



A RARE CASE OF ULNAR ARTERY MYCOTIC ANEURYSM WITH INFECTIVE ENDOCARDITIS.

Radiodiagnosis

Dr. Pranav Thombare

DNB Resident, Department Of Imaging, Nanavati Superspeciality Hospital, Mumbai

Dr. Rashmi Parekh*

Consultant Radiologist , Department Of Imaging, Nanavati Superspeciality Hospital, Mumbai *Corresponding Author

Dr. Deepak Patkar

Consultant Radiologist And Head Of Department , Department Of Imaging, Nanavati Superspeciality Hospital, Mumbai

Dr. Mitusha Verma

Consultant Radiologist , Department Of Imaging, Nanavati Superspeciality Hospital, Mumbai

ABSTRACT

Mycotic aneurysm in peripheral limb arteries is a rare entity. However, these can occur as a complication to infective endocarditis. These appear as focal dilatation of the segment of vessel on ultrasonography. "Ying yang sign" on colour Doppler study is seen due to turbulent blood flow within the aneurysm. Magnetic resonance angiography of the dedicated limb gives detail idea about the relevant vasculature.

KEYWORDS

Mycotic Aneurysm, Mitral Regurgitation, Vegetation, Infective Endocarditis.

INTRODUCTION:

William osler coined the term "mycotic aneurysm". He described aneurysms associated with bacterial endocarditis. Most of the mycotic aneurysms are caused by bacteria. [1]

Frequency of involvement decreases from the aorta, peripheral arteries, cerebral arteries followed by visceral arteries. Currently non-invasive imaging modalities like multidetector computed tomography and magnetic resonance imaging, have replaced conventional angiography. Doppler ultrasonography allows non-invasive assessment for infected aneurysms in the peripheral arteries. Infected aneurysms appear as lobulated vascular mass with an indistinct irregular arterial wall. These also show perianeurysmal oedema and soft-tissue mass. [2, 5]

Femoral artery is the most frequently involved peripheral artery. Infected aneurysms are uncommon distal to the knee and in the upper limb. In upper limbs, brachial artery is the most common site of infected aneurysms which is usually seen in cases of intravenous drug abuse. [3, 4, 5]

We are presenting a rare case of mycotic aneurysm of the proximal ulnar artery in patient with known infective endocarditis.

CASE REPORT:

80-year-old male patient, known case of Diabetes Mellitus and hypothyroidism since 20 years presented with the history of fever and chills since the last 14-15 days along with a small painful swelling in the middle of the left forearm since the last 8- 10 days.

The patient was admitted 6 weeks back with urosepsis, for which he had been treated the course of intravenous and oral antibiotics. The patient remained asymptomatic for 2 weeks following his discharge and again developed progressively increasing lethargy and weakness over the next 2-3 weeks. Then fever spikes started about 2 weeks prior to the present admission and the swelling of the left forearm was noticed about 10 days ago. The swelling was pulsatile, painful and tender. There was no history of any local trauma. The fever spikes were intermittent, daily associated with chills and rigors.

On examination, he had grade II clubbing, mild fever, pulse of 86/ min, regular, Blood pressure was 128/ 60 mm Hg. He had a swelling in the left forearm around of 2 x 2 cm, tender, warm to touch and pulsatile and had bruit on auscultation, there was no signs of distal neurovascular compromise. On auscultation of the heart there was presence of grade 3 pan systolic murmur best heard over the mitral area which radiating towards the axilla.

Routine blood examinations revealed hemoglobin : 10.1 gm/dl, WBC

count 11580, Neutrophils -75 Lymphocytes -17, eosinophils - 4, Monocytes -4.

C-reactive protein and pro calcitonin which are inflammatory markers were elevated (62.4 and 3.44 respectively). Liver Function Tests and urine routine were within normal limits.

2- D echo examination revealed left ventricular ejection fraction 55% without any regional motion wall abnormality. It also showed severe mitral regurgitation, moderate tricuspid regurgitation, mild aortic regurgitation and moderate pulmonary hypertension. It also revealed mobile vegetations with size 1.8 cm X 0.6 cm on the atrial surface of the PML.

Anti-nuclear Antibody (ANA): 1:100, C-ANCA AND P-ANCA (for vacuities) were negative. TPHA (Treponema pallidum Hemagglutination Assay) to rule out Syphilitic infection was negative.

Arterial Colour Doppler of left Upper Limb was done on which there was aneurysmal dilatation of proximal ulnar artery with perilesional soft tissue edema. It measured approximately 2.8 x 2.9 cm in size. On colour Doppler study, characteristic "ying yang sign" of the swirling blood flow was seen.

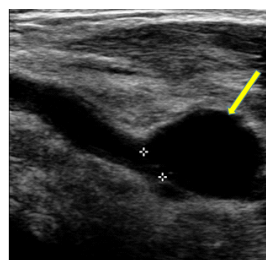


Fig. 1 B mode ultrasonography image showing aneurysmal dilatation of proximal ulnar artery.

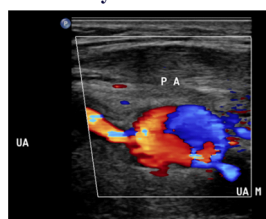


Fig. 2 colour Doppler image showing positive "ying -yang" sign due to swirling blood flow within the aneurysm.

MR angiography of the Left Upper limb was done. It revealed focal 2.1x 1.2 cm **fusiform** aneurysmal dilation of the ulnar artery, 2.2 cm from the point of origin of the ulnar artery and the swelling measures 2.0 cm in the supero-inferior extent. No aneurysmal leak, maximum thickness of the aneurysmal wall was 2 mm.

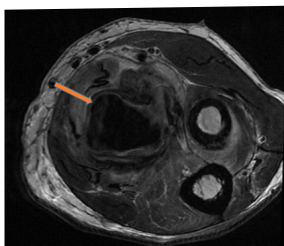


Fig. 3 Axial T2W image showing aneurysmal dilatation with perilesional edema and surrounding subcutaneous edema .



Fig. 4 Sagittal T2W image showing aneurysm with hypointense content within. This variegated appearance is due to turbulent blood flow.



Fig. 5 Contrast Magnetic resonance angiography reconstructed image showing contrast opacification of the aneurysm arising from ulnar artery with maintained distal flow.

The blood culture grew *Streptococcus pyogenes*. The patient was started with Intra-venous Ceftriaxone and Amikacin. Subsequently it was modified to Injection ceftriaxone and levofloxacin.

Fever spikes subsided. The patient was referred to the cardio-thoracic Surgeon for further management who advised for Coronary Angiography in view of age. Patient was continued on intravenous antibiotics for 3 weeks more. The Ulnar artery mycotic aneurysm reduced in the size and became painless. It was decided that it should not be operated upon.

DISCUSSION

Mycotic aneurysm is an uncommon pathology with prevalence of 0.7 to 1 %. Peripheral arteries are less involved. [5]

These can develop secondary to haematogenous spread of micro emboli or from the adjacent source of infection. It can occur as direct

contact with pathogen. [6]

Various imaging modalities available for evaluation include grey scale ultrasonography, Doppler, MRI with MR angiography, CT angiography. Rarely PET/CT can be useful. On ultrasonography, these appear as well defined hypoechoic lesions seen in the vicinity of an artery with turbulent flow within. Communication with the adjacent artery is seen. On colour Doppler, these typically show Ying Yang sign which is due to the turbulent flow within the aneurysm. Inflammatory changes can be seen surrounding the lesion. Doppler ultrasonography has high sensitivity and specificity in detecting pseudo aneurysms. [5] MRI is helpful in giving detail anatomical delineation. Aneurysmal sac appears as an area of signal void within its lumen of saccular outpouching. In chronic cases specks of calcification along the wall CAN be seen. On post contrast study there is well delineation of its saccular cavity. If thrombus is present within it gives partial lumen filling of the aneurysm. Inflammatory changes seen in surrounding soft tissue can be evident and appear hypointense of T1W, hyperintense on T2W images with mild enhancement on post contrast study. Thickening of the aneurysmal wall can be seen. In cases of rupture, there is extravasation of the contrast medium into adjacent tissue planes. [5]

Infected aneurysm (Mycotic Aneurysm) is a serious clinical condition that is associated with significant morbidity and mortality. Antibiotic therapy combined with aggressive surgical debridement of the infected tissue and vascular reconstruction can be done. [5, 6, 7]

Most common Peripheral arterial mycotic aneurysm is brachial artery. However ulnar artery is not commonly involved.[5, 6, 7] In our patient who developed mycotic aneurysm of left ulnar artery following Infective endocarditis. After CABG with mitral valve replacement along with antibiotics, mycotic aneurysm became non tender and reduced its size. Our patient with diagnosis of early uncomplicated infected aneurysm was conservatively managed with antibiotics and did not require any surgical intervention of mycotic Aneurysm.

REFERENCES :

1. Osler W. The Gulstonian Lectures, on Malignant Endocarditis. Br Med J 1885; 1:467.
2. Tsao JW Marder SR, Goldstone J, Bloom AI. Presentation, diagnosis, and management of arterial mycotic pseudoaneurysms in injection drug users. Ann Vasc Surg 2002; 16(5): 652-662
3. Chan YC, Morales JP, Taylor PR. The management of mycotic aortic aneurysms: is there a role for endoluminal treatment? Acta Chir Belg 2005; 105(6): 580-587
4. Lee KH, Won JY, Lee do Y, et al. Stent-graft treatment of infected aortic and arterial aneurysms. J Endovasc Ther 2006; 13(3):338-345.
5. Wai-Kit Lee, Peter J. Mossop, Andrew F Little, Gregory J. Fitt, Jhon I Vrazas, Jenny K. Hoang, and Oliver F. Hennessy. Infected (Mycotic) Aneurysms: Spectrum of Imaging Appearances and Management. RadioGraphics 2008 28:7, 1853-1868
6. González I, Sarriá C, López J, et al. Symptomatic peripheral mycotic aneurysms due to infective endocarditis: a contemporary profile. Medicine (Baltimore). 2014;93(1): 42-52. doi:10.1097/MD.0000000000000014
7. M. Fisk, L.F. Peck, K. Miyagi, M.J. Steward, S.F. Lee, M.B. Macrae, S. Morris-Jones, A.I. Zumla, D.J.B. Marks, Mycotic aneurysms: a case report, clinical review and novel imaging strategy, QJM: An International Journal of Medicine, Volume 105, Issue 2, February 2012, Pages 181–188.