

# Isolated Leg Pain and Paralysis: Following the Course of Aortic Dissection

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## Introduction

This case describes an elderly patient who presented as a stroke alert for right lower extremity paralysis. The patient was found to have an extensive aortic dissection extending from the aortic valve to the right common iliac artery. This case is a notable reminder that an aortic dissection can present without classic signs or symptoms.

## Presentation and History

**Chief Complaint:** Right lower extremity paralysis

**History of Present Illness:** 71 year old African American female presented to ED as a haste call of stroke alert. Patient reported right lower extremity paralysis and numbness from the knee down that started 30 minutes prior to arrival that was described as painful. EMS also reported a right-sided facial droop. She denied any chest pain, shortness of breath, nausea, vomiting, fever, chills, abdominal pain, headache, dizziness or trauma.

**PMH:** Hypertension, Hyperlipidemia, TIA x 2, Hypothyroidism, Laryngeal cancer, Atrial fibrillation, GI bleed (while on warfarin)

**PSH:** Partial laryngectomy, tracheostomy

**Social:** Former tobacco smoker

**Medications:** aspirin, "blood pressure med", levothyroxine, "statin"

**Allergies:** No known allergies

**Vital signs:** 124/70 (LUE) 134/74 (RUE) HR 69 RR 18  
Temp 97.6°F 96% RA BG 89

**Physical exam:**

**General:** AAO x 3; apparent discomfort due to pain in RLE

**HEENT:** pupils 2mm equally reactive bilaterally

**Cardio:** +S1, S2. RRR. no murmurs

**Resp:** CTA bilaterally

**Abd:** non-tender, non-distended. (+) BS. no bruits

**Neuro:**

- Mild right sided facial droop; left tongue deviation
- RLE decreased sensation circumferentially from the knee distally including toes; unable to actively move at right knee, ankle or toes
- Left lower extremity motor and sensory intact
- Normal mental status. No difficulty forming thoughts or with word finding.
- NIH Stroke Scale: 9

**Extremities:** posterior tibial and pedal pulses 2+ bilaterally

## Differential Diagnosis

**Neuro:**

- TIA/CVA
- Intracerebral Hemorrhage
- Mononeuropathy: Entrapment/Compression
- Spinal Cord Compression
- Guillain-Barre Syndrome
- Transverse Myelitis

**Vascular**

- Arterial Thrombus/Embolus
- Aortic Dissection
- Deep Venous Thrombosis
- Vasculitis
- Atherosclerotic Disease
- Compartment Syndrome

