Journal Homepage: - www.journalijar.com

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI: 10.21474/IJAR01/17936
DOI URL: http://dx.doi.org/10.21474/IJAR01/17936

RESEARCH ARTICLE

AORTIC DISSECTION MISDIAGNOSED AS A HYPERTENSIVE CRISIS: A CASE REPORT

Sumol Ratna[1], Vipin Choudhary[2], Simran Gangwani[3], Vinita Chauhan[3] and Vijay Mohane[3]

1. Assistant Professor, Department of General Medicine, Noida International Institute of Medical Sciences, Gautam Budh Nagar, Uttar Pradesh, India.
2. Senior Resident, Department of General Medicine, Noida International Institute of Medical Sciences, Gautam Budh Nagar, Uttar Pradesh, India.
3. UG MBBS, Noida International Institute of Medical Sciences, Gautam Budh Nagar, Uttar Pradesh, India.

Manuscript Info

Manuscript History
Received: 25 September 2023
Final Accepted: 29 October 2023
Published: November 2023

Abstract

Acute aortic dissection is an uncommon disorder which can have fatal results in the event of treatment delay or misdiagnosis. This case examines a 61-year-old woman presenting with hypertension initially diagnosed as hypertensive crises relieved by antihypertensive medication. She was referred to the cardiology with clinical suspicion of acute coronary syndrome (ACS). However, she was later diagnosed with acute aortic dissection by CT-angiography and sent to surgical unit. Aortic dissection patient presents with many non-specific complaints so mostly misdiagnosed. This case report of a 61-years-old female with diagnosis of Stanford Type A acute aortic dissection misdiagnosed as a hypertensive crisis aiming towards highlighting this potentially fatal condition and importance of early diagnosis The early assessment and early CT-angiography can help in reaching the diagnosis so that early and accurate intervention can be done to save the life of patient from this fatal disease.

Introduction:-

Hypertension is a common cardiovascular disease. The common acute complications associated with hypertension are stroke, myocardial infarction and very little is known about the frequency of acute aortic syndromes.

Aortic dissection, a rare but a life threatening condition, occurs due to breach in the intergrity of the aortic wall[1] , causing intimal tear, which is usually associated with other cardiovascular diseases.

Early diagnosis and management is necessary for patient survival. The AD may mimic other more common conditions, such as acute coronary syndromes, pulmonary embolism, heart failure, stroke and acute abdominal illness, leading to a risk of misdiagnosis. Chest pain being the most common symptom along with abdominal pain,back pain,syncope, and dyspnea.

This case report of a 61-years-old female with diagnosis of Stanford Type A acute aortic dissection misdiagnosed as a hypertensive crisis aiming towards highlighting this potentially fatal condition and importance of early diagnosis[2].

Corresponding Author:- Dr. Sumol Ratna
Address:- Assistant Professor, Department of General Medicine, Noida International Institute of Medical Sciences, Sector 17-A, Yamuna Expressway, Greater Noida, Gautam Budh Nagar, Uttar Pradesh 203201, India. (e).

