authors conform accuracy.

Availability of data and materials: all data underlying the findings are fully available upon reasonable request to Erika Poggiali, E.Poggiali@ausl.pc.it

Ethics approval and consent to participate: not applicable.

Informed consent: not applicable.

Received for publication: 26 April 2023.
Accepted for publication: 8 May 2023.

Licensee PAGEPress, Italy
Emergency Care Journal 2023; 19:11433
doi:10.4081/ecj.2023.11433

We agree with all these statements, but we believe that point-of-care ultrasound (POCUS) can play a primary role in the early identification of these patients, particularly for the promptly diagnosis of acute aortic dissection. CT angiography is traditionally considered the gold standard technique for the diagnosis of AAS,[2] but it requires time in a time-dependent condition. As a consequence, POCUS can play a pivotal role in the early diagnosis of AAS, since emergency clinicians routinely use ultrasound to evaluate the heart and aorta for pathology. Compared to CT imaging or trans-oesophageal echocardiography, POCUS is a rapid, simple and non-invasive method of diagnosis, that can aid emergency clinicians in the early detection and treatment of life-threatening conditions. Considering the aortic dissection, the identification of direct sonographic signs, such as the presence of intimal flap or intramural haematoma with thickening of aortic walls greater than 5 mm, or indirect signs including ascending aorta enlargement 4 cm or greater, pericardial tamponade or effusion, or aortic valve regurgitation, can augment clinical decision making.[3] Visualization of an intimal flap by US may carry a sensitivity of 67-80% and specificity of 99-100% for dissection.[4]

Gibbons *et al.* were able to diagnose 96.4% of patients who presented with an aortic dissection (100% of type A dissections) using POCUS. The only patient not diagnosed with POCUS had a Stanford type B dissection limited to the descending thoracic aorta. The most common positive finding was an intimal flap, that was 100% specific for aortic dissection.[5] Fojtik *et al.* presented a series of five cases of aortic dissection that were diagnosed by emergency clinicians using US.[4] Perkins *et al*. described a case of a type A aortic dissection in a woman with chest pain radiating to her neck and back, that was promptly diagnosed by emergency clinicians using POCUS. The patient was operated immediately before further complication occurred.[6] An aortic dissection with aneurysmal degeneration in a patient presenting to the emergency with back pain was rapidly identified with POCUS by emergency clinicians and lead to rapid treatment.[7]

In our experience, we report the case of a 90-year-old man who presented to our emergency with abrupt onset of dyspnea and chest pain. We immediately performed a POCUS demonstrating a dilatated aortic root and an extension of a flap towards the aortic valve cusp in the area of an aneurysmal thoracic aortic root in absence of pericardial effusion, allowing an immediate diagnosis of acute type A aortic dissection (Online Supplementary Materials, Video 1).

Since aortic dissection is a vascular emergency with a high morbidity and mortality, where for every hour that the diagnosis is missed, the mortality rate increases by at least 1% without treatment,[8] we strongly recommend always investigating the heart and aorta using POCUS, which, even with a limited vision, allows for a timely diagnosis and a proper patient management without loss of time.

References

1. McLatchie R, Wilson S, Reed M, et al. Why do emergency department clinicians miss acute aortic syndrome? A case series and descriptive analysis. Emerg Care J 2023;19:11153.
2. Hiratzka LF, Bakris GL, Beckman JA, et al. 2010 ACCF/AHA/AATS/ACR/ASA/SCA/SCAI/SIR/STS/SVM guidelines for the diagnosis and management of patients with thoracic aortic disease: a report of the American College of cardiology Foundation/ American heart association Task force on practice guidelines, American association for thoracic surgery, American College of radiology, American stroke association, society of cardiovascular Anesthesiologists, Society for cardiovascular angiography and interventions, society of interventional radiology, society of thoracic surgeons, and Society for vascular medicine. Circulation 2010;121:e266–369.
3. Nazerian P, Mueller C, Vanni S, et al. Integration of transthoracic focused cardiac ultrasound in the diagnostic algorithm for suspected acute aortic syndromes. Eur Heart J 2019;40:1952-60.
4. Fojtik JP, Costantino TG, Dean AJ. The diagnosis of aortic dissection by emergency medicine ultrasound. J Emerg Med 2007;32:191-6.
5. Gibbons R, Smith D, Mulflur M, et al. 364 Point-of-care ultrasound for the detection of aortic dissections in the emergency department. Ann Emerg Med 2017;70:S143.
6. Perkins AM, Liteplo A, Noble VE. Ultrasound diagnosis of type a aortic dissection. J Emerg Med 2010;38:490-3.
7. Bernett J, Strony R. Diagnosing acute aortic dissection with aneurysmal degeneration with point of care ultrasound. Am J Emerg Med 2017;35:1384.e3-e4.
8. Olsson C, Thelin S, Ståhle E, et al. Thoracic aortic aneurysm and dissection: increasing prevalence and improved outcomes reported in a nationwide population-based study of more than 14,000 cases from 1987 to 2002. Circulation 2006;114:2611-8

Online supplementary material

Video 1. Acute type A aortic dissection.