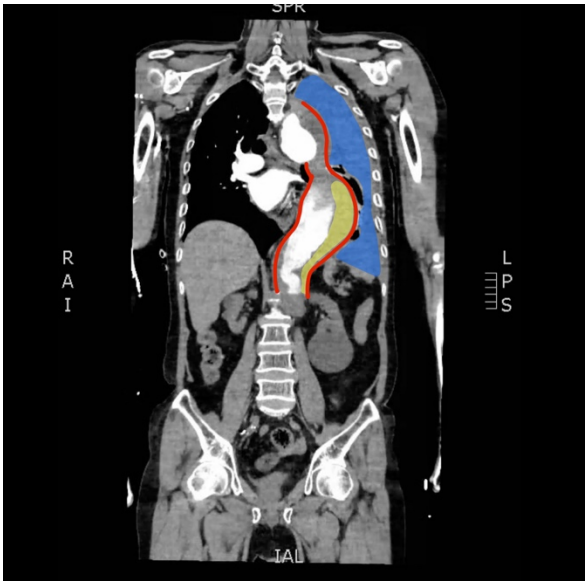
Intramural Hematoma with Type B Aortic Dissection

Ronald Goubert, BS*, Robert Rowe, MD* and Alisa Wray, MD, MAEd*

*University of California, Irvine, Department of Emergency Medicine, Orange, CA

Correspondence should be addressed to Alisa Wray, MD, MAEd at awray@uci.edu

Submitted: August 20, 2018; Accepted: October 8, 2018; Electronically Published: January 15, 2019; https://doi.org/10.21980/J81M03



Coronal CT Video Link: https://youtu.be/-pPkOXvz65Y

History of present illness: An 81-year old male with known history of proximal descending thoracoabdominal aneurysm presented with shortness of breath, abdominal pain, worsening back pain, and progressive lethargy. The aneurysm had increased in size from 6 cm to 9 cm over the past year and was being closely followed.

Significant findings: Computed tomography angiography of the chest and abdomen revealed a 9.5 cm thoracoabdominal aneurysm (red outline) with intramural hematoma (yellow shading) and large left pleural effusion versus hemothorax with old blood (blue shading).

Discussion: Acute aortic syndromes (AAS) are a set of highly morbid conditions of the aorta that include aortic dissection, penetrating atherosclerotic ulcer (PAU), and intramural hematoma (IMH).[1-5] Aortic dissection accounts for 85-95% of all AAS and occurs when there is a lesion of the tunica intima, allowing blood to flow between the layers of the vessel and forcing them apart.[1,4] Stanford type A lesions are confined to the ascending aorta and require immediate aggressive open surgery due to high mortality (26%-58%), whereas

Stanford type B lesions occur in the descending aorta and can be managed medically or through thoracic endovascular aortic repair (TEVAR).[1,3,4]

The mainstay of medical treatment in patients with an acute aortic dissection is blood pressure control to less than 120 mm Hg systolic and heart rate control to less than 60 beats per minute.[3,6] It is recommended that initial hemodynamic control is attained by use of beta blockers to decrease the force of left ventricular ejection.[3,6] If further control is needed, vasodilators such as nitroprusside can be used but should not be given until after beta blockers to limit aortic wall stress and reflex tachycardia.[3,6] AAS should be considered in all patients presenting with severe chest or back pain and hypertension. Chest or back pain has been reported in more than 80% of patients found to have AAS, whereas pulse deficits are found in 30% of patients.[1,3,6] Another common symptom of AAS is syncope, which has been found in 13% of patients.[3,6] The most common risk factors for AAS include hypertension and atherosclerosis.[1,3-4] The preferred diagnosis method of AAS is CT with a sensitivity and specificity of 100%, or MRI with a sensitivity of 95%-100% and specificity of 94%-98%.[3] Currently, there are no biomarkers to aid in the diagnosis of AAS.[6] D-dimer has been found to have a sensitivity of 51.7% to 100.0% and a specificity of 32.8% to 89.2% at a cutoff level of 0.5 μg/mL in patients with AAS, but further trials are needed to assess its utility.

In this case, after consultation with vascular surgery and radiology, it was determined the patient would need extensive debranching open procedure. Patient and family declined and opted for medical management and was transferred to the intensive care unit where he later passed away.

Topics: Acute aortic syndrome, intramural hematoma, aortic dissection, hemothorax.

References:

1. Alomari IB, Hamirani YS, Madera G, Tabe C, Akhtar N, Raizada V. Acute intramural hematoma and its complications. *Circulation*. 2014;129(6):711-716. doi: 10.1161/CIRCULATIONAHA.113.001809
2. Evangelista A, Mukherjee D, Mehta RH, et al. Acute intramural hematoma of the aorta: a mystery in evolution. *Circulation.* 2005;111(8):1063-1070. doi: 10.1161/01.CIR.0000156444.26393.80
3. Mussa FF, Horton JD, Moridzadeh R, Nicholson J, Trimarchi S, Eagle KA. Acute aortic dissection and intramural hematoma: a systematic review. *JAMA*. 2016;316(7):754-763. doi: 10.1001/jama.2016.10026
4. Saborio DV, Sadeghi A, Burack JH, et al. Management of intramural hematoma of the ascending aorta and aortic arch: the risks of limited surgery. *Tex Heart Inst J*. 2003;30(4):325-327.
5. Song JK. Diagnosis of aortic intramural hematoma. *Heart.* 2004;90(4):368-367. doi: 10.1136/hrt.2003.027607
6. Tsai TT, Nienaber CA, Eagle KA. Acute aortic syndromes. *Circulation*. 2005;112(24):3802-3813. doi: 10.1161/CIRCULATIONAHA.105.534198