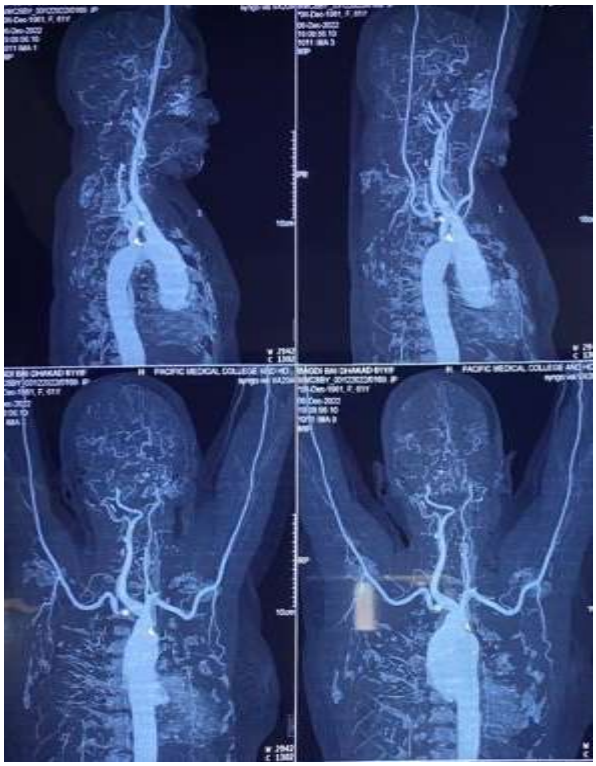
Case Report

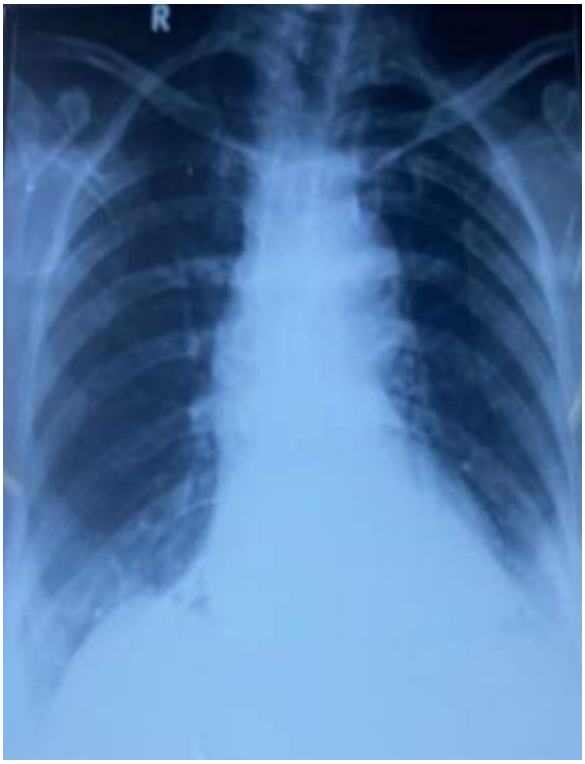
A 61-year-old man with history of untreated high blood pressure (HBP) presented to medicineopd with a chest pain, progressive dyspnoea and fatigue since 5 days. 1 week before, the patient suffered from the sudden onset of chest pain radiating to both arm and shoulders with sweating and palpitation. .

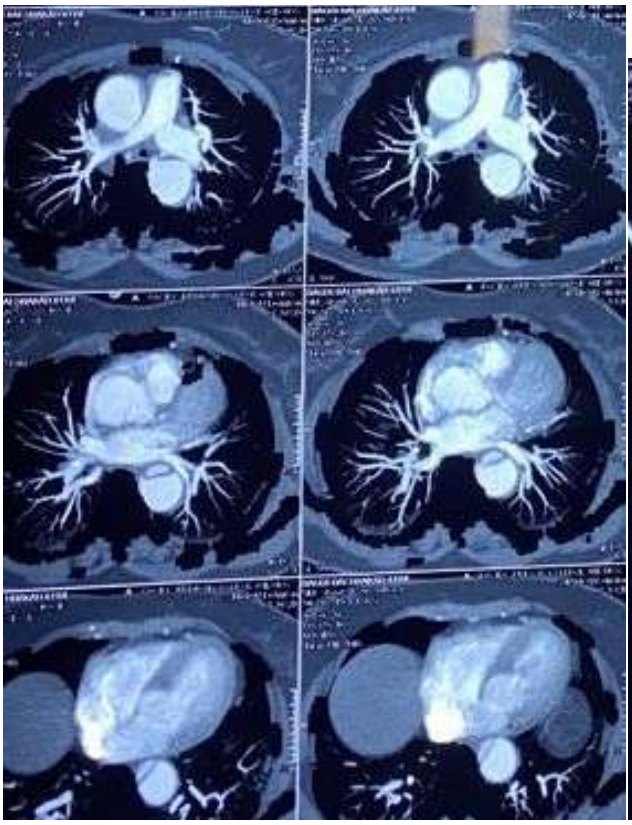
She visited a local hospital and during evaluation blood pressure was very high and interpreted as hypertensive crisis and antihypertensive therapy was started. But due the persistent symptoms, she consulted our hospital.On admission, vitals were monitored and the blood pressure (BP) was 180/90 mmHg in both arms and pulse was 102 bpm. Precordial examination showed normal findings. The ECG showed sinus rhythm, left atrial and left ventricular overload with strain pattern. Laboratorial tests were normal. The D Dimer and cardiac biomarker were sent and reports were normal. Chest X-ray showed mild to moderate mediastinal widening.

