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An Alleged Sepsis Syndrome turned out to be Aortic Dissection

Rozita Khodashahi[1] and Hamid Reza Naderi[1*]

[1]Department of Infectious Diseases, Mashhad University of Medical Sciences, Mashhad, Iran.

Authors' contributions

This work was carried out in collaboration between both authors. Both authors wrote the draft of the manuscript. Author RK managed the literature searches. Author HRN designed the figure, managed literature searches and contributed to the correction of the draft. Author RK provided the case and the figure. Author HRN supervised the work. Both authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Aortic dissection is an emergency condition in which there is a tear in the wall of the major artery carrying blood from the heart. As the tear extends along the wall of the aorta, blood flows within the layers of the vessel, and leads to aortic rupture or decreases perfusion in other vital organs. Acute aortic dissection might be associated with higher mortality rates and usually represents a medical emergency. In this case we described aortic dissection in a 68 year old man, with clinical presentation of high grade fever, confusion, dyspnea and hypertension and initially misdiagnosed as sepsis syndrome.
Notably, a high index of suspicion is required to diagnose aortic dissection and it is more challenging in elderly patients, referred to atypical symptoms and various underlying organ dysfunctions.

Keywords: Aortic dissection; fever; dyspnea; sepsis syndrome.

**Corresponding author: E-mail: naderihr@mums.ac.ir;*

ABBREVIATIONS

ASA= Aspirin Acetylsalicylic Acid; AV= Aortic valve; CTAA= Computerized tomography aortic angiogram; CTPA= Computerized tomography pulmonary angiogram; CVA= Cerebrovascular accident; ECG= Electrocardiogram; LV= Left ventricle; LVEF= Left ventricle ejection fraction; LVH= Left ventricle hypertension; MV= Mitral valve; RV= Right ventricle; TEE= Transesophageal echocardiography; TNG= Trinitroglycerin; TTE= Transthoracic echocardiography; UTI= Urinary tract infection.

1. INTRODUCTION

Aortic dissection (AD) is most commonly described as a sudden, severe, knifelike "tearing pain radiating into the back" [1-3]. AD does not have a typical presentation in all cases. It may cause muscle pain or weakness, fainting, or even pain in the groin area accompanied by fever. Some patients with just a dull ache might misdiagnose as a musculoskeletal disorder in thorax, groin, or back [2]. Aortic dissection is painless in about 10% of patients and is more common in patients with neurologic complications or Marfan syndrome [4]. Neurologic deficits are chief compliant in 20% of cases which include hemianesthesia and hemiparesis or hemiplegia [3]. Approximately 5% of cases presented with syncope. Altered mental status is also reported. The main risk factors of aortic dissection are: aging, atherosclerosis, blunt chest trauma and high blood pressure [3]. Other conditions associated with aortic dissection include bicuspid aortic valve, coarctation of the aorta, connective tissue disorders (such as Marfan and Ehlers-Danlos syndromes), rare genetic disorders, previous cardiac surgery or procedures, pregnancy and blood vessels swelling in arthritis [1-3]. Hypertension may occur because of catecholamine release or essential hypertension. On the other hand, excessive vagal tone, cardiac tamponade, or hypovolemic shock due to rupture of the dissection might lead to hypotension [2,3]. High index of suspicion is required to diagnose aortic dissection and it can be more challenging in elderly patients, referred to atypical symptoms and various underlying organ dysfunctions. In this case we described aortic dissection in a 68 year old man, disease was presented with high grade fever, confusion, dyspnea and hypertension and initially misdiagnosed as sepsis syndrome.

2. CASE PRESENTATION

A 68 year old man was referred to the Emergency department of the Imam Reza teaching Hospital with persistent dry cough and dyspnea since 10 days ago. He became feverish the night before admission. The patient had been admitted to another hospital because of presumed UTI, 8 days ago. He also had a history of aortic dissection two years ago and underwent cardiac surgery and prosthetic aortic valve replacement. He had a CVA 2 days after surgery and became quadriplegic and bedridden. Warfarin, ASA, TNG, piracetam and carvedilol was administered to him after discharge.

