

Case Lessons 17

Hunterian ligation still available in the era of coiling and FDD

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Introduction

Cavernous carotid aneurysms are considered benign lesions with indolent natural history. Apart from idiopathic aneurysms, traumatic, iatrogenic and mycotic aneurysms are common in the cavernous segment of carotid artery. With rapid advances in endovascular therapy, management of cavernous carotid aneurysms has evolved over the years. Management of these lesions is a daunting task for the physician. Given that these aneurysms carry low risk of morbidity and mortality, any proposed treatment has to have a lower risk of complications than the natural history of these lesions. Decisions regarding treatment should take into consideration the etiology, clinical presentation, size of aneurysm, adequacy of cross circulation and patient preference.

Advanced endovascular methods still have difficulty in showing the clear evidence of controlling giant, wide-necked and thrombosed aneurysms and direct clipping is extremely challenging, especially when important branches are involved. Direct clipping of such aneurysms requires lengthy temporary occlusion associated with thrombectomy as well as multiple complex clipping, and this strategy is associated with a high risk of devastating ischemic perforator injury. By contrast, proximal occlusion after a positive balloon test occlusion (BTO), confirming adequate collateral blood flow is still a viable option in treating such complex giant aneurysms.

Case presentation

A 40-year-old woman with no past medical history presented to UHC Mother Teresa referred by the ophthalmologist after sudden onset of diplopia associated with left maxillary pain.

CT on the day of hospital admission showed a left, giant Internal Carotid Artery (ICA) aneurysm with intra-aneurysmal thrombosis without subarachnoid hemorrhage (Fig 1). MRI confirmed a partially thrombosed giant ICA aneurysm. (Fig 2)

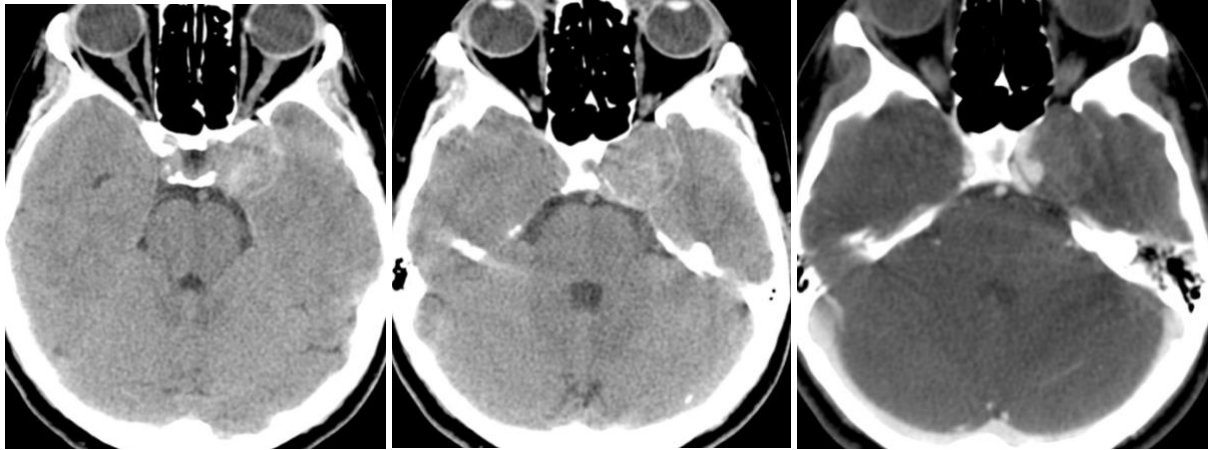


Fig 1: Pre-treatment CT scan showing no signs of SAH and partially thrombosed ICA aneurysm

