

Vascular lesions associated with HIV

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Much of the international literature concerning this topic is based on paediatric cases.¹⁻⁴ Case reports from KwaZulu-Natal (KZN), the region with the highest estimated incidence of HIV-seropositivity in sub-Saharan Africa, currently reported at 36% of the population, report findings in both HIV-positive paediatric and young adult patients.⁵ There is otherwise little information available on this subject, and most findings are based on postmortem results. Research and knowledge in this area will be important to prevent, detect and treat the complications of HIV vasculopathy.

A wide range of vasculitides have been identified in HIV-positive patients, and include the following:

1. A vasculitis resulting from specific infective agents. Relatively commonly encountered examples include tuberculosis and cytomegalovirus.
2. A hypersensitivity vasculitis.

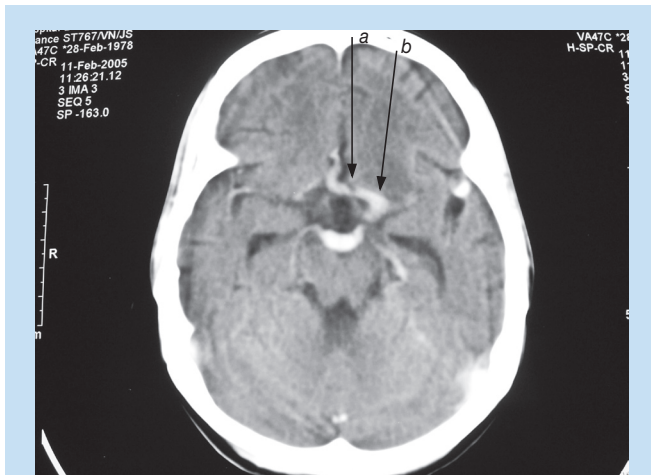


Fig. 1. CT scan of the brain with IV contrast: An area of narrowing (a) at the origin of prominent anterior cerebral artery, and (b) left middle cerebral artery.

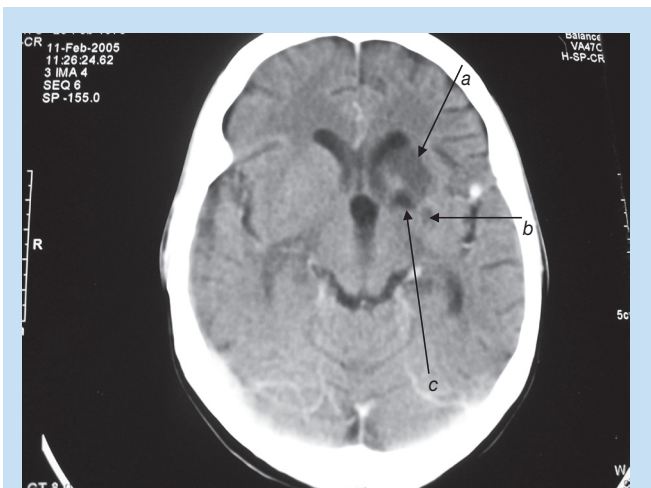


Fig. 2. CT scan of the brain with IV contrast. Indeterminate age infarcts of (a) left caudate head and (b) lentiform nucleus and (c) an old lentiform nucleus/internal capsule infarct.

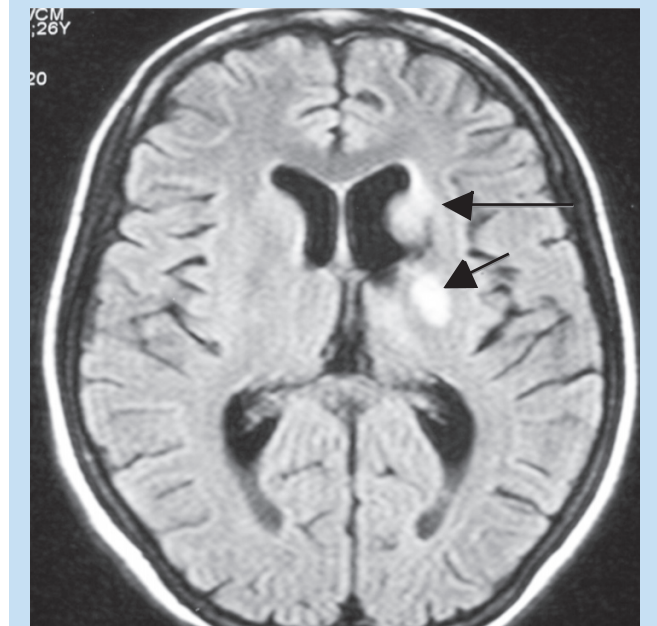


Fig. 3. MRI scan of the brain, FLAIR sequence, showing high signal intensity foci (arrows) corresponding to the CT findings.