The patient was confused during physical examination. His oral temperature, heart rate, respiratory rate and blood pressure were 38.8℃, 112 beats/min, 26/min and of 165/90mmHg, respectively. A holosystolic ejection murmur and a loud closing click were auscultated in cardiac examination. Fine crackles were heard throughout both lung bases.

During laboratory assessments, white blood cell count was in normal range with 84% neutrophil. Platelet count was (89×10^9/L). Hemoglobin level, electrolytes, creatine kinase, amylase, troponin, albumin, lactate dehydrogenase were in normal range. Blood cultures result was negative, ESR was 12 mm/h and CRP was 65 mg/L. ECG indicated no new changes in comparison with the previous ones.

The patient was admitted with suspicious of hospital acquired pneumonia or pulmonary emboli. So, Cefepime plus vancomycin were started for him. Portable chest radiography in supine position was performed and had no remarkable findings. Transesophageal echocardiography (TEE) was recommended to rule out the possibility of prosthetic valve endocarditis because of persistent fever and tachypnea but it was not possible due to the patient's confessional status and thrombocytopenia. So, TTE was done and showed normal LV size (LVEF=50-55%), no LVH, mild diastolic dysfunction (Grade=1), normal RV size with preserved systolic longitudinal function, a bileaflet AV mechanical prosthesis with acceptable hemodynamic study, no para valvular leakage and no obvious vegetation on AV and MV. The arch and

descending aorta were not evaluated in this echocardiography.

The antibiotic regimen was changed to ampicillin-sulbactam plus rifampin, and cefepime was discontinued. A Computerized tomography pulmonary angiogram (CTPA) was also performed to roll out pulmonary emboli. CTPA reported no sign of vessel occlusion or lung parenchymal involvement, it was suggestive of aortic dissection. CTAA revealed dissection of descending aorta and arch of aorta with extension to iliac arteries [Stanford type B (DeBakey type III)] (Fig. 1.). With this diagnose all antibiotics were discontinued and the patient was transferred to the cardiology department.

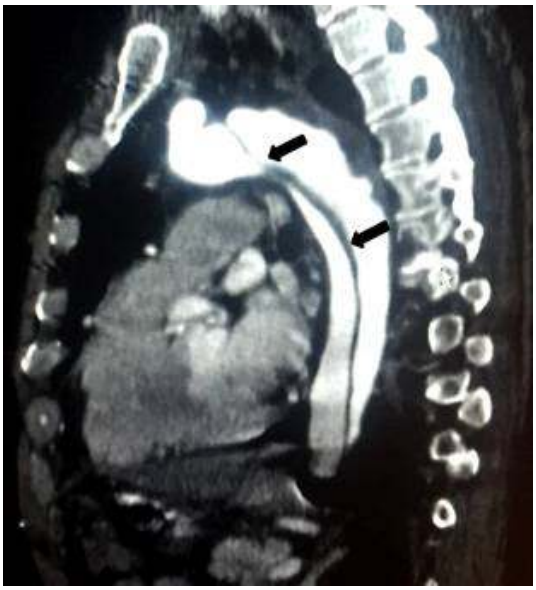

Fig. 1. CTA angiography shows the dissection of the descending thoracic aorta and arch of the aorta that extends to the distal parts (Arrows)

3. DISCUSSION

Our patient presented rare and unexpected manifestations of aortic dissection (high grade fever and dyspnea without chest pain). Because of the confusing clinical presentation, he initially was misdiagnosed as a case of pneumonia or pulmonary emboli.

The association between chronic aortic dissection and fever has been known for years, but very few studies showed the relation between fever and acute aortic dissection [5-7]. Theories regard the pathophysiology of inflammatory fever in acute aortic dissection has been proposed in previous literature [5]. However, none defined the clinical criteria for appropriate and early diagnosis in these patients [5,6].

Chronic aortic dissection presenting as a prolonged febrile syndrome is an uncommon condition. In a Spanish study, Gorospeet et al. reported a case of aortic dissection with persistent fever, malaise and night sweats [8]. These complaints may be followed by an increased erythrocyte sedimentation rate, leukocytosis, thrombocytosis and anemia of chronic disease [8]. Familiarity with aortic dissection`s atypical presentation, a high index of suspicion and adequate investigation using an appropriate imaging method will help to avoid missing this potentially lethal entity [8,9].