**Cardiac**

- Acute Coronary Syndrome
- Myocardial Infarction

**Metabolic**

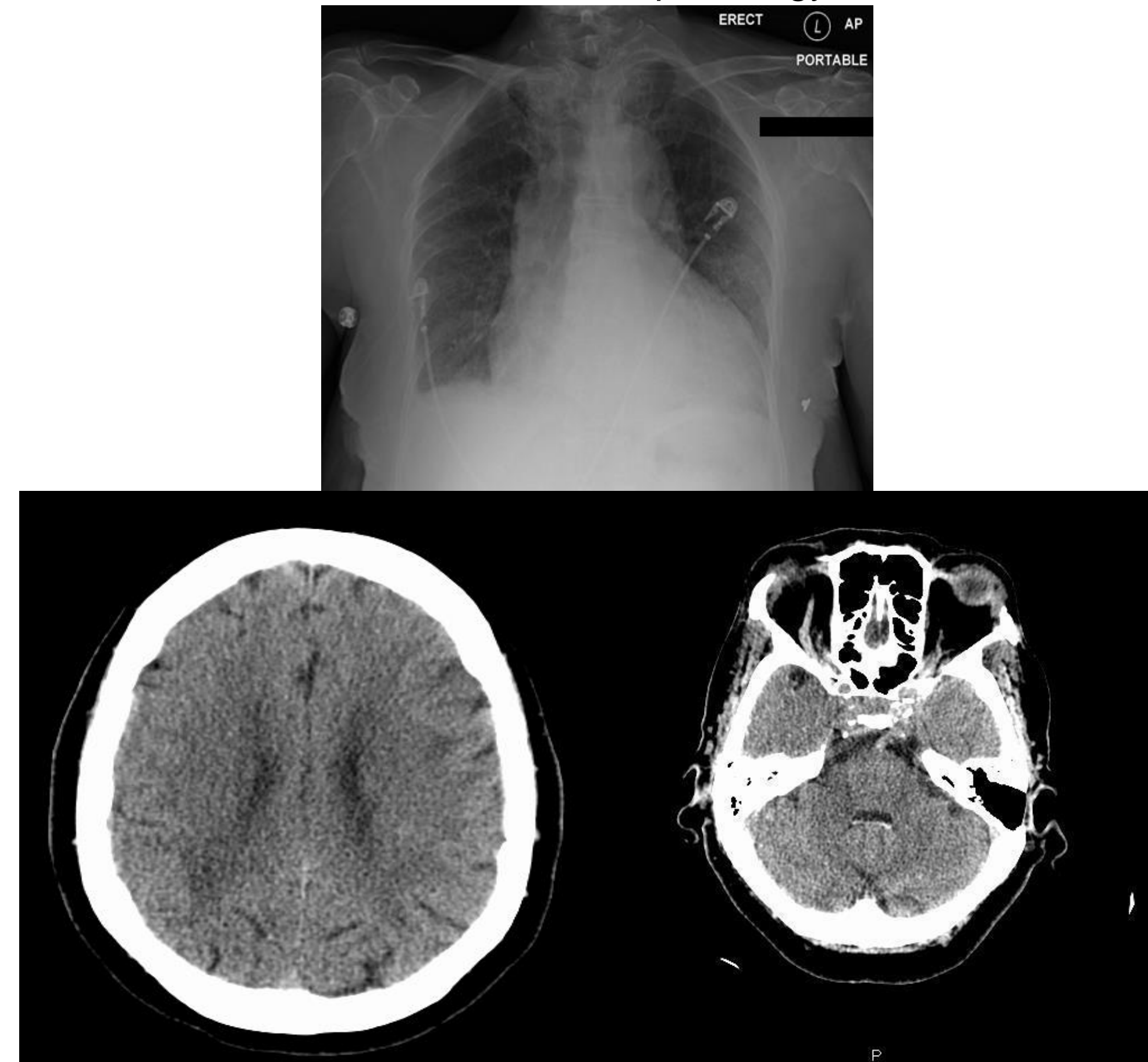
- B12/Folate Deficiency
- Hypokalemia

**Endocrine**

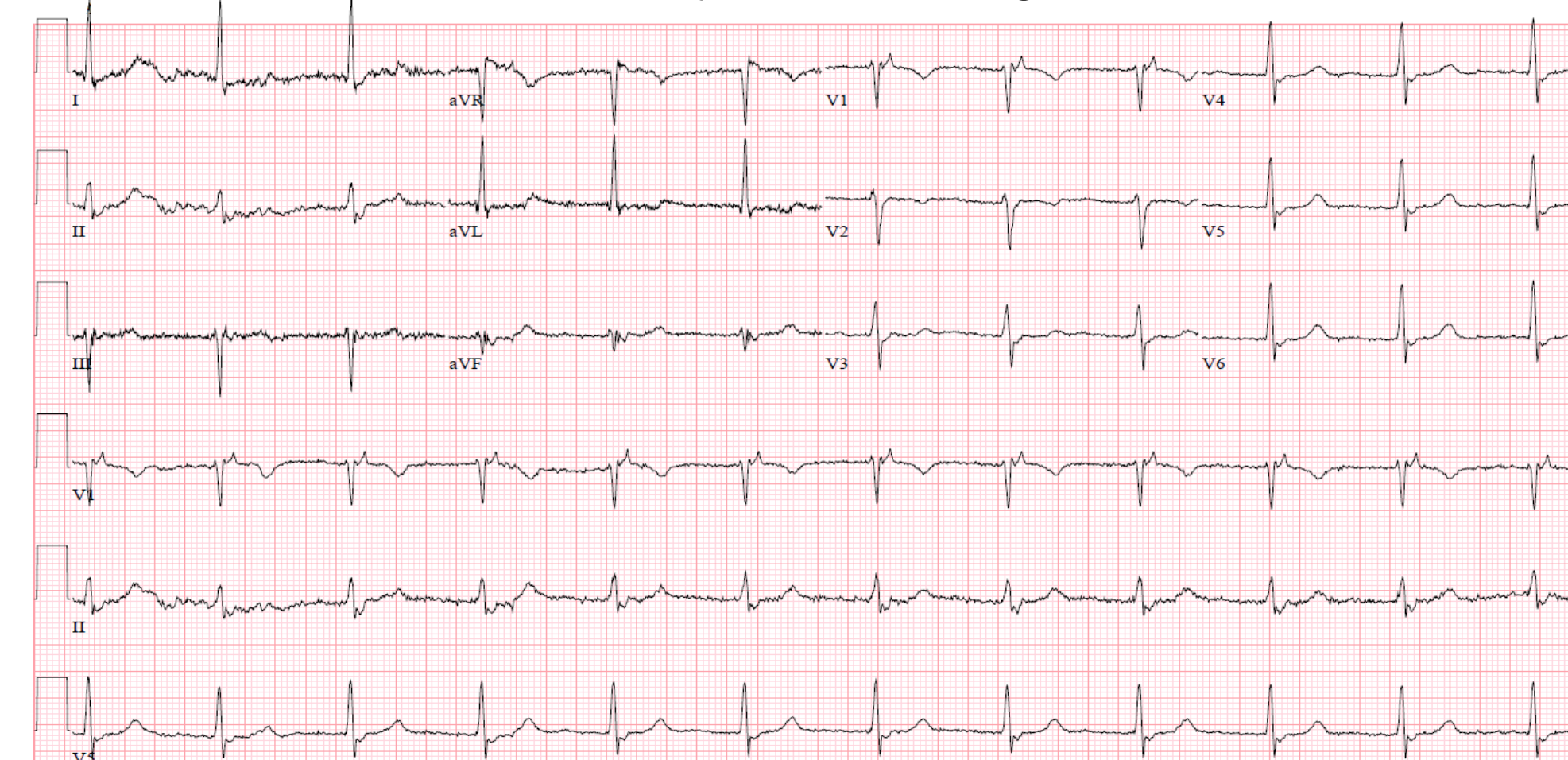
- Severe Hypothyroidism

## ED Course and Investigations

Stroke Alert was called after patient arrival. Teleneurology evaluated the patient as per hospital protocol. CT Brain and CXR were unremarkable for acute pathology.



EKG did not demonstrate any acute changes.

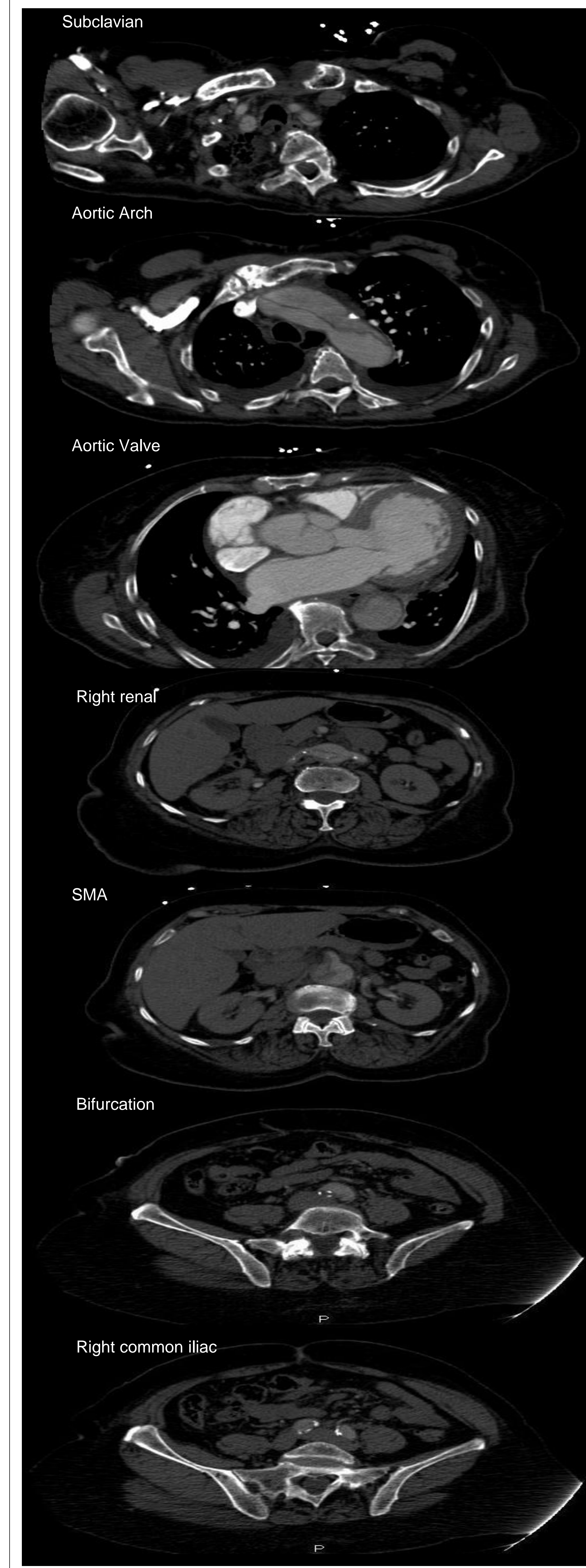


Laboratory data

143	107	14	97	13.4	ESR 1
3.9	28	0.9	7.8	286	Trop 0.06
			41.7		Fibrinogen 361 (nl)
Ca 8.1					INR 1.2
Tprot 6.8					Serum alcohol negative
Alb 3.6					
AST 17					
ALT 25					
AlkPhos 82					

The pain accompanying the patient's numbness and loss of motor function were not typical of a stroke and raised suspicion for a non-cerebral vascular lesion. CTA Chest/Abdomen/Pelvis revealed an extensive Type A aortic dissection, as high as the right carotid artery, with involvement of the right common iliac artery, causing the patient's symptoms.

