

Asymptomatic Stanford Type A Aortic Dissection

Jessica Debs, PA-S, Susan McDiarmid, EdD, MS, PA-C

Westfield State University
Physician Assistant Program



Case

A 62-year-old male with a past medical history of aortic root dilation, hypertension, PVCs, hyperlipidemia, GERD, obesity, urinary retention, bipolar depression, and a positive family history of aortic dissection resulting in death, presents to the Hartford Hospital Emergency Department from his home for an abnormal finding on CT scan, which was concerning for Stanford type A dissection. The patient stated that he underwent a CT scan outpatient for evaluation of another cardiac condition (PVCs). He then received an urgent call from his cardiologist, referring him emergently to the ED for a possible aortic dissection. Upon arrival to the ED, the patient denied chest pain, dyspnea, or syncope episodes.

Physical Exam

Constitutional – Well appearing, no acute distress
Head – Atraumatic, normocephalic
Neck – No midline shift, C spine held in passive position
Skin – Pink and dry, no lacerations
Cardiovascular – Regular rate and rhythm
Respiratory – Bilateral chest rise and fall with even respirations, breathing non-labored on room air, lungs clear to auscultation bilaterally
Abd – Soft, nondistended, nontender
MSK – No deformity, no unilateral leg swelling
Neuro – Alert and oriented to person, place, and time, able to follow commands, gross motor intact moving all extremities

Vitals	
Blood Pressure	229/109 (MAP 114)
Pulse	67
SPO2	100%
Respirations	20
Repeat Vitals 15:17 (after administration of esmolol and nicardipine)	Bp - 126/60 (MAP 82) Pulse - 63 SPO2 - 96% Respirations - 18

Diagnostics

- **Laboratories**
 - CBC and CMP were unremarkable.
 - High-sensitivity troponin was slightly elevated at 13.
 - Prothrombin (10.9), INR (1.0).
- **CT Findings**
 - "Ascending aortic dissection with a dissection flap originating distal to the sinotubular junction and terminating in the common brachiocephalic trunk."

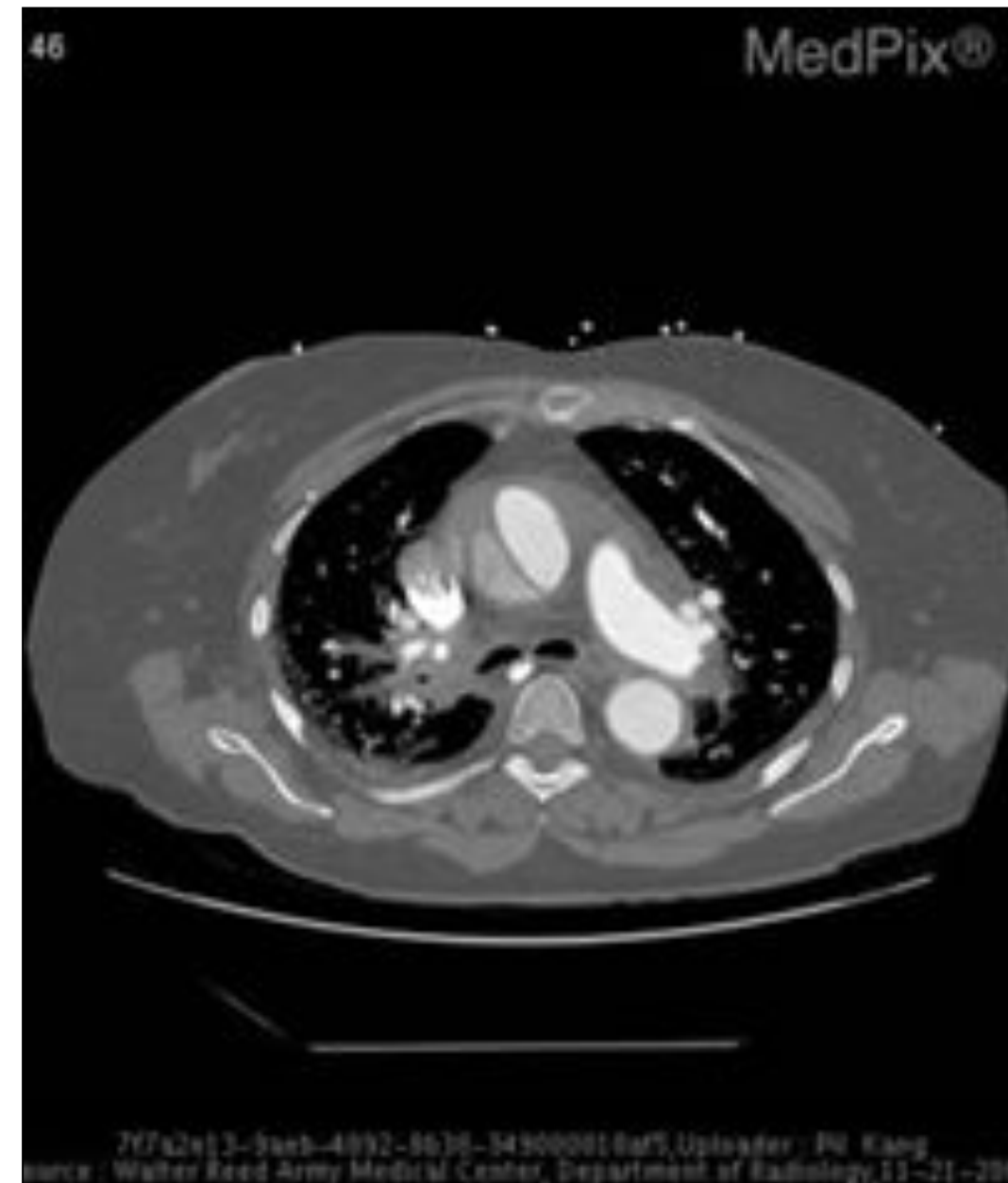


Figure 1. Stanford Type A Aortic Dissection on Axial CT. A multiple axial CT completed with IV contrast of a Stanford Type A aortic dissection. An intimal flap can be visualized separating the true lumen of the ascending aorta from the false lumen.¹

Treatment

- The patient received Esmolol and Nicardipine on arrival to the Emergency Department.
- Cardiology was promptly consulted.
- **Operative Repairs:**
 - Repair of the ascending aorta took place using a #26 Gelweave graft.
 - A semi-arch replacement was completed using moderate hypothermia and retrograde cerebral perfusion.
 - Resuspension of the aortic valve.
 - Intraoperative TEE.
 - A right axillary artery cannulation was completed using a 20 Fr.
- **Intraoperative Findings:**
 - Ascending aortic aneurysm with a thrombosed false lumen with chronic inflammation.
 - The aortic valve was found to be competent.
 - There was an intimal tear in the mid ascending aorta, proximal to the aortic arch.
- **Post Operative Day 1:**
 - Pain adequately controlled with Tylenol.
 - The patient was able to transfer to a chair and ambulate.

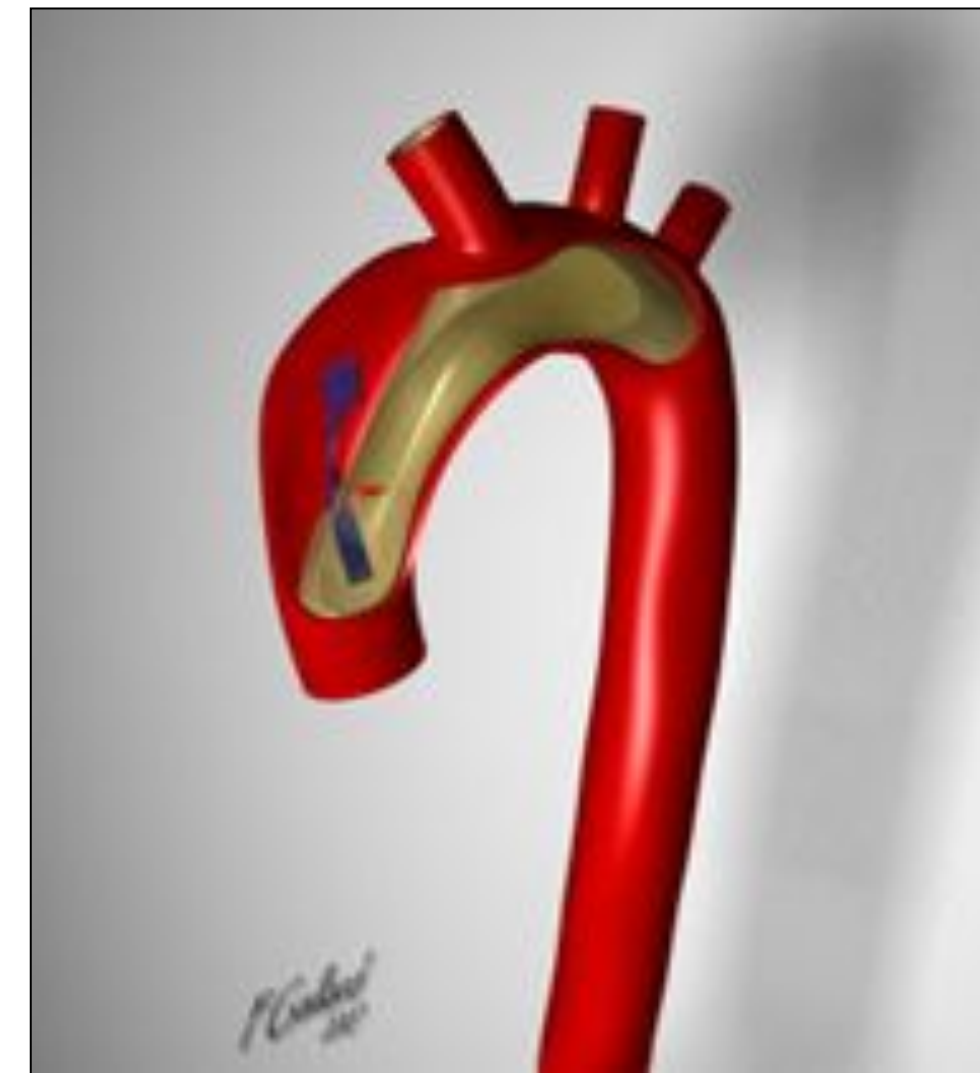


Figure 2. Blood Flow into False Lumen in DeBakey Type II Aortic Dissection. Public domain illustration by Frank Gaillard.²

Discussion

An acute aortic dissection is a life-threatening emergency with a high mortality rate. It is defined by degeneration and tearing of the aortic media, resulting in a false lumen. Using the Stanford classification system, two main types of aortic dissections are identified. Type A dissections originate in the ascending aorta, occurring proximal to the brachiocephalic artery, and can include the aortic arch and descending aorta. Type B dissections involve the descending aorta, commonly occurring distal to the left subclavian artery.

Hypertension is the greatest risk factor for aortic dissection.³ Other risk factors include a positive family history, connective tissue diseases such as Marfan syndrome, and atherosclerosis.³ If not treated, aortic dissection can result in life-threatening complications such as multiorgan failure, aortic rupture, myocardial infarction, renal failure, stroke, tamponade, and death. These complications are more likely in patients who did not receive surgical management.⁴

Prompt recognition of a surgical emergency and control of hypertension are essential for treatment. Aortic dissections typically present with symptoms such as abrupt tearing chest pain or back pain, abdominal pain, shortness of breath, and loss of consciousness.³ In some cases, patients present atypically; this makes up 5% of acute dissection cases and often results in a negative outcome due to delayed recognition.⁵

When aortic dissection is suspected, CT remains the gold standard for diagnosis. Appearance of an intimal flap, which separates the true lumen of the aorta from the false lumen, is

indicative of dissection.³ Patients may also present with nonspecific ST-segment and T-wave changes on ECG.⁶ Prior to surgery, the patient should receive analgesia, heart rate, and blood pressure control. First-line therapy is beta blockers such as **Esmolol** or **Labetalol**.⁷ Beta blockers are beneficial because they decrease aortic wall stress by lowering both heart rate and blood pressure.⁶ The target blood pressure is 100–120 systolic, and the target heart rate is less than 60 bpm.⁶ Additional therapies such as Nicardipine or Nitroprusside can be added if hypertension persists.⁷ Finally, emergent surgical correction remains the superior treatment modality. One recent cohort study found that mortality rates increased to 0.5% per hour during the initial 48 hours in nonoperative patients, compared to 0.09% per hour in the operative population.⁴

Conclusion

It is rare to encounter an asymptomatic patient with a Stanford type A aortic dissection, but this does not mean it should be excluded from the differential. Patients with a history of aortic root dilation or aneurysm should be regularly monitored for change over time. The ACC/AHA recommends that non-syndromic heritable thoracic aortic disease patients be recommended for surgical repair if the diameter of the aneurysm reaches equal to or greater than 5.0 cm, or equal to or greater than 4.5 cm if there is a pertinent family history of dissection, or mortality under the age of 50. They also recommend surgical repair if there is the presence of rapid growth of the aorta. Proper screening and early repair can prevent dissection from ever occurring.⁸ In this patient's case, prompt outpatient recognition, appropriate patient education, and urgent referral to the Emergency Department allowed for quick recognition and prompt treatment of a medical emergency.

References

1. MedPix®. Image ID: synpic22168. National Library of Medicine. Accessed August 14, 2025. <https://d2rhm59k9u0hrr.cloudfront.net/medpix/img/full/synpic22168.jpg>
2. Gaillard F. Aortic dissection. *Radiopaedia.org*. Accessed August 14, 2025. https://prod-images-static.radiopaedia.org/images/927/5b33830d2c371ff479c5b7082c0fe1_big_gallery.jpeg
3. Sayed A, Munir M, Bahbah EI. Aortic dissection: a review of the pathophysiology, management and prospective advances. *Curr Cardiol Rev*.
4. Harris KM, Nienaber CA, Peterson MD, et al. Early Mortality in Type A Acute Aortic Dissection: Insights From the International Registry of Acute Aortic Dissection. *JAMA Cardiol*. 2022;7(10):1009-1015. doi:10.1001/jamacardio.2022.2718. PMID: 36001309; PMCID: PMC94038532021;17(4):e230421186875. doi:10.2174/1573403X16666201014142930
5. Becerra-Gonzales VG, Calfa M, Sancassani R. Painless type A aortic dissection. *BMJ Case Rep*. 2020;13(5):e234831. doi:10.1136/bcr-2020-234831
6. Chukwu M, Ehsan P, Aburumman RN, et al. Acute Stanford Type A Aortic Dissection: A Review of Risk Factors and Outcomes. *Cureus*. 2023;15(3):e36301. doi:10.7759/cureus.36301. PMID: 37077590; PMCID: PMC10108894
7. Isselbacher EM, Preventza O, Black JH III, et al. 2022 ACC/AHA guideline for the diagnosis and management of aortic disease: a report of the American Heart Association/American College of Cardiology Joint Committee on Clinical Practice Guidelines. *Circulation*. 2022;146(24):e334-e482. doi:10.1161/CIR.0000000000001106
8. 2022 ACC/AHA Aortic Disease Guideline Key Perspectives: Part 2 of 2. American College of Cardiology. Accessed August 14, 2025. <https://www.acc.org/latest-in-cardiology/articles/2022/11/01/12/21/2022-guideline-on-aortic-disease-2-gl-pers>