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RADIOLOGICAL EVALUATION OF TAKAYASU'S ARTERITIS – CASE REPORT

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ABSTRACT: A 52 year male from Gulbarga presented with complains of giddiness associated with sweating. On examination, pulse was absent in both upper limbs and he was finally diagnosed as having Takayasu Arteritis based on various investigative modalities. MR Angiography showed severe stenosis of the left common carotid artery at the site of origin, left subclavian artery from aortic arch and right brachiocephalic artery. Also associated was minimal narrowing of left vertebral artery at the site of origin from left subclavian artery. This case is being presented due to its rarity.

KEY WORDS: Takayasu's, arteritis, Aortic arch

INTRODUCTION: Takayasu's Arteritis (TA) is a chronic inflammatory and stenotic disease of medium and large size arteries characterized by strong predilection for aortic arch and its branches, hence also referred to as "Aortic arch Syndrome"¹. Individuals of any race, gender, or age may be affected, but it is most common in young Asian females. Men are rarely affected². Because the clinical presentation and results of laboratory tests at the onset of the disease are typically nonspecific, accurate diagnosis virtually always depends on imaging studies.

Clinical Presentation: A 52 year male construction laborer from Gulbarga presented with complaints of sudden onset of giddiness since 30 minutes duration, which was associated with profuse sweating. There was no history of fall or head injury.

He was a known case of Ischemic Heart Disease [Anterior wall MI], thrombolised with streptokinase in 2012; since then he was on regular treatment with oral Clopidogrel, Aspirin & Atorvastatin.

On examination, neither pulses nor blood pressure were recordable in both the left and right arm. Bruits were audible over right carotid artery. Peripheral pulses [Anterior tibial and Dorsalis Pedis arteries] were well felt. Rate, rhythm and volume were normal. Blood Pressure was recordable in both lower extremities - 130/90 mm Hg.

Systemic Examination was normal.

Radiological Investigations: Chest X-ray showed cardiomegaly with normal lung fields. Carotid color doppler revealed absent flow in left internal and external carotid arteries with atherosclerotic changes and soft plaques in bilateral internal carotid arteries. 2D Echo revealed septal segmental akinesia with thickened posterior segments, severe left ventricular dysfunction and mild mitral regurgitation.

MR Angiography showed severe narrowing of the left common carotid artery at the site of origin from aortic arch with non-visualization of its origin. Moderate to severe stenosis of left subclavian artery from aortic arch was noted for a distance of 13 mm. There was associated minimal narrowing of left vertebral artery at the site of origin from left subclavian artery. Left vertebral artery was dominant with increased lumen caliber. Right vertebral artery was hypoplastic. There

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was moderate to severe stenosis of right brachiocephalic artery just proximal to its origin from aortic arch after a distance of 9 mm. The length of stenosis extended for a distance of 4 mm. Left internal and external carotid artery were not visualized from the site of their origin at carotid bulb. Intracranial left internal carotid artery showed signal intensity (S.I) and flow. However, there was marked reduction in size and caliber. Bilateral middle cerebral and anterior cerebral artery showed normal S.I. Basilar artery and posterior cerebral artery showed normal caliber and S.I without evidence of stenosis or occlusion.

DISCUSSION: Takayasu's arteritis is a rare, systemic, inflammatory large-vessel vasculitis of unknown etiology that most commonly affects women of childbearing age. It is defined as "granulomatous inflammation of the aorta and its major branches" by the Chapel Hill Consensus Conference on the Nomenclature of Systemic Vasculitis. Upon examination of patient both left and right arm pulses were absent which correlated with the study done by Marcio V. Natri et al². Severe stenosis of the left common carotid artery, left subclavian artery from aortic arch, right brachiocephalic artery was noted which correlated with study done by Olivia manfrini et al³.

Takayasu's Arteritis can be divided into the following 6 types based on angiographic involvement

- Type I - Branches of the aortic arch
- Type IIa - Ascending aorta, aortic arch, and its branches
- Type IIb - Type IIa region plus thoracic descending aorta
- Type III - Thoracic descending aorta, abdominal aorta, renal arteries, or a combination
- Type IV - Abdominal aorta, renal arteries, or both
- Type V - Entire aorta and its branches

CONCLUSION: This case highlights the significance of MR angiography in diagnosis of large vessel vasculitis. MR angiography can effectively provide additional anatomic information, including vessel wall thickness. It is also capable of demonstrating mural inflammatory signs, which sometimes represent the only clue to diagnosis in the early phases.

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Fig.1 MRI Angiography - stenosis of left sub clavian (blue arrow) and right brachiocephalic artery (red arrow)

Fig. 2 Carotid Angiogram showing severe stenosis of right brachiocephalic artery

Fig 3 MRI Angiogram - minimal narrowing of left vertebral artery (blue arrow)

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