

Pictorial CME

## A Case of Intracranial Aneurysm Masquerading as Space-Occupying Lesion

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### ABSTRACT

Cerebral or intracranial aneurysms result from abnormal focal dilation of an artery in the brain due to weakening of the blood vessel wall. They occur at the bifurcations of large to medium sized intracranial arteries. Approximately 80% aneurysms occur in the anterior circulation and about 20% have multiple aneurysm sites. Familial aneurysms rupture at a smaller size and younger age than sporadic cases. We present a case of cerebral artery aneurysm in a 49-year-old female patient. The patient was admitted as a case of the intracranial space-occupying lesion with complaints of headache subsequently found to have an internal carotid artery aneurysm.

**Keywords:** Aneurysm, Space occupying lesion, Headache

### INTRODUCTION

Approximately 86.5% of all intracranial aneurysms arise on the anterior (carotid) circulation. Common locations include the anterior communicating artery (30%), the internal carotid artery (ICA) at the posterior communicating artery origin (25%), and the MCA bifurcation (20%). Giant aneurysm (GIAs) are defined as aneurysm measuring more than 2.5 cm in diameter, occurrence has been reported approximately 5-13% of all intracranial aneurysms. They constitute a special group which do not usually cause subarachnoid haemorrhage (SAH). Instead, they are commonly detected as slow growing, space occupying mass lesion. This particular aneurysm may be confused with other cerebral mass lesions, such as pituitary adenoma.

### CASE REPORT

A 49-year-old female patient came with complaints of persistent global headache for 3 days with multiple episodes of vomiting for the past 1 day. On examination, the patient was afebrile, conscious, oriented to time, place, and person; pulse 72/min regular, BP 150/80 mmHg, SpO<sub>2</sub> 98% on room air, heart sounds were normal and breath sounds were normal. On neurological examination of GCS E4V5M6, reflexes were normal, plantar bilateral flexor response and pupils normal-sized reactive to light with no focal neurological deficit. Contrast-enhanced CT brain showed a well-defined

homogenous hyperdense mass in the sella turcica extending superiorly in the suprasellar cistern with likely differentials of Pituitary macroadenoma and Meningioma. Contrast MRI of the Brain with Angiography revealed a large left supraclinoid internal carotid artery aneurysm (1.7 × 1.3 × 1.3 cm) involving the origin of the left anterior and middle cerebral artery with minimal subarachnoid haemorrhage in the left sylvian and temporoparietal cortical sulci suggestive of a leaking aneurysm. Digital subtraction angiography was done and revealed a contrast-filled multilobulated outpouching arising from the left supraclinoid ICA proximal to the origin of the left MCA. Successful coiling was done under radiographic guidance and the patient was monitored for 3 days post-procedure. She was then, discharged in a vitally stable condition [Figures 1 and 2].

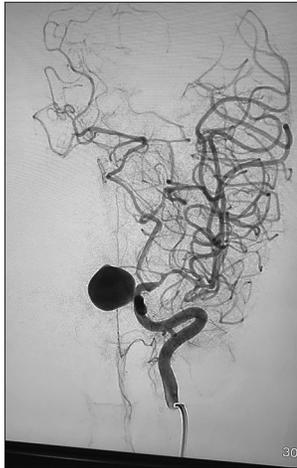
### DISCUSSION

Saccular aneurysms are thin-walled protrusions from intracranial arteries composed of very thin or absent tunica media and an absent or fragmented internal elastic lamina. They occur at the bifurcations of large to medium-sized intracranial arteries. Approximately 80% of aneurysms occur in the anterior circulation and about 20% have multiple aneurysm sites.<sup>[1]</sup> Giant aneurysms those >2cm in diameter occur at the same sites as small and account for 5% of cases. There is a female preponderance ranging from 34 to 61% higher risks of aneurysms.

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**Figure 1:** DSA Large supraclinoid ICA aneurysm.