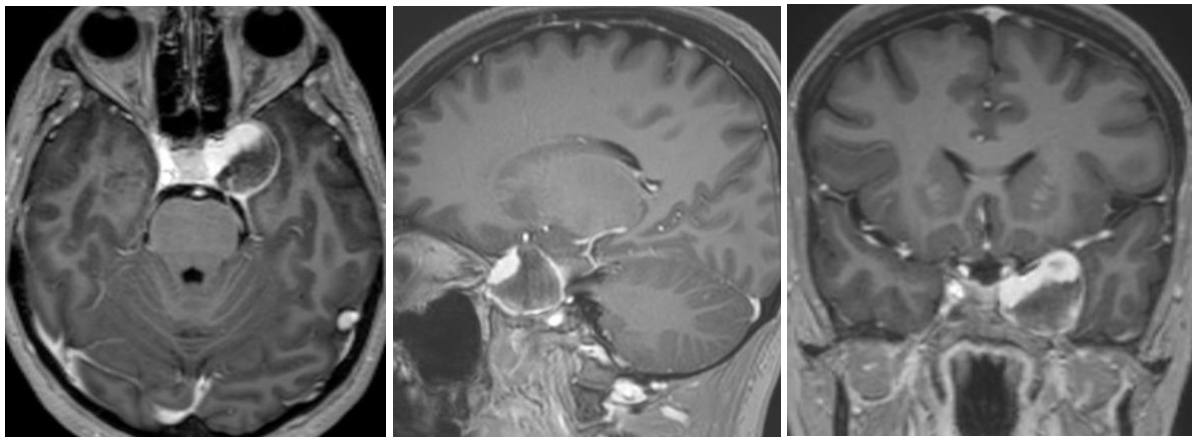


Fig 2: Pre-treatment MRI confirming a giant, partially thrombosed cavernous segment ICA aneurysm

She was transferred to our hospital for further follow-up and treatment.

Supraselective cerebral angiography (DSA), demonstrated a giant intracranial aneurysm involving the cavernous portion of the left ICA. (Fig 3)

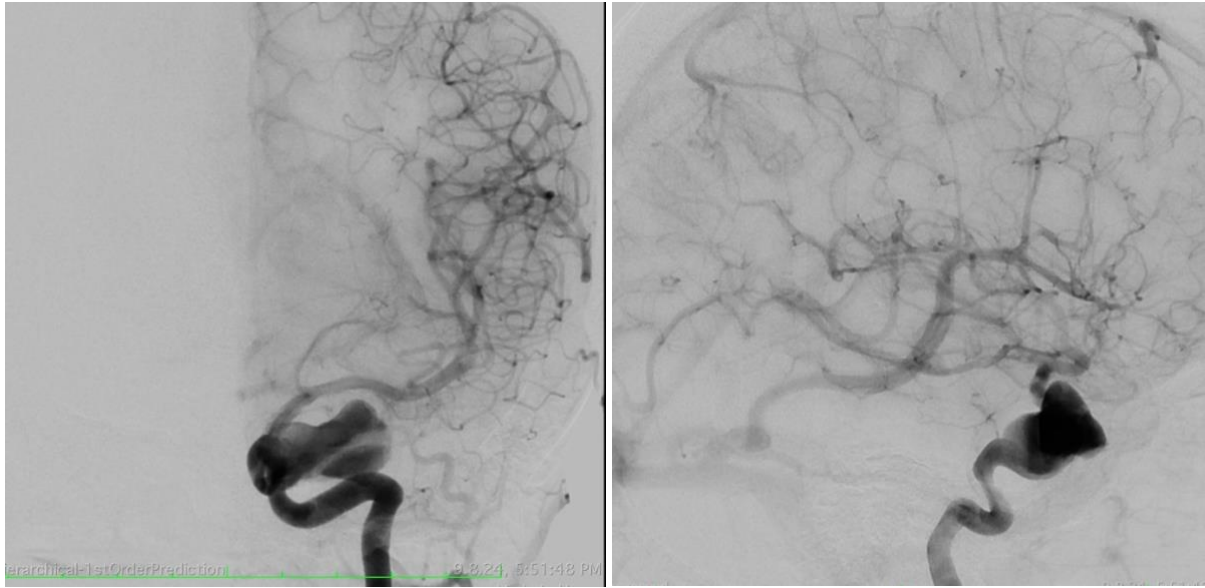


Fig 3: DSA showing giant intracranial aneurysm involving the cavernous portion of the left ICA.

BTO showed sufficient collateral blood supply, indicating the possibility of ICA exclusion, trapping, coiling or simple proximal ligation without the need of revascularization procedures. (Fig 4)

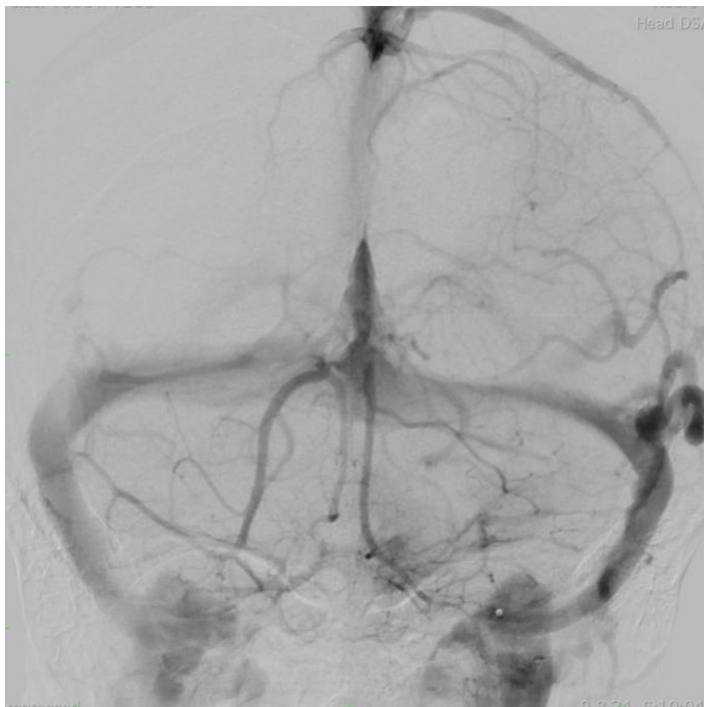


Fig 4: BTO showing symmetry of the venous phases of each hemisphere

According to BTO findings, simple exclusion of ICA would be safe, was the opinion of neuro-radiologist, confirmed by Professor Emmanuel Houdart.

Operation

Under local anesthesia, the left carotid bifurcation was exposed and after clamping the left ICA, the patient was monitored strictly after 30 min and was checked for any neurological deficit. Hunterian ligation of ICA was performed.

Post-operative period was uneventful and she discharged the next day, with the same partial III and VI left palsy. One month later, her cranial nerve palsies were improved and MRI showed progressive thrombosis of the aneurysm. (Fig 5). She is under ASA treatment for six months.

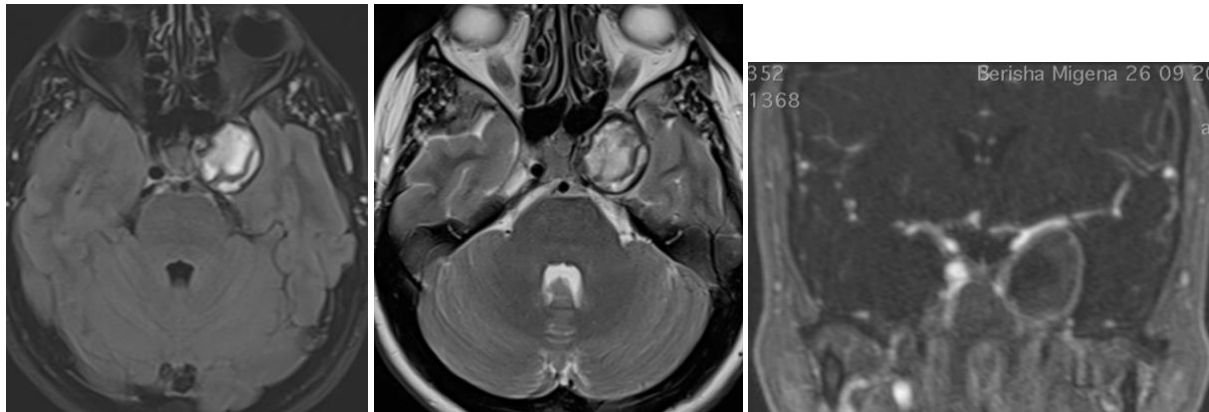


Fig 5: MRI showed progressive thrombosis of the aneurysm.

Discussion

The poor prognosis associated with untreated giant aneurysms means that intervention is necessary even in the most challenging of cases, especially when symptoms of impending rupture are present. Among many different therapeutic strategies, endovascular treatment has recently been considered as one of the first-intention treatments with encouraging results. Nevertheless, treatment failures or inability to exclude the aneurysm have been reported. Current advanced endovascular methods (FDD), have difficulty in showing the clear evidence of controlling giant, wide-necked and thrombosed aneurysms and preserving important vital perforators.

Direct clipping of exceedingly large aneurysm seems feasible as in our case. But reports say that, surgery it is extremely risky when intra-aneurysmal thrombus is present, with important perforating arteries arise nearby, even in expert hands.

Conclusion

The Hunterian ligation of ICA, after meticulous BOT investigation with supraselective DSA, remain an efficient treatment in long term results, under treatment with ASA.

LESS IS BETTER.

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