



# Focused POCUS and PE Diagnosis

## The Use of POCUS to Aid in Rapid Diagnosis and Triage in the Outpatient Clinic

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### Introduction

Point-of-care ultrasound (POCUS) is the practice of using ultrasound at the patient's bedside to aid with diagnosis and management. Here we present a case where the outpatient use of POCUS aided in early diagnosis of a life threatening condition.

### Clinical presentation

- 63-year-old male presented to clinic for hypertension follow up
- Mild, stable dyspnea on exertion for months, without chest pain, orthopnea, cough, or sputum production
- BP 114/80 mmHg, pulse 124, Afebrile and SpO2 85% on RA
- Physical exam showed a man in no apparent distress and well appearing, tachycardia, no abnormal heart sounds, diffuse expiratory wheezing, and no lower extremity edema
- Electrocardiogram showed sinus tachycardia with frequent PVCs
- He was given a nebulizer in clinic without improvement in oxygen saturation.

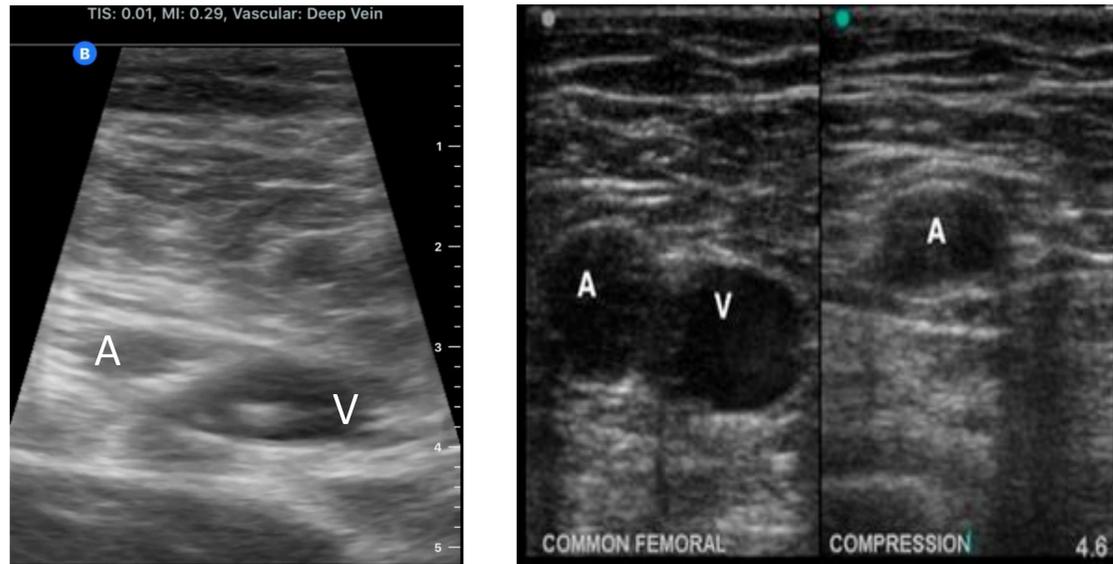


Figure 1. Image of right lower extremity common femoral artery and common femoral vein at point of full compression showing lack of compression of CFV consistent with DVT (left). Image showing full compression of R CFV for comparison (right)

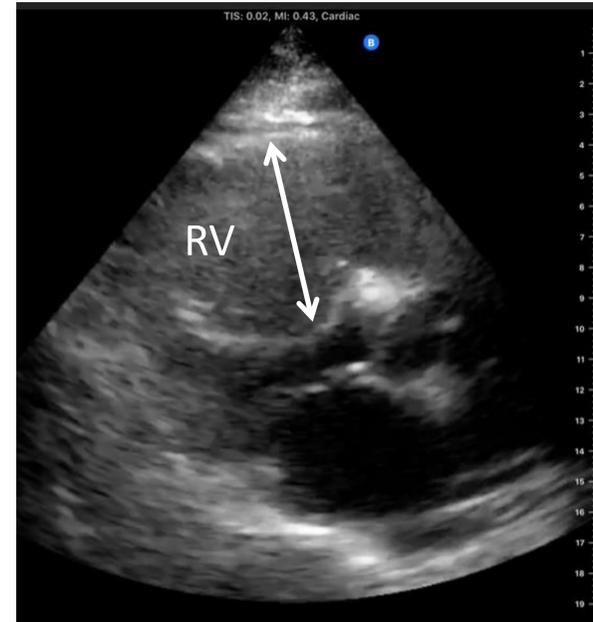


Figure 2: Parasternal long axis view at end systole showing severely enlarged right ventricle with bowing of the interventricular septum, concerning for RV pressure overload

- Lung US revealed normal pleural sliding and A-lines bilaterally
- Focused cardiac US (figure 2) revealed grossly normal LV systolic function, severe RV dilatation with bowing of the IV septum, and akinesia of the mid RV free wall with preserved apical contractility
- LE vein compression US (figure 1) revealed extensive non-compressible R CFV, consistent with DVT
- The patient was transported to the ED and signout was provided to the ED team by the outpatient providers
- A CT angiogram of the chest showed extensive bilateral PE burden in addition to signs of right heart strain, consistent with a submassive PE
- A transthoracic echocardiogram confirmed the results of the focused cardiac US.

### Discussion

- This is a case where the use of POCUS to assist with evaluation of unexplained tachycardia and hypoxia in a mildly symptomatic patient in the outpatient clinic led to rapid triage of a broad differential diagnosis and expedited care
- Despite a Well's score of 1.5 indicating "low risk of PE", the differential diagnosis for this clinical presentation includes VTE. The physical exam is extremely limited in assisting with the diagnosis of DVT or PE
- POCUS performed by general internists has shown convincing data mostly in the inpatient setting, including in the assessment for undifferentiated shortness of breath
- There is increasing use of POCUS in the outpatient setting and further studies regarding use are needed

### Conclusions

In summary, here we present a case in the outpatient setting where POCUS aided in triaging a patient with mild symptoms and abnormal vital signs and expedited the formal diagnosis and management of a life threatening condition. Outpatient practitioners should consider training in use of POCUS.

### References



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