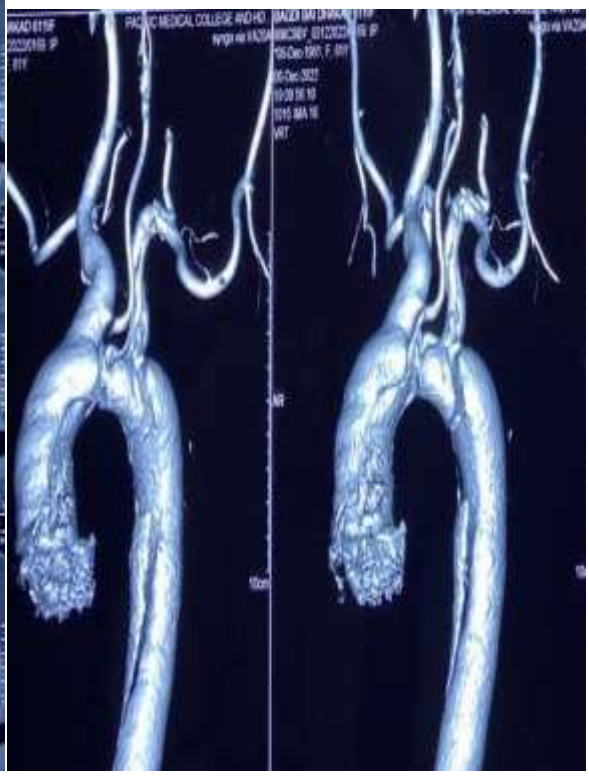
Transthoracic two-dimensional echocardiography (TTE) left ventricle was normal in dimensions with normal ejection fraction , no hypertrophy or pericardial effusion was observed.

A computed tomography (CT) angiography shows thin septa seen involving lumen of ascending aorta from above aortic valves, arch of aorta, right innominate, common carotid, subclavian arteries (with significant critical narrowing of proximal right subclavian artery along with a calcified plaque and multiple collateral formation), left common carotid artery (with significant narrowing) and subclavian artery with involvement of left vertebrat artery (along with adjacent collateral formation) and visualised part of thoracic descending aorta, predominantly involving arch of aorta, suggestive of chronic aortic dissection (Stanford type A-Debackey classification type 1 and 2).









Discussion:-

Aortic dissection is a serious disease, which is usually associated with systemic arterial hypertension . Tear occurs in the inner layer of the body's main artery (aorta). Blood rushes through the tear, causing the inner and middle layers of the aorta to split (dissect)[3].

● The Stanford system classifies dissections into Type A involving the ascending aorta originating proximal to Brachiocephalic artery and Type B aortic dissection originating distal to the left subclavian artery and involving descending aorta[4].

● The DeBakey classification classifies dissections into Type 1 involving descending & ascending aorta ,Type 2 involving ascending aorta and Type 3 involving descending aorta.

Spontaneous isolated abdominal aortic dissection is a rare entity, most common among male patients . The most common comorbidities associated are hypertension and pre-existing aortic aneurysm[5]. The most common location of such dissection has been reported in the literature to be at the level of the renal arteries and infrarenal.

The pathophysiology of aortic dissection entails several variants including aortic intramural hematoma, intimal tear without hematoma, and penetrating atherosclerotic ulcer. Aortic intramural hematoma is characterized by blood in the wall of the aorta in the absence of an intimal tear that accounts for 5-13%[6]. The false channel is likely produced by a rupture of the vasa vasorum into the media of the aortic wall and can occur in the absence of significant atherosclerosis. Intimal tear without hematoma is an uncommon variant .Penetrating atherosclerotic ulcers are often associated with aortic intramural hematoma and can also lead to aortic dissection or perforation .The most common symptoms are abdominal pain ,back pain,chestpain,syncope, dyspnea, weak pulse and weakness etc[7]. The most common risk factors are Hypertension, Atherosclerosis, smoking ,aortic valve replacement, trauma etc.

The Management options for aortic abdominal dissection and aneurysms that have been proposed. Including open, endovascular and conservative approaches depending on the size of the dissection, concurrent aneurysm size, and the location of the dissection in relation to the renal arteries.Concurrent aortic aneurysms are often associated with spontaneous dissections . Aortic rupture occurred in 10 percent of abdominal aortic dissection (AADs). Meanwhile, management included open repair (50%), endovascular repair (21%), and conservative medical treatment (29%). With in-hospital mortality of 4% overall, 2% in the open repair group, 0% in endovascular, and 8% with

conservative treatment. Endovascular therapy is associated with a low risk of mortality and major complications compared to open repair or conservative treatment[8].

Chest pain is one of the most common symptoms in dissection and its absence makes the diagnosis difficult for the clinician. One study found that about 71% of patients with type A dissections presented with anterior chest pain while 6% did not have any pain . The most common initial diagnosis in patients with AD are acute coronary syndrome, cerebrovascular accidents, and gastrointestinal and pulmonary diseases[9]. Absence of chest pain, presentation of neurologic deficits, syncope, vascular insufficiency and gastrointestinal (GI) symptoms are some of the symptoms leading to misdiagnosis of AD[10].

Aortic dissection is uncommon in women, increasing the risk of misdiagnosis.

In our case, the patient has multiple factors like female with non-specific complains without much ECG changes with diagnosed case of hypertension , lead to misdiagnosis.

Our case is a young female with GI symptoms and no specific chest pain. Being aware of having hypertension and noting an aortic aneurysm can be helpful to put the AD in the initial differential diagnoses list[11]. Although the CXR can be used as a screening tool in chest pain, only about 50% of patients with AD have a widened mediastinum or abnormal aortic contour. Studies have found CXR sensitivity and specificity for AD of only 67% and 70%, respectively. Troponin levels are positive in about 50% of the patients with AD. Also, EKG abnormalities can present in AD similar to myocardial infarction patients. Most common EKG findings are the presence of nonspecific ST-segment or T-wave changes and rarely ST-segment elevation or new Q waves[12]. Both high troponin levels and EKG changes can cause confusion and delay in AD diagnosis that leads to inappropriate treatment with antithrombotics which can cause more complications.

Preferred imaging studies in the diagnosis of AD are echocardiography and CT in the emergency setting and magnetic resonance (MRI) for the stable patients. Although CT and MRI give a better field of view[14]

In conclusion, it is necessary to have a high index of suspicion for AD in cases of chest pain. If AD is suspected in a patient with acute coronary syndrome (ACS), confirming the diagnosis with the appropriate imaging studies should be done as quickly as possible. As this may lead to the inappropriate administration of thrombolytic or anticoagulant agents resulting in catastrophic outcomes[13]. The early assessment and early CT-angiography can help in reaching the diagnosis so that early and accurate intervention can be done to save the life of patient from this fatal disease.

References:-

1.Baliga RR, Nienaber CA, Bossone E, Oh JK, Isselbacher EM, et al. (2014) The role of imaging in aortic dissection and related syndromes. JACC Cardiovasc Imaging 7: 406-424.
2.Frank M, Albuisson J, Ranque B, Golmard L, Mazzella JM, Bal-Theoleyre L, et al. The type of variants at the COL3A1 gene associates with the phenotype and severity of vascular Ehlers-Danlos syndrome. Eur J Hum Genet. 2015;23(12):1657–1664
3.Brink AJ, Aalbers J (2009) Strategies for heart disease in sub-Saharan Africa. Heart 95: 1559-1560.
4.Clouse WD, Hallett JW Jr, Schaff HV, Spittell PC, Rowland CM, et al. (2004) Acute aortic dissection: population-based incidence compared with degenerative aortic aneurysm rupture. Mayo Clin Proc 79: 176-180
5.Sakai LY, Kenee DR, Renard M, De Backer J. FBN1: The disease-causing gene for Marfan Syndrome and other genetic disorders. Gene. 2016;1(1):279–291.
6. Loeyz BL, Dietz HC. Adam MP, Ardinger HH, Pagon RA. Loeyz-Dietz syndrome. In: Adam MP, Ardinger HH, Pagon RA, et al., editors. GeneReviews. Seattle (WA): University of Washington; Mar 01, 2018. [2018 Oct 23].
7.S. M. Alter, B. Eskin, and J. R. Allegra, "Diagnosis of aortic dissection in emergency department patients is rare," Western Journal of Emergency Medicine, vol. 16, no. 5, pp. 629–631, 2015
8. W. D. Clouse, J. W. Hallett, H. V. Schaff et al., "Acute aortic dissection: population-based incidence compared with degenerative aortic aneurysm rupture," Mayo Clinic Proceedings, vol. 79, no. 2, pp. 176–180, 2004
9.J. L. Januzzi, E. M. Isselbacher, R. Fattori et al., "Characterizing the young patient with aortic dissection: results from the international registry of aortic dissection (IRAD)," Journal of the American College of Cardiology, vol. 43, no. 4, pp. 665–669, 2004.
10.Hagan PG, Nienaber CA, Isselbacher EM, Bruckman D, Karavite DJ, et al. (2000) The International Registry of Acute Aortic Dissection (IRAD): new insights into an old disease. JAMA 283: 897-903.

11.Zhan S, Hong S, Shan-Shan L, Chen-Ling Y, Lai W, et al. (2012) Misdiagnosis of aortic dissection: experience of 361 patients. J Clin Hypertens (Greenwich) 14: 256-260.
12.K. Hirata, M. Wake, T. Takahashi et al., "Clinical predictors for delayed or inappropriate initial diagnosis of type A acute aortic dissection in the emergency room," PLoS One, vol. 10, no. 11, p. e0141929, 2015.
13.S. Y. Hwang, E. H. Park, E. S. Shin, and M. H. Jeong, "Comparison of factors associated with atypical symptoms in younger and older patients with acute coronary syndromes," Journal of Korean Medical Science, vol. 24, no. 5, pp. 789–794, 2009
14.Silvia Matilda Astefanei , Alina-Elena Cristea , Ana-Maria Zaharie , Oana-Claudia Deleanu,Modern Medicine | 2018, Vol. 25, No. 3 175 Another Approach of Resistant Hypertension: What to Do When the Pharmacological Treatment Fails?