**Figure 2:** DSA - post coiling of the aneurysm.

Laboratory Data	
Investigation	7/09/21
Hb-Haemoglobin	10.5
TLC- Total leukocyte count	7300
Platelets	1.32×10 <sup>5</sup>
Total protein	6.5
Total bilirubin	0.68
ALP-Alkaline phosphatase	124
AST-Aspartate aminotransferase	23
ALT-Alanine aminotransferase	40
Urea	17
Creatinine	0.8
Sodium	134
Potassium	4.2
Triglycerides	89
Total cholesterol	127
HDL-High density cholesterol	34
LDL-Low density cholesterol	100

**Risks factors for aneurysm formation**

- Hypertension
- Cigarette smoking
- Alcohol consumption
- Hereditary syndromes associated – Connective tissue disorders such as Ehlers–Danlos, autosomal dominant polycystic kidney disease, glucocorticoid remediable aldosteronism, and moyamoya disease
- Coarctation of aorta
- Oestrogen deficiency.

**SCREENING**

Screening should be considered in

1. First-degree relatives of patients with cerebral aneurysms when two or more family members have been affected

2. Patients with heritable disorders associated with the presence of intracranial aneurysms – ADPKD, GRA, Ehler–Danlos and pseudoxanthoma elasticum.<sup>[2]</sup>

Familial aneurysms rupture at a smaller size and younger age than sporadic and multiple numbers is also common. They do not demonstrate the phenomenon of anticipation.

**CHOICE OF SCREENING TEST**

1. MR Angiography – can identify 3–5 mm or larger aneurysms. 95% sensitivity
2. CT angiography identifies small unruptured aneurysms with high accuracy. For detecting <3 mm diameter, sensitivity was lower than MRI.

**PRESENTATION**

- Excruciating headache (‘worst headache of my life’) followed by the sudden loss of consciousness due to rupture, leading to subarachnoid haemorrhage<sup>[3]</sup>
- Nausea and vomiting
- Neurological deficits.

Unruptured aneurysms may be asymptomatic or may present with a mass effect on cranial nerves or brain parenchyma.

- Third cranial nerve palsy with focal pain above or behind the eye may occur with expanding aneurysm at the junction of the posterior communicating artery and internal carotid artery
- Sixth nerve palsy – aneurysm in the cavernous sinus
- Visual field defects occur in expanding supraclinoid carotid or anterior cerebral artery aneurysm.

**MANAGEMENT**

- Surgical management (Surgical Clipping) – the clip is placed across the neck of the aneurysm. Depends

on the anatomical location, and size of the neck of the aneurysm. Potential benefits of the early surgery are within 24 to 72 h of haemorrhage with the management of vasospasm.<sup>[4]</sup>

Risks – new or worsened neurological deficit due to temporary arterial occlusion, intraoperative haemorrhage.

- Endovascular therapy (Coil embolism) – Platinum coils are inserted into the lumen of the aneurysm.

Risks – Thromboembolism and intraprocedural aneurysmal rupture.

#### **Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent.

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Nil.

#### **Conflicts of interest**

There are no conflicts of interest.

#### **REFERENCES**

1. Jameson JL, Kasper DL, Fauci AS, Longo DL, Hauser SL, Loscalzo J. Harrison's Principles of Internal Medicine. 20<sup>th</sup> ed. McGraw-Hill Education; 2018. p. 2084-6.
2. Bederson JB, Connolly ES Jr., Batjier HH, Dacey R, Diringer M, Haley EC, *et al.* Guidelines for management of aneurysmal subarachnoid haemorrhage. *Stroke* 2009;40:1913-95.
3. Tidswell P, Dias PS, Sagar HJ, Mayes AR, Battersby RD. Cognitive outcome after aneurysm rupture: Relationship to aneurysm site and perioperative complications. *Neurology* 1995;45:875-82.
4. Rinkel GJ, Djibuti M, Algra A, van Gijn J. Prevalence and risk of rupture of intracranial aneurysms a systematic review. *Stroke* 1998;29:251-6.

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