Takayasu Arteritis in a Young African American Male

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Abstract

A young African American man presented with chest pain and significant electrocardiogram (EKG) changes suggestive of an acute myocardial infarction. Clinical evaluation revealed severe Takayasu Arteritis. The patient expired before surgical intervention could occur. This case highlights a unique presentation of this disease which could bring into question the typical screening demographics.

Background

Takayasu arteritis is a rare vasculitis. It is a chronic, progressive, autoimmune, idiopathic group of disorders that leads to large vessel inflammation usually affecting young adults (Subramanyan et al., 1989). The vasculitis occurs in all races but has a predominance in asian females. The disease can lead to arterial stenosis or arterial aneurysms (Teng et al., 2013). We report a rare case of a 36-year-old African American male who presented with chest pain and anterior lead ST elevation myocardial infarction.

Case Description

- A 36-year-old African American male presented to the emergency department with chest pain and substernal pressure-like sensation after sexual intercourse.
- EKG was immediately performed and indicated an anterior wall myocardial infarction with ST-segment elevation.
- On physical exam, he was normotensive and tachycardic. Extremities were absent of edema with intact bilateral dorsalis pedis and radial pulses.He was also found to have bilateral rales on auscultation of his lungs.
- He was emergently taken for cardiac catheterization due to his ongoing chest pain and ST elevations on 12 lead EKG. A diagnostic left heart catheterization was performed from the right femoral artery approach without issue.
- Selective coronary angiography identified a massive left main and left anterior descending coronary artery aneurysm with a large right coronary artery aneurysm. At the time, an emergent echocardiogram was performed.
- The echocardiogram confirmed a dilated LAD measuring 7.0 cm to 10.0 cm with coronary thrombus. The left ventricular ejection fraction was ~15% with evidence of inferior, inferoposterior, and septal wall thinning and scarring. Valvular pathology included moderate mitral and tricuspid valve regurgitation with normal anatomical structure of both valves.
- In addition, CT of the chest revealed a huge 11.0 cm anteroposterior by 9.7 cm transverse by 11.0 cm longitudinal “cystic mass” cephalad to the left ventricle and lateral to the aortic root, consistent with the aneurysmal LAD seen on the left heart catheterization and echocardiogram.
- The patient was recommended immediate transfer to a tertiary care center for surgical evaluation and possible intervention but refused treatment.
- Shortly after this, he developed severe respiratory distress requiring emergent intubation. He subsequently became bradycardic and went into ventricular tachycardia.
- Despite CPR and ACLS protocol, the patient expired.
- Upon autopsy, microscopic findings found diffuse smooth muscle loss, scarring, and vascularization as well as widespread elastin loss with fragmentation consistent with Takayasu disease, at which point a diagnosis was made.

Figures

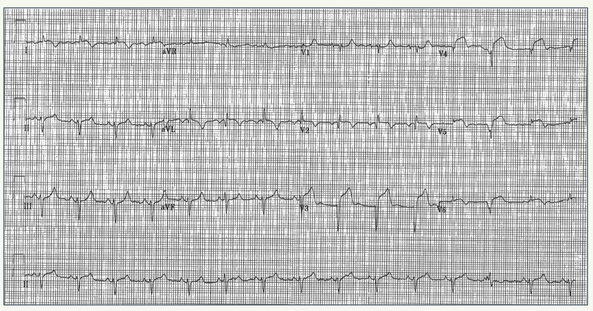

Figure 1: EKG: ST elevation in leads V2 -V6 with diffuse T wave inversions

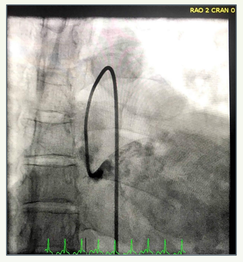

Figure 2: Left heart catheterization: Very large left anterior descending aneurysm, originating at the ostium. Billowing with contrast

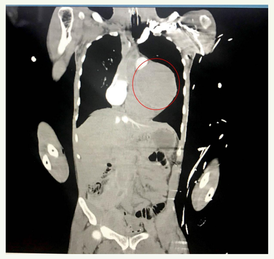

Figure 3: CT Angiography Chest, Abdomen and Pelvis – Frontal View: Very large left anterior descending aneurysm encircled in red. Cephalad to left ventricle and left lateral to aorta.

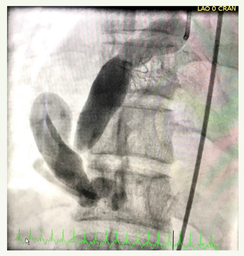

Figure 4: Left heart catheterization: Large right coronary aneurysm originating at the ostium filled with contrast.

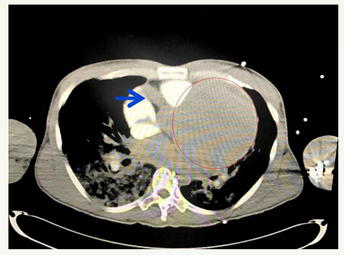

Figure 5: CT Angiography Chest, Abdomen and Pelvis: - Axial View: Very large left anterior descending aneurysm encircled in red left lateral to aorta. Large right coronary artery with blue arrow.

Discussion

- Coronary artery involvement in Takayasu arteritis usually involves the ostial (37%) or proximal (33%) coronary artery locations and suggests more advanced disease duration (Teng et al., 2013). Patients most commonly present with either angina or myocardial infarction.
- Markers of inflammation including erythrocyte sedimentation rates and C-reactive proteins are elevated.
- If a patient is amenable to treatment, treatment usually includes either coronary stents or coronary artery bypass grafting with emphasis on early diagnosis and therapy (Miyata et al., 2003).
- Associated symptoms are claudication due to peripheral vessel narrowing and hypertension due to renal artery stenosis.
- Contrast angiography is the gold standard and demonstrates early local narrowing or irregularity of the vessel lumen (Soto et al., 2011).
- This patient was unique due to the lack of early systemic symptoms of claudication or hypertension. The very late and aggressive findings on presentation involving huge right and left coronary aneurysms were unusual. The patient was within the suspected age range, but was also rare since he was African American and male. After extensive literature review, we have not been able to find a larger coronary aneurysm related to Takayasu arteritis.
- If the patient had survived, cardiovascular interventional treatment would have been problematic secondary to the size of the aneurysm(s). Both bypass or stenting would not have been possible in this case according to clinical decision-making made at the time. The only possible treatment may have been transplant or artificial heart transplantation (Miyata et al., 2003).

Conclusion

- This case study shows a rare presentation of Takayasu arteritis where the affected individual was a younger African American male. This is highly unusual as it is predominantly seen in younger, Asian females.
- The implications of this call into question who should be screened for Takayasu arteritis as there could be others underdiagnosed. If corticosteroids were implemented earlier, the disease process could have been possibly altered and prevented.

References

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