PICTORIAL REVIEW

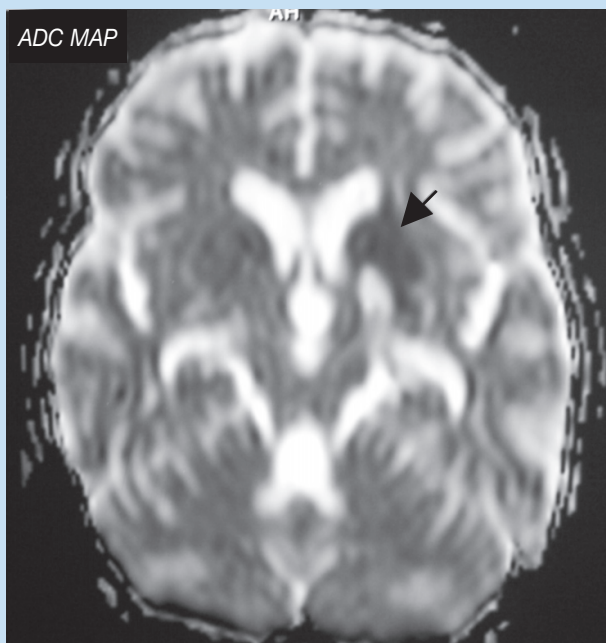
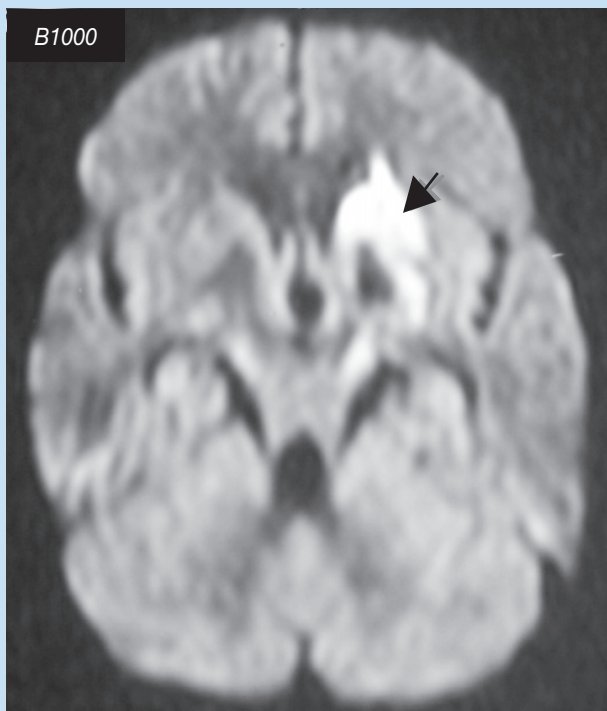


Fig. 4. MRI diffusion weighted imaging (DWI) sequence, B 1000 sequence showing a high signal intensity in the left caudate nucleus, with a corresponding low signal intensity on the Apparent Diffusion Coefficient (ADC) map, suggestive of a recent infarct. The region corresponding to the old infarct of the lentiform nucleus has low signal intensity on the B1000 and high signal intensity on the ADC map.

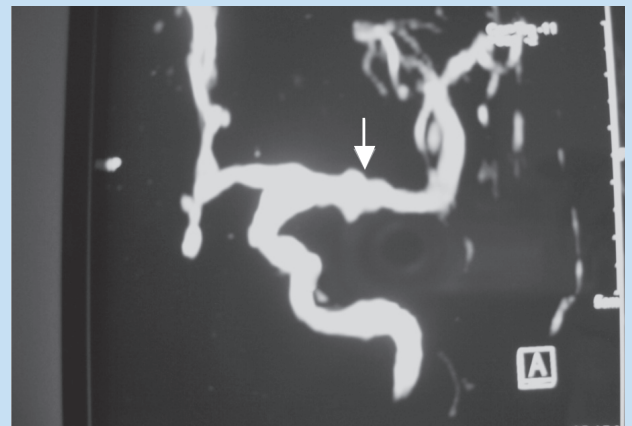


Fig. 5. Magnetic resonance angiogram (MRA) showing vascular irregularity with alternating areas of stenosis and dilatation of the middle cerebral artery (arrow).

