

NEUROSURGICAL IMAGE

An association between cerebral aneurysm re-bleed and CT angiography – more than a coincidence?

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Abstract

Rupture of cerebral aneurysm during CT angiogram is a rare occurrence. Here we present such a case where an aneurysmal re-rupture during CT angiogram was demonstrated.

Key words: SAH, cerebral aneurysm, re-bleeding, CT-angiogram

Introduction

Re-rupture of cerebral aneurysms is a feared complication of subarachnoid haemorrhage (SAH).¹ Whilst re-bleeding during conventional angiography is commonly described, this is not generally recognised during CT angiogram (CTA) and has only been reported in a very few cases.^{2–4} A causal link between CTA and aneurysmal re-rupture has yet to be identified.

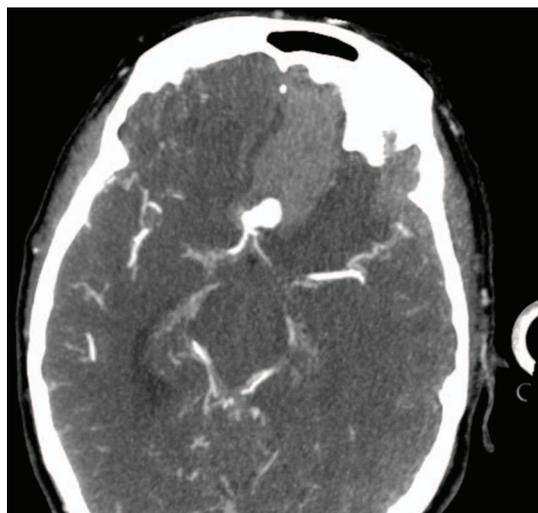
Case report

A 57-year-old hypertensive female presented with collapse following severe, sudden onset thunderclap headache whilst walking. On arrival to A/E her GCS had dropped from 15/15, following the initial headache, to 4/15 (E1,M2,V1), with equal bilateral reactive pupils. Following intubation and ventilation, a CT head scan showed a left frontal intraparenchymal haemorrhage. On arrival to local

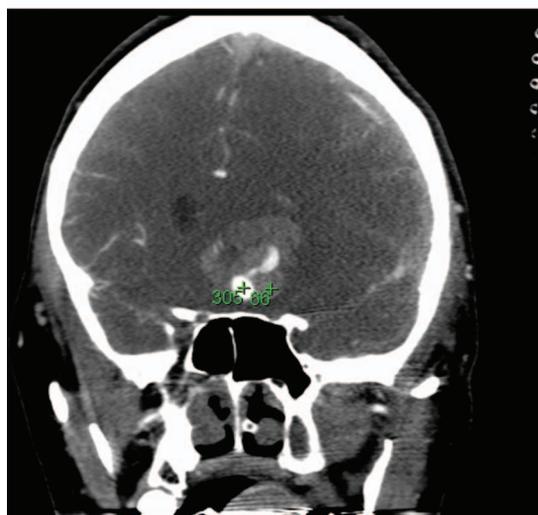
neurosurgical unit, CTA was performed within 3 h of the ictus.

Discussion

During the CTA, we identified the extravasation of contrast agent, presumed to have occurred secondary to re-rupture of an anterior communicating artery aneurysm. Our case depicts the real-time demonstration of aneurysmal re-rupture as captured by CT angiogram. (Figs. 1a,b, 2, 3). CTA may be a useful tool to detect active re-bleeding, likely to have occurred at least 120 min later in our patient. CTA can play an important role in early detection of recurrent haemorrhage and potentially allow early surgical intervention. This may have implications for out of hour's service where CTA is often a quicker and more easily obtainable modality than conventional angiogram. However, the presence of active bleeding on CTA is likely to represent a poorer prognostic sign.³



(a)



(b)

FIG. 1. (a) Axial contrast CT showing acute blood filling the basal cisterns and a large left frontal intra-parenchymal haematoma with anterior communicating artery aneurysm. (b) Coronal CT image with contrast showing difference in Hounsfield units between the extravasated contrast and acute blood.

Acknowledgement

Informed written consent was obtained from the patient's next to kin.

Declaration of interest: The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

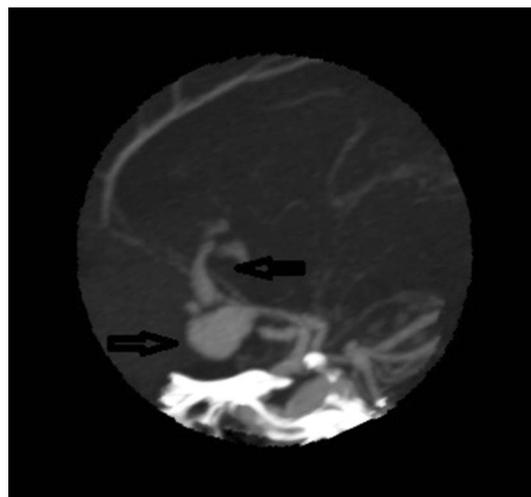


FIG. 2. Sagittal multi-planar reformat (MPR) showing luminal opacification of the aneurysm with acute extravasation into the base of the parenchymal haematoma.

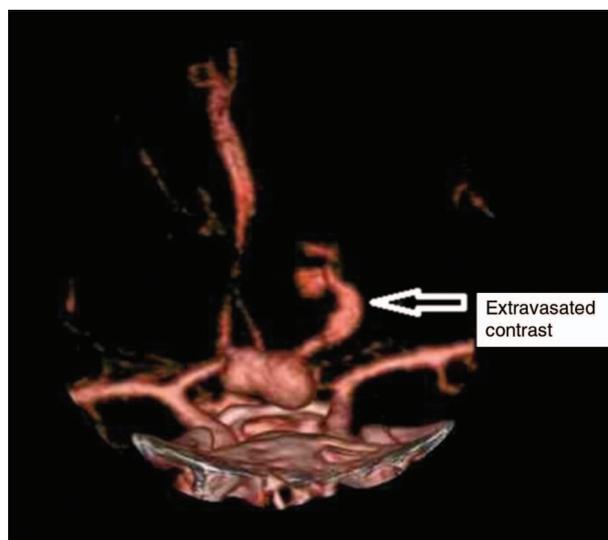


FIG. 3. 3D volume rendered image viewed coronally depicting A2 segment attenuation secondary to vasospasm and a tongue of extravasated contrast from the aneurysm extending laterally.

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