In a retrospective study in Spain five aortic dissection cases had fever within the first 48 hours and body temperature variability was significantly lower than patients with infectious diseases(P=.015) [7]. The fever disappeared after indomethacin administration [1,5,7]. A study in the Nottingham, Queen's Medical Centre showed that fever is not uncommon in aortic dissection [10,11]. Temperature greater than 37.7℃ was reported in 31% of patients and8% of patients had body temperature higher than 39℃. Generally, fever is rare as the predominant clinical finding except in a few cases [10,11]. Our patient had similar manifestation in the previous admission (Altered consciousness, tachycardia, tachypnea, no lekeucytosis, normal chest X-ray and negative culture results). His general condition did not improve after antibiotic therapy, also. So, aortic dissection had been misdiagnosed in the previous admission, too.

In a German study by Gaul et al. [12] 30 out of 102 patients (29%) had initial neurological symptoms. Aortic dissection might be missed in patients with neurological symptoms without pain. Neurological findings such as CVA in elderly hypertensive patients with cardiac murmurs are suggestive for dissection (12). These symptoms are not necessarily associated with an increased mortality rate [12,13]. Our patient's prior history of CVA and his confessional status made the situation more complicated.

The first diagnostic imaging modality that most physicians usually request is a chest X-ray in these cases and it is not accurate enough for aortic dissection diagnosis [14]. Widened mediastinum and visible outline of the false

lumen might be helpful [3,14]. The widened mediastinum was unreliable in our case, because it was performed by a portable machine in supine position. CT scan is an excellent modality for diagnosis and shows two lumens (true and false) created by an aortic dissection [15]. But while immediate intervention is required CT might be time consuming [14]. TEE is another accurate diagnostic method and is necessary in emergency cases [14]. TEE was not recommended for our patient because of thrombocytopenia and confessional status. Contrast-enhanced CT might be helpful in selected cases [16]. We actually requested CTPA to roll out pulmonary emboli. Nevertheless, it suggested aortic dissection and we performed CTAA that finally confirmed the diagnosis.

The risk of recurrent dissection is higher during the first 2 years after surgery and it may develop as an insidious disease. So, close follow-up is recommended in these patients every 6 months for the first 2 years, and yearly thereafter [9]. In our case, he had no postoperative follow-up within the past 2 years.

Without treatment, about 75% of people who have an aortic dissection die within the first 2 weeks [15,17]. The survival rate of aorta dissection with treatment is estimated about 70% for patients with dissections occur in the first part of the aorta and about 90% for those who have dissection in the parts farther from the heart. Patients with an aortic dissection should be admitted to an intensive care unit, where their vital signs are closely monitored [4]. Death can occur a few hours after an aortic dissection begins. Therefore, as soon as possible, drugs, usually nitroprusside plus a beta-blocker, should be administered intravenously to reduce the heart rate and blood pressure. Blood pressure should be maintained to the lowest level that can maintain a sufficient blood supply to the brain, heart, and kidneys [15,17]. This can help to reduce the spread of the dissection. As soon as possible the main treatment modality (surgical versus medical intervention) must be chosen [1,5]. Surgical repair is almost always recommended for dissections that involve the first few inches of the aorta, unless in high risk cases [4,18,19]. For dissections farther from the heart, drug therapy without surgery is the best choice [15,17]. However, surgery is necessary if the dissection causes blood leak or blocks the blood flow [10,13]. The presented case did not undergo surgery and he was discharged from the cardiology department with favorable general condition. He was advised to follow up closely with his cardiologist.

4. CONCLUSIONS

Aortic dissection is an emergent condition with considerable morbidity and mortality rate. The presentation of aortic dissection can be quite variable. High index of suspicion is required to diagnose aortic dissection and it is more challenging in elderly patients, because of atypical symptoms and various underlying diseases. Any signs of sudden chest pain, inexplicable back pain, tachyarrhythmia or neurological manifestations might be considered as probable aortic dissection manifestations.

