Arteriovenous Malformation of the Brain (AVM)
Ali Hassan Abdelraheim Mohammed*1,2
1Taif University, college of applied medical science, P.O. Box 2425, Post Code-21944, Taif KSA
2University of Medical Sciences and Technology, P.O. Box 12820 Khartoum, Sudan

Abstract: 34 year old male patient referred to a hospital complaining of headache, and concussion. The doctor requested a brain Magnetic Resonance angiography (MRI) and MRA. The Magnetic Resonance Angiography shows Arterial Venous Malformation of the brain (AVM) in the right cerebral hemisphere.

Keywords: MRI, MRA, AVM.

INTRODUCTION
An Arteriovenous Malformation (AVM) is a tangled ball of blood vessels with abnormal connections between arteries and veins. Arteriovenous malformations of the brain are congenital vascular lesions that affect 0.01 to 0.5% of the population. Normally, arteries carry blood containing oxygen from the heart to the brain, and veins carry blood with less oxygen away from the brain and back to the heart. When an ArterioVenous Malformation (AVM) occurs, a tangle of blood vessels in the brain or on its surface bypasses normal brain tissue and directly diverts blood from the arteries to the veins [1].

Types of AVM
Arteriovenous (AV) fistula.

Fig-1: Cavernous fistula in the eye
Cavernous Malformation.

Fig-2: Axial MRI T1 weighted image
True Arteriovenous Malformation (AVM).
Developmental Venous Anomalies.

Capillary Telangiectasias.

AVMs are more common in males than females [1].

Magnetic Resonance Angiogram (MRA)

The Magnetic Resonance Angiogram, MRA is a noninvasive test that has demonstrated usefulness in defining the anatomy of blood vessels of certain size in the head and neck. MRA serves as a complement to traditional MRI scanning in evaluation of the brain and neck [2].

A 34 year old male patient came to King Alhussein Medical City- JORDON, with headache, and concussion. The doctor requested a brain MRI, and MRA. The patient was scanned by 1.5 Tesla MRI machine and the image of the patient was shown in (Fig-6,7,8,9,10).
MRA showed that there was a web of massive blood collection in the left cerebral hemisphere.

**DISCUSSION**

To identify and characterize AVMs of the Central Nervous System CNS, including the brain and spinal cord, without the use of radiation or invasive techniques, MRI can be helpful. MRI is the examination of choice in patients with chronic headaches, seizure disorders of unknown etiology, and pulsatile tinnitus (among other conditions) [3].

MRI scans can demonstrate areas of parenchymal AVM involvement, showing both dilated feeding arteries and enlarged draining veins [4].

MRA and venography can further supplement conventional MRI in demonstrating in a near angiographic fashion the anatomy and microarchitecture of an AVM. MRI is the study of choice in the detection of vascular malformations of the spinal cord and spinal dura [5-7].

High-speed functional MRI with multi-slab echo-volumes imaging is an additional diagnostic tool [8, 9].

**REFERENCES**

5. Appointments for Dr. David Newell, Dr. Joe Eskridge and Dr. Yince Loh: 206-320-3470.
6. Randall T. Higashida, M.D Chair: Cerebrovascular Imaging and Intervention Committee of the American Heart Association Cardiovascular Council. At 1-888-4-STROKE (1-888-478-7653) or visit StrokeAssociation.org.