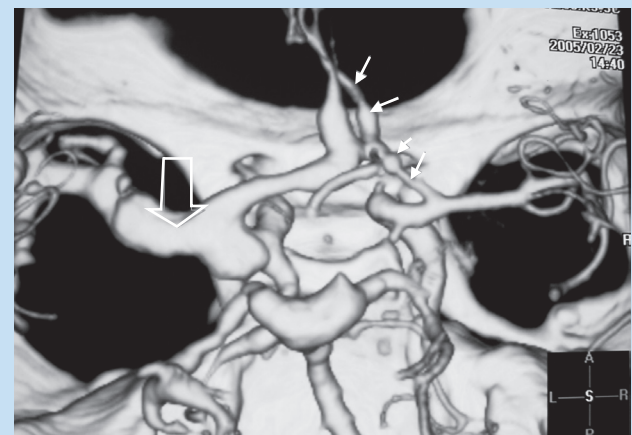


Fig. 6. Computed tomography angiogram (CTA) of the circle of Willis, showing vasculopathy with alternating areas of stenosis and dilatation of the proximal anterior cerebral artery (arrows) and middle cerebral artery (open arrow).

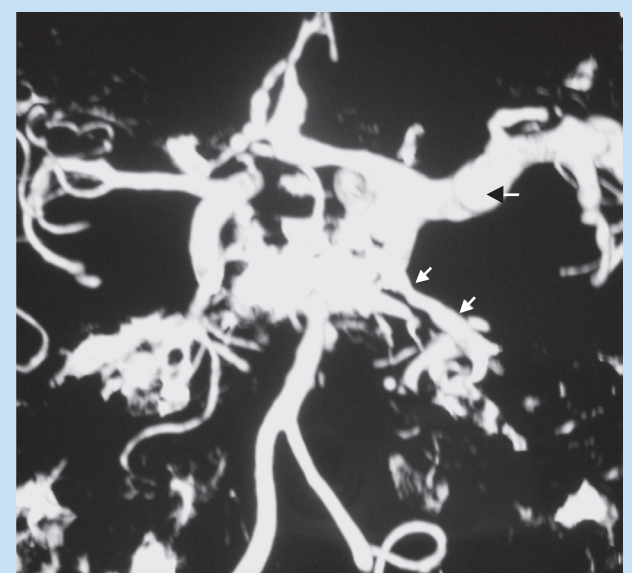


FIG. 7. CTA of the circle of Willis, showing vasculopathy with alternating areas of stenosis and dilatation

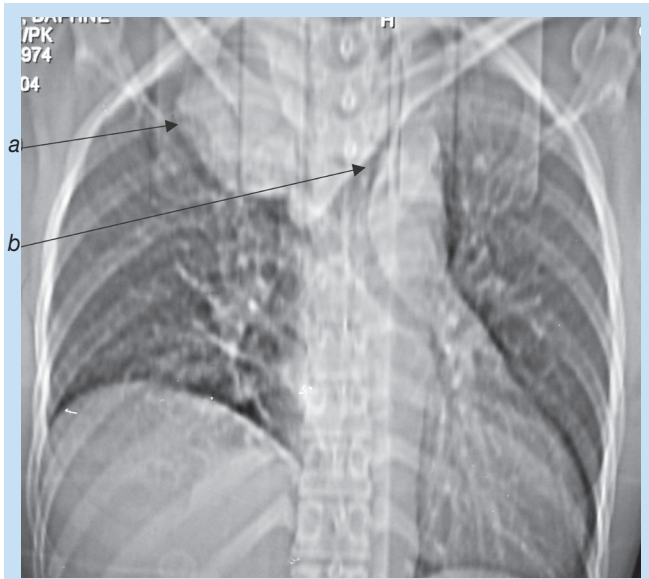


Fig. 8. Frontal chest radiograph: (a) right superior mediastinal mass with (b) narrowing and displacement of the trachea to the left.

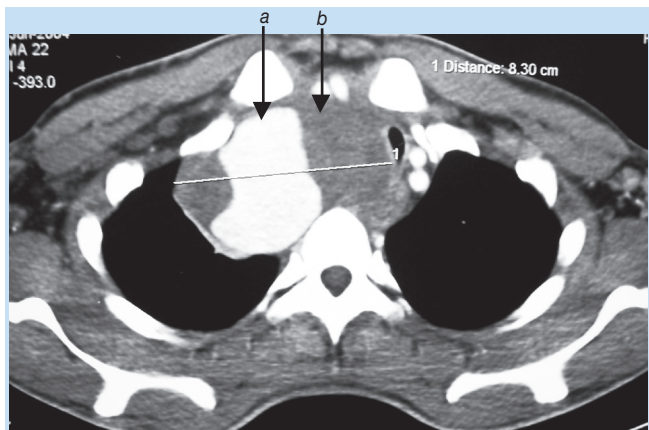


Fig. 9. Axial CT scan of the chest through the superior mediastinum: (a) false aneurysm of the brachiocephalic trunk with (b) associated mural thrombus. There is no extravasation of contrast from the vessels. The trachea is narrowed and deviated to the left.

3. A granulomatous inflammation, involving small arteries and veins of the brain
4. A recently described large-vessel vasculopathy resulting in either multiple aneurysms or occlusions.
5. A polyarteritis nodosa-like vasculitis
6. Non-specific HIV-associated vasculitis.

A selection of HIV-positive patients falling into category 4 are presented here. The patients were all proven to be HIV-positive, with no specific infective agent such as tuberculosis isolated, and no evidence for any other of the causes listed above. The patients were not hypertensive, and had no diabetes, hypercholesterolaemia or myocardial disease to account for their vascular pathology. Only one of the patients was not being treated on antiretroviral agents, and succumbed a few days after seeking medical attention.

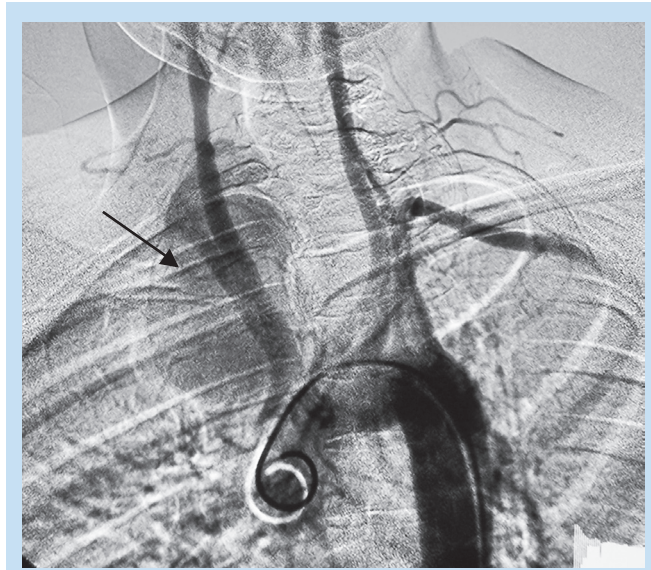


Fig. 10. Aortic angiogram confirmed the CT findings. The thoracic and abdominal aorta showed multiple false aneurysms of medium and small size. The patient underwent surgery to repair the symptomatic superior mediastinal aneurysm (arrow) and recovered well postoperatively.

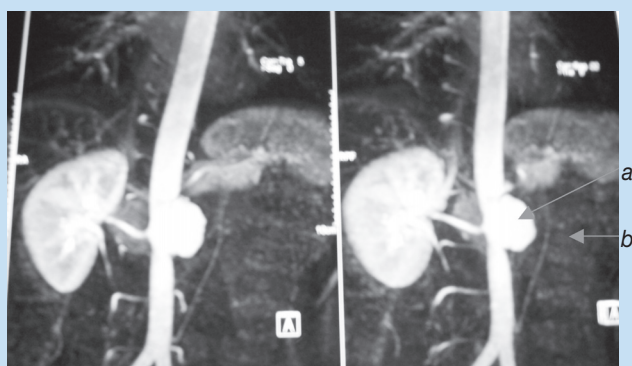


Fig. 11