Due to the aortic valve involvement, the patient was transferred to a facility capable of open heart surgery. The patient had a modest return of RLE motor and sensory at the time of transfer. Her BP and HR remained stable during her ED stay until the time of transfer, when a nitroprusside drip was started by the transfer team. The accepting hospital was contacted a few days later for follow up and relayed that the patient had expired.



## Background Information

Aortic dissection is a process of serious consequence that emergency physicians must always remember to consider. It is a relatively uncommon illness, with an incidence estimated from 2.6 to 3.5 per 100,000 person-years. A dissection begins with a tear in the aortic intima that is propagated by blood flow, creating a false lumen.

Classically, patients describe severe, tearing chest pain with radiation to back, abdomen or other locations depending on site of dissection. With ascending aorta involvement, signs such as aortic valvular regurgitation, acute MI, tamponade, or neurological deficits from involvement of carotids can be seen. Descending aortic dissection can lead to splanchnic, renal or lower extremity ischemia and focal neurological deficits from arterial and spinal cord involvement. Elderly patients, over 70 years old, are less likely to have abrupt onset of pain, pulses deficits or aortic regurgitation murmur at presentation.

CTA is the imaging modality of choice. Treatment is aimed at lowering shearing forces on the dissection by reduction of blood pressure and heart rate. Intravenous infusion of beta-blockers are started initially, with nitroprusside added if blood pressure remains elevated. The goals are HR<60 and SBP 100-120. Definitive treatment for ascending dissections is surgical.

## Discussion

This patient was a noteworthy case as she lacked any of the typical features of aortic dissection. She did not have sudden onset of severe, tearing chest pain. Her mediastinum was not widened on chest X-ray. There was no variance in pulse or blood pressure. Upon literature review, this presentation is indeed a known phenomenon, but rather extraordinary, only occurring in 4% of aortic dissections. Elderly patients are more likely to have such atypical presentation. One research study has attempted to assist recall of this anomalous presentation with the acronym: ILEAD (Ischemia of the Lower Extremities due to Aortic Dissection). The crucial point for this diagnosis is to never forget that initial presentation can be misleading and if not recognized, can lead to catastrophic consequences.

## References

1. von Kodolitsch Y, Schwartz AG, Nienaber CA. Clinical prediction of acute aortic dissection. Arch Intern Med. 2000;160(19):2977
2. Mehta RH, O'Gara PT, Bossone E, Nienaber CA, Myrmet T, Cooper JV, Smith DE, Armstrong WF, Isselbacher EM, Pape LA, Eagle KA, Gilon D, International Registry of Acute Aortic Dissection (IRAD) Investigators. Acute type A aortic dissection in the elderly: clinical characteristics, management, and outcomes in the current era. J Am Coll Cardiol. 2002;40(4):685.
3. Marcantonio, D, Suri, P, Coleman, K, Taruna, A. Aortic Dissection presenting as isolated lower limb ischemia. Journal of Emergency Medicine. 2012 April; 42(4): 406-8.
4. Chih-Hsien, Lee, Cheng-His, Chang, Yi-Ting Tsai, Ching-Wen-Wu. Isolated lower limb ischaemia as an unusual presenting symptom of aortic dissection. Cardiovascular Journal of Africa. 2012 August; 23(7): e13-14.
5. Pacifico, L, Spodick, D. ILEAD—ischemia of the lower extremities due to aortic dissection: the isolated presentation. Clinical Cardiology. 1999 May;22(5):353-6.
6. Mészáros I, Mórocz J, Szlávi J, Schmidt J, Tornóci L, Nagy L, Szép L. Epidemiology and clinicopathology of aortic dissection. Chest. 2000;117(5):1271.
7. Clouse WD, Hallett JW Jr, Schaff HV, Spittell PC, Rowland CM, Ilstrup DM, Melton LJ 3rd. Acute aortic dissection: population-based incidence compared with degenerative aortic aneurysm rupture. Mayo Clin Proc. 2004;79(2):176.
8. Hagan PG, Nienaber CA, Isselbacher EM, Bruckman D, Karavite DJ, Russman PL, Evangelista A, Fattori R, Suzuki T, Oh JK, Moore AG, Malouf JF, Pape LA, Garcia C, Sechtem U, Lenterink S, Deutsch HJ, Diederichs H, Marcos y Robles J, Llovet A, Gilon D, Das SK, Armstrong WF, Deeb GM, Eagle KA. The International Registry of Acute Aortic Dissection (IRAD): new insights into an old disease. JAMA. 2000;283(7):897
9. Johnson, Gary A, Prince, Louise A. Aortic Dissection and Related Aortic Syndromes. In Tintinalli JE, Stapczynski J, Ma O, Cline DM, Cydulka RK, Meckler GD, T, eds. Tintinalli's Emergency Medicine: A Comprehensive Study Guide. New York, NY: McGraw-Hill; 2011.