

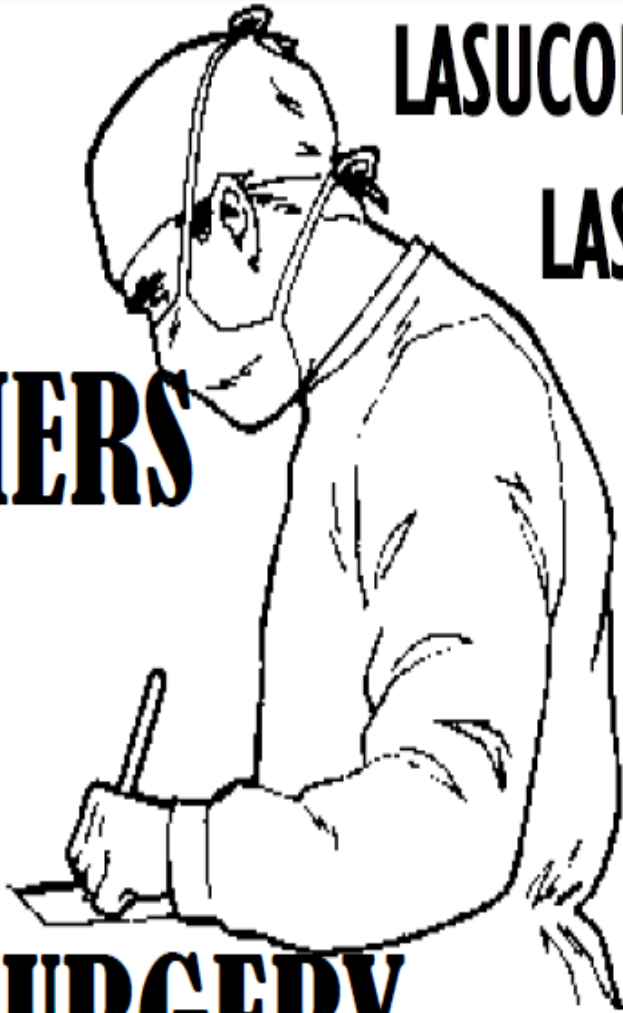
**CLINICAL VIGNETTE**  
**2015; 1:2**

**LASUCOM &  
LASUTH**

**FRONTIERS**

*OF*

**IKEJA SURGERY**



**Blister and Ruptured Saccular  
Aneurysm of Middle Cerebral Artery**



Editor-in-Chief: Olufemi E. Idowu.  
*Neurological surgery Division, Department of Surgery,  
LASUCOM/LASUTH, Ikeja, Lagos, Nigeria.*

Copyright- Frontiers of Ikeja Surgery, 2015; 1:2

# **Blister and Ruptured Saccular Aneurysm of Middle Cerebral Artery**

**Olufemi E. IDOWU**

**Neurological surgery Division, Department of Surgery,  
Lagos State University Teaching Hospital, Ikeja,  
Lagos, Nigeria.**