CONSENT

Both authors declare that 'written informed consent was obtained from the patient for publication of this case report and accompanying image.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Ince H, Nienaber CA. Diagnosis and management of patients with aortic dissection. Heart. 2007;93:266-70.
2. Meszaros I, Morocz J, Szlavi J, Schmidt J, Tornoci L, Nagy L, Szep L. Epidemiology and clinicopathology of aortic dissection. Chest. 2000;117:1271–1278.
3. Isselbacher EM. Diseases of the aorta. In: Goldman L, Schafer AI, eds. Goldman's CecilMedicine. 24th ed. Philadelphia, PA: Saunders Elsevier; 2011: chap 78.
4. Hagan PG, Nienaber CA, Isselbacher EM, Bruckman D, Karavite DJ, Russman PL, et al. The International Registry of Acute Aortic Dissection (IRAD): New insights into an old disease. JAMA. 2000;283:897-903.
5. Shimada S, Nakamura H, Kurooka A, Nishioka N, Sugimura K, Ino H, et al. Fever associated with acute aortic dissection. Circ J. 2007;71:766-71.

6. McKeown PP, Campbell NP. Pyrexia of unknown origin and aortic dissection. Int J Cardiol. 1989;25:124–126.
7. García-Romo E, López-Medrano F, Llovet A, Lizasoain M, San Juan R, Aguado JM. Fever due to inflammation in acute aortic dissection: Description and proposals for diagnostic and therapeutic management. Unidad de Enfermedades Infecciosas, Hospital Universitario. 2010;63(5):602-6.
   DOI: 10.1016/S1885-5857(10)70123-7
8. Gorospe L, Sendino A, Pacheco R, Alonso A, Barbado FJ, Vázquez JJ. Chronic aortic dissection as a cause of fever of unknown origin. South Med J. 2002;95(9):1067-70.
9. Juang D, Braverman AC, EagleK. Cardiology patient pages. Aortic dissection. Circulation. 2008;118:e507–10.
10. Giladi M, Pines A, Averbuch M, Hershkoviz R, Sherez J, Levo Y. Aortic dissection manifested as fever of unknown origin. Cardiology. 1991;78:78–80.
11. Raza K, King P, Allison SP. Fever and back pain in aortic dissection. Postgrad Med J. 1999;75:51-52.
    DOI: 10.1136/pgmj.75.879.51
12. Gaul Ch, Dietrich W, Friedrich I, Sirch J, Erbguth FJ. Neurological symptoms in type A aortic dissections. Stroke. 2007;38:292-297.
13. Khan IA, Nair CK. Clinical, diagnostic, and management perspectives of aortic dissection. Chest. 2002;122:311–328.
14. Erbel R, Alfonso F, Boileau C, Dirsch O, Eber B, Haverich A, Rakowski H, Struyven J, Radegran K, Sechtem U, Taylor J, Zollikofer Ch. Diagnosis and management of aortic dissection. Recommendations of the Task Force on Aortic Dissection, European Society of Cardiology. Eur Heart J. 2001;22:1642–1681.
15. Kallenbach K, Oelze T, Salcher R, Hagl C, Karck M, Leyh RG, Haverich A. Evolving strategies for treatment of acute aortic dissection type A. Circulation. 2004; 110(Suppl II): 243–249.
16. Schneider M, Mügge A, Daniel WG. Imaging modalities in the diagnosis of acute aortic dissection. Echocardiography. 1996;13(2):207-212.
17. Grupper M, Eran A, Shifrin A. Ischemic stroke, aortic dissection, and thrombolytic therapy—the importance of basic clinical skills. J Gen Intern Med. 2007;22:1370–2.
    DOI: 10.1007/S11606-007-0269-2
18. Mészáros I, Mórocz J, Szlávi J, Schmidt J, Tornóci L, Nagy L, et al. Epidemiology and clinicopathology of 9 aortic dissection. Chest. 2000;117:1271-8.
19. Tsai TT, Nienaber CA, Eagle KA. Acute aortic syndromes. Circulation. 2005;112: 3802-13.

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