A 71-year-old woman with known diastolic congestive heart failure (CHF) presented to the ER with exacerbation of CHF and a decreased level of consciousness.
Brachial blood pressure (BP) was measured at 55/40 mmHg.
The patient had four recent admissions with exacerbation of CHF.
Her medical history was also significant for autoimmune hepatitis, but preserved liver function; esophageal varices with a bleeding episode; and long-term corticosteroid therapy complicated by adrenal insufficiency, type 2 diabetes mellitus and osteoporosis.
Recent echocardiography had revealed moderate concentric left ventricular hypertrophy with diastolic dysfunction, and mild to moderate mitral regurgitation.
Cardiac catheterization in a recent admission demonstrated 50% stenosis in the second diagonal artery, with mild diffuse disease in the other coronary arteries.
Right ventricular endomyocardial biopsy had ruled out myocarditis and infiltrative cardiomyopathies, but healing ischemic microinfarcts with atheroemboli were observed.
Previous BP values were also low; systolic BP was between 60 mmHg and 65 mmHg, and diastolic BP was between 40 mmHg and 45 mmHg.
Following intubation, dopamine was started for hypotension management and was later replaced with noradrenaline.
The patient developed atrial flutter but successfully converted to sinus rhythm with two direct current electric shocks.
Cardiology consultation resulted in admission to the coronary care unit (CCU).
On admission to the CCU, BP was measured at 56/36 mmHg in the left arm but was not detectable in the right arm.
An arterial line was inserted via the femoral artery, and BP was measured at 191/92 mmHg.
BP values were consistently much higher through the femoral arterial line than the cuff on the arms, and was higher in the left arm than in the right arm.
For instance, on the first day post-CCU admission, BP at one point was measured at 170/80 mmHg through the arterial line, while cuff readings on the arms were 83/74 mmHg on the left and 60/39 mmHg on the right arm.
To investigate the inconsistency between brachial and femoral BP values, a computed tomography (CT) scan of the thorax was obtained using 1.25 mm slices, both before and after intravenous contrast injection with sagittal and coronal planar reformatting of maximum-intensity projection images.
Analysis of the initial unenhanced CT images showed densely calcified plaque or thrombus at the origins of both subclavian arteries and the right common carotid artery.
The CT angiogram showed absence of flow in the right subclavian artery, a very tight stenosis at the origin of the left subclavian artery and a tight stenosis at the origin of the right common carotid artery.
Both vertebral arteries showed normal calibre and flow (Figure 1).
Further management following the insertion of the femoral arterial line was based on femoral BP readings with diuretics and BP-lowering agents.
The patient was eventually discharged in stable condition.
She remained stable during the eight months between discharge and the time the present report was written, without further exacerbation of CHF or related ER visits.