Mystery Case Solved

A patient with orthostatic hypotension refractory to standard medical treatment

By

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Three months ago, an elderly male patient came to the hospital with orthostatic hypotension. His supine blood pressure (BP) was 160/8mmHg and his standing BP was 80/45mmHg. The patient was started on midodrine 10mg TID and fludrocortisoneacetate. He felt less dizzy even the BP still decreased to 110/80 on standing. He was sent home because he became asymptomatic with mild to moderate orthostatic hypotension. However, today he came back to the emergency room with syncope. He was taking faithfully his midodrine andfludrocortisoneacetate. All other tests showed no abnormalities. An ultrasound of the femoral vein showed normal size femoral artery while the femoral vein was very small. (Figure 1) However, with cough, the size of the femoral vein became much larger (almost 10 times of the baseline). (Figure 2) The result explains that the patient is not overloaded with fluid while on fludrocortisoneacetate. Also midodrine did not cause vasoconstriction in the veins of this patient. The maximal expansion of the vein upon cough showed that the capacitance of the venous system is huge and this is the mechanism of severe venous pooling upon standing. The only treatment in this case is for the patient to wear thigh high stocking, which is a little odd for men in the Midwest.

The use of ultrasound to look at the size of the femoral vein and its expansion upon cough is a new application of an old technique. It was never published before. This is a first in man (FIM) application.

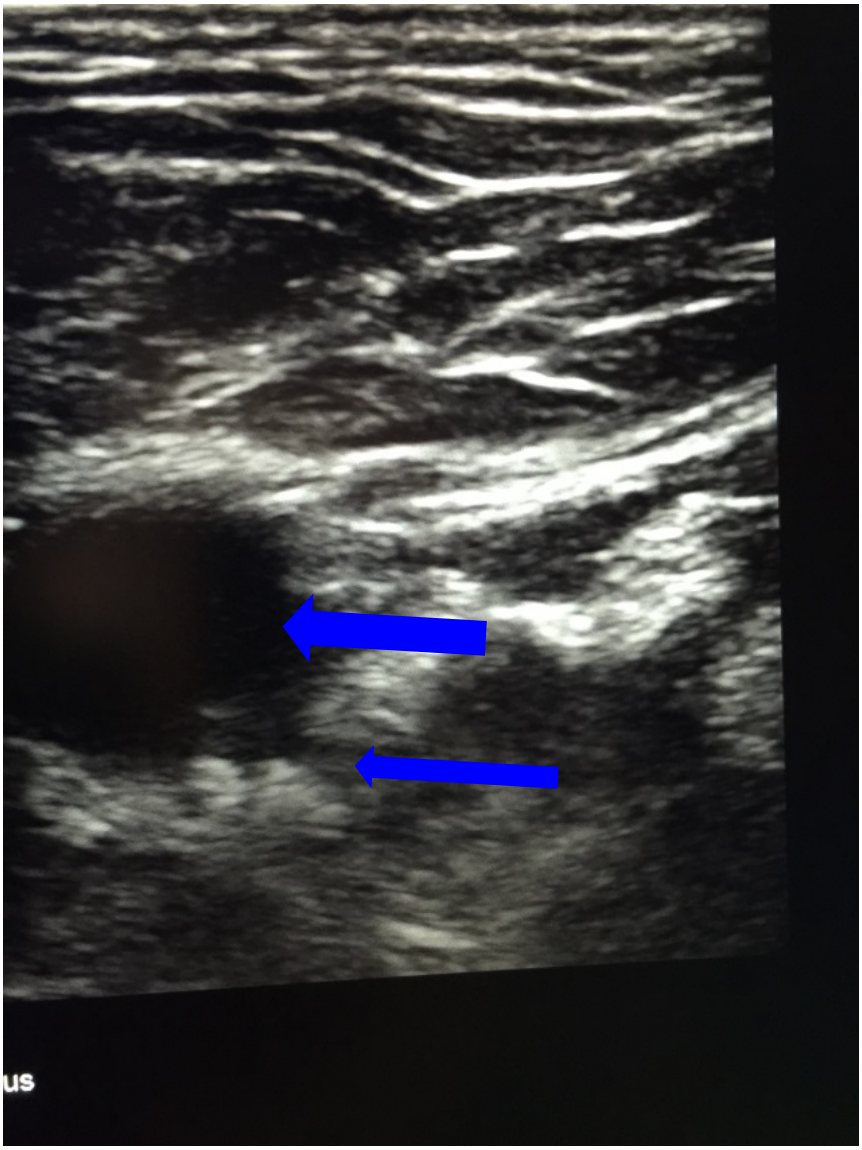

Figure 1. The femoral artery is seen in a round shape in its transverse plane. (large arrow) The vein is seen as a tiny line below the artery (small arrow).

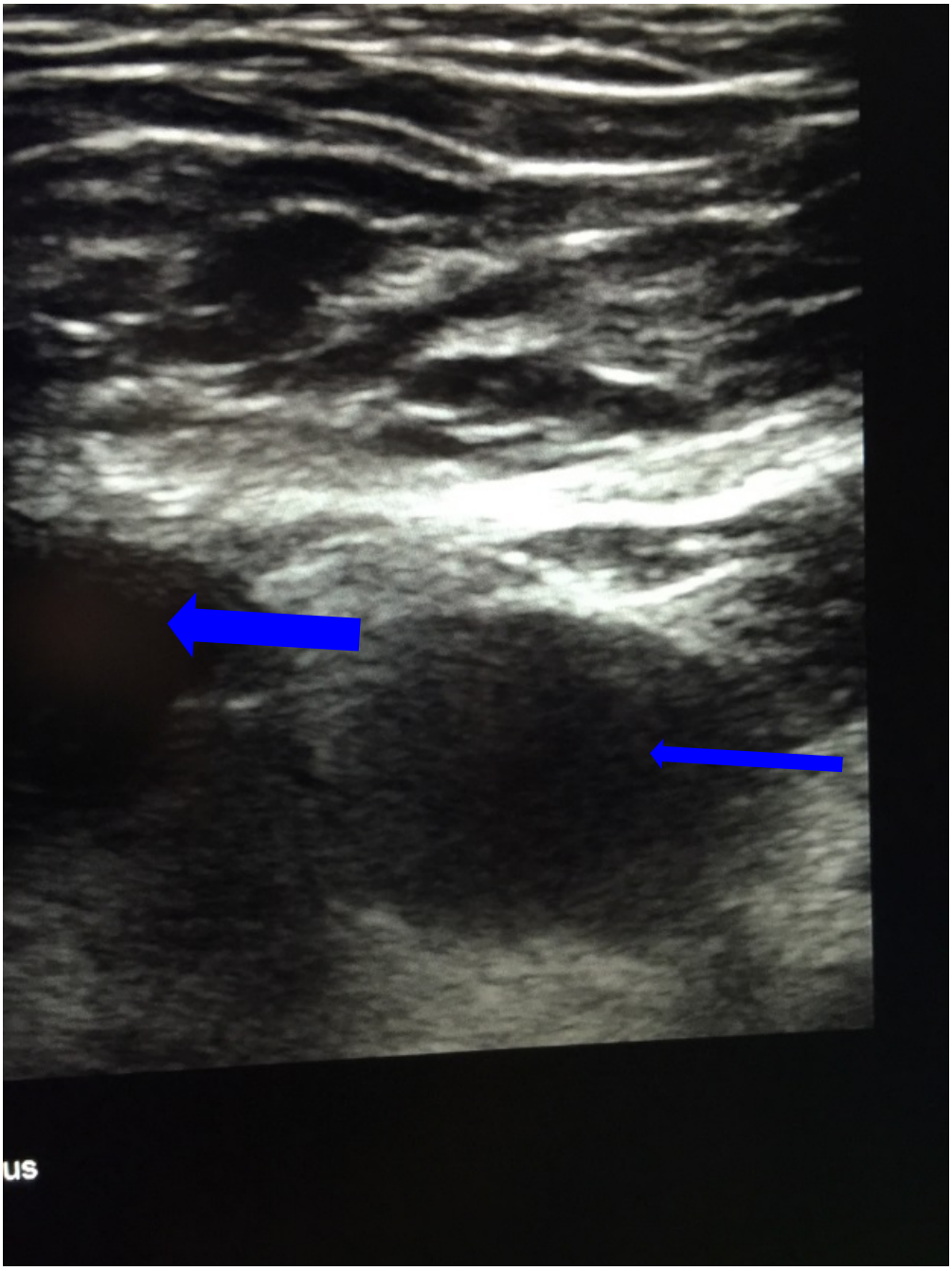

Figure 2. Upon coughing, the vein became a huge vein, pooling all the blood causing hypotension (Small arrow), This is the mechanism of orthostatic hypotension in this patient.