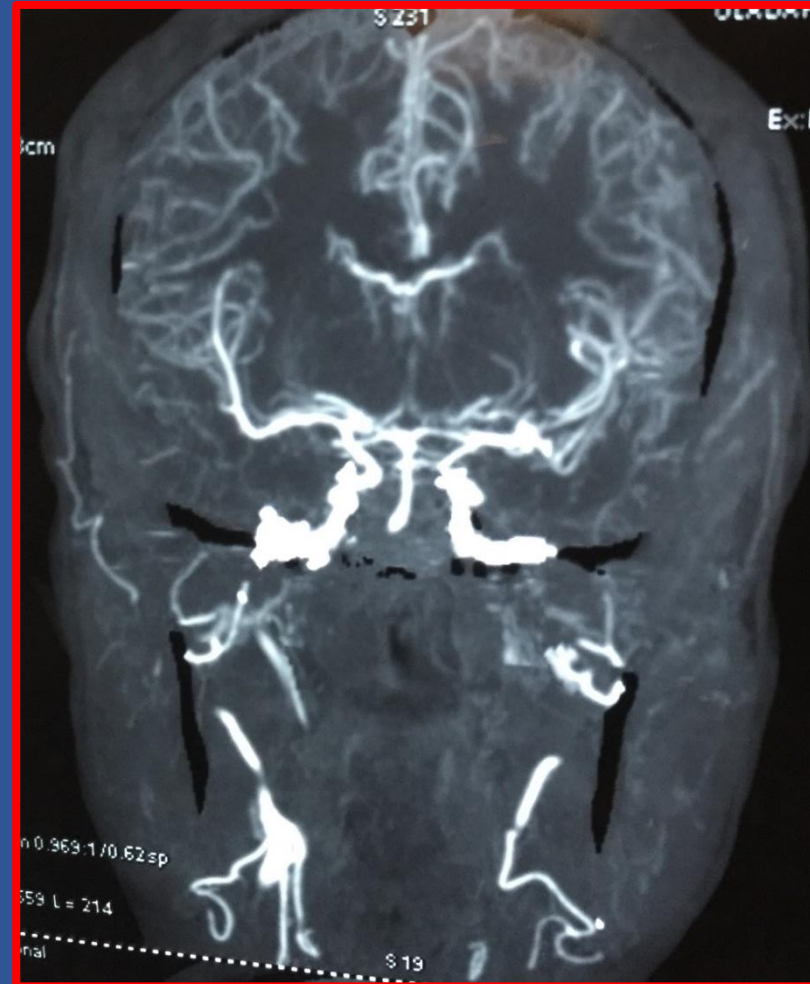
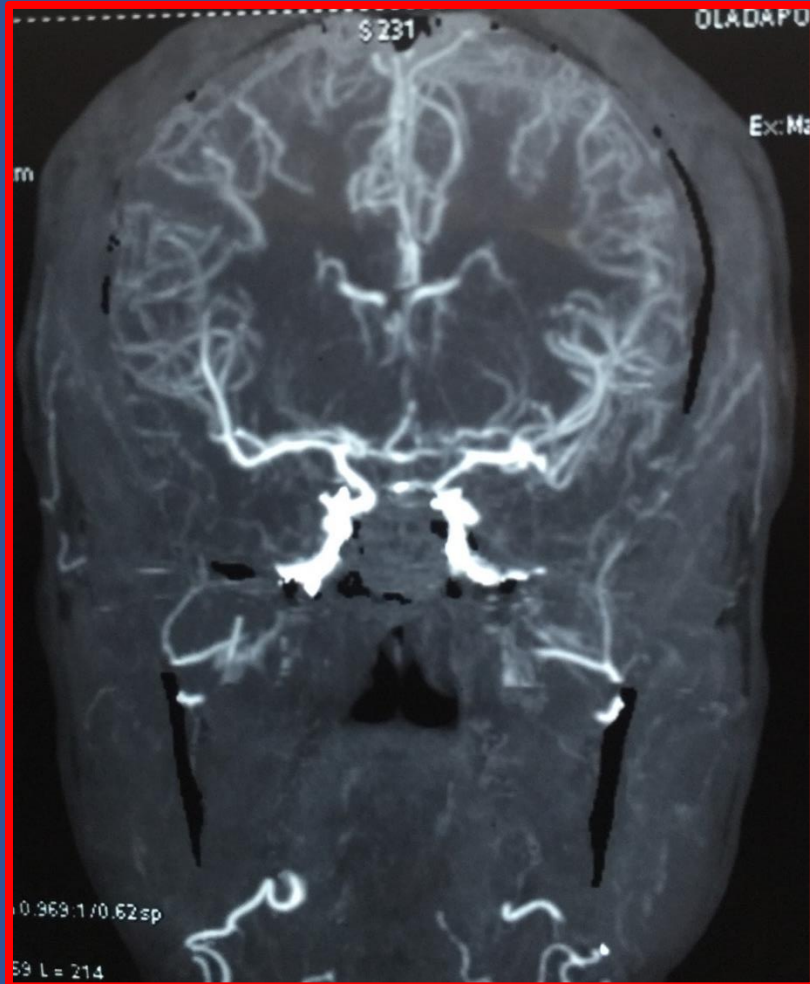
# Presentation...

- O.O., 52yrs, Male
- Altered sensorium x 5days
- Symptom preceded by sudden severe headaches & loss of consciousness while in the bathroom; Associated vomiting, impaired memory & neck stiffness
- Known hypertensive- Poor compliance; Does not smoke

# Presentation...

- Blood pressure- Pulse- 90/min, Bp- 170/110mmHg
- Drowsy, GCS- 13 (Inappropriate words), positive kernig's sign, bilateral CN VI palsy
- Diagnosis- Spontaneous subarachnoid haemorrhage from ?  
Ruptured aneurysm
  - Hunt & Hess grade 3
- CT angiography (Figure 1)- Left Middle cerebral artery (MCA) aneurysm

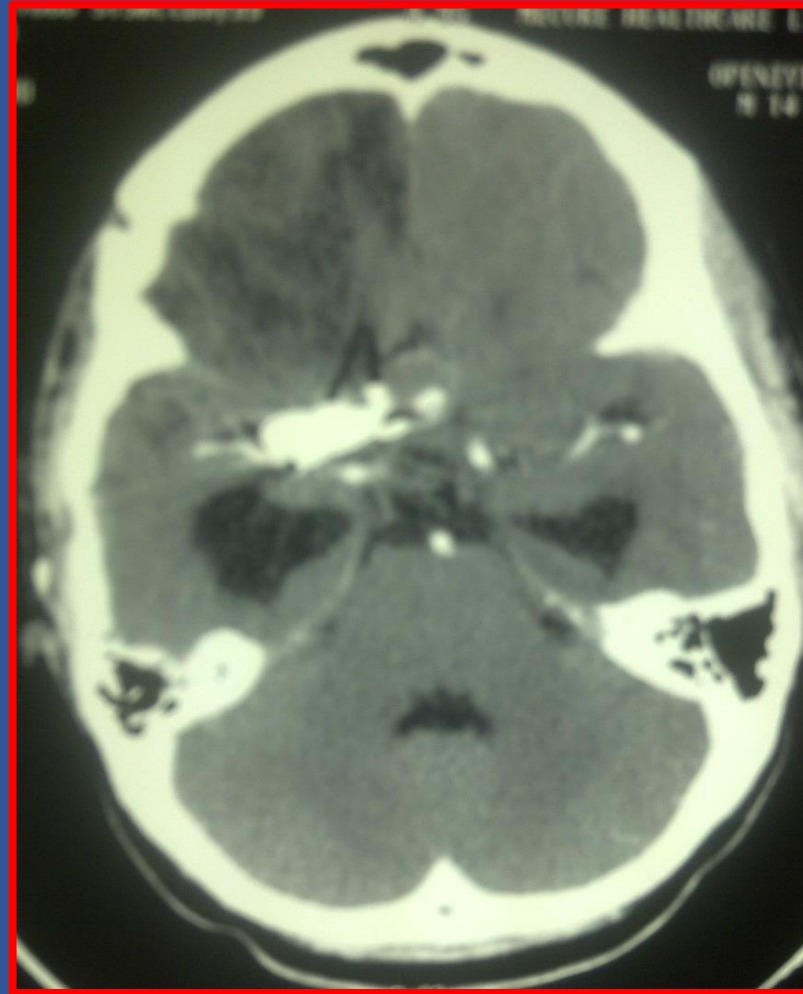
# Figure 1. Magnetic Resonance Angiography- Left MCA aneurysm



# Treatment...

- Left Pterional craniotomy and Clipping of aneurysm
- Intra-operative findings- Left temporal lobe haematoma, a bifurcation saccular aneurysm and a post-bifurcation blister aneurysm
- Peri-operative period- uneventful
- Slow mentation resolved by 3month after surgery.

# Figure 2- Post-operative CT



# Discussion- Cerebral aneurysm...

- 6-8%- all strokes
- Female:male= 5:1, Rises to 11:1 in patients with >3 aneurysms
- 85%- anterior circulation
- Multiple- 10-30%
- Non-traumatic causes- 80%



# Discussion- Cerebral aneurysm

- 30%- rupture during sleep
- 10-15%- die immediately and without warning
- 10%- die within the first few days
- 50-60%- Overall 30 day mortality
- 50%- of survivors have major disability
- 2/3rds who have successful clipping never return to the same quality of life as before SAH

# Discussion- MCA aneurysm

- Prevalence- 14.0–43.0 %; one-fifth of intracranial aneurysms
- MCA- most complex branching pattern of any of the major intracranial arteries
- Usually observed to arise from the M2 bifurcation segment or the proximal M1 segment
- Its complex anatomy, superficial location- surgical clipping is preferred treatment

# Classification...

- **Saccular**- developmental/degenerative, traumatic, mycotic, oncotic, flow-related, vasculopathy-related, **drug-related**
- **Fusiform (atherosclerotic)**
- **Blister**
- **Dissecting**
- **\*mycotic aneurysms- fusiform, very friable**

- Small: <5mm
- Medium: 5-15mm
- Large aneurysms: 15-25mm
- Giant: 25-50mm
- Super giant: >50mm



# Classifications

## • Congenital

- \*Polycystic kidney disease
- \*Fibromuscular dysplasia
- \*Arterovenous malformation
- \*Connective tissue disorders
- \*Familial intracranial aneurysm syndrome

## Acquired

- \*Atherosclerosis/hypertension
- \*Traumatic
- \*Infectious
- \*Embolic as in atrial myxoma

# Complications of ruptured aneurysm

1. Rebleed: 20-50% in the first 2 weeks, with mortality rate of nearly 85%
2. Vasospasm: 5-10 days after rupture  
\*Predictors-Thickness of Clot, Hydrocephalus, Prior Hypertension
3. Hydrocephalus
4. Arrhythmias
5. Hyponatraemia: hypothalamic injury
6. Death- 25% of people die within 1 day

# Hunt and Hess scale

- **Grade 1:** Asymptomatic; or minimal headaches and slight nuchal rigidity. (Survival rate- **70%**)
- **Grade 2:** Moderate - severe headache; nuchal rigidity; no neurological deficit except CN palsy. (**60%**)
- **Grade 3: Drowsy; minimal neurologic deficit. (50%)**
- **Grade 4:** Stuporous; moderate to severe hemiparesis; possibly early decerebrate rigidity and vegetative disturbances. (**20%**)
- **Grade 5:** Deep coma; decerebrate rigidity; moribund. (**10%**)
- **Grade 6:** Death or presents brain dead following SAH

# Investigations- Diagnostic

- Digital Subtraction Angiography
- 3DRA: 3-dimensional rotational angiography- more sensitive in detecting aneurysms (still produces 4.2% rate of angiogram-negative SAH)
- CT Angiography
- MRA +/- contrast

# Treatment

## Definitive

- Clipping
- Coils
- Flow Diverters

## Adjuvant

- 'Ventriculostomy
- Triple H: Hypertensive-Hypervolemic-Haemodilution therapy
- Intra-arterial Ca antagonist- verapamil
- Transluminal Balloon angioplasty
- VP shunt



# References

1. Spetzler RF, McDougall CG, Albuquerque FC, Zabramski JM, Hills NK, Partovi S, et al. The barrow ruptured aneurysm trial: 3-year results. *J Neurosurg*. 2013;119:146–57.
2. UCAS Japan Investigators, Morita A, Kirino T, Hashi K, Aoki N, Fukuhara S, et al. The natural course of unruptured cerebral aneurysms in a Japanese cohort. *N Engl J Med*. 2012;366:2474–82.
3. Abla AA, Wilson DA, Williamson RW, Nakaji P, McDougall CG, Zabramski JM, et al. The relationship between ruptured aneurysm location, subarachnoid haemorrhage clot thickness, and incidence of radiographic or symptomatic vasospasm in patients enrolled in a prospective randomized controlled trial. *J Neurosurg*. 2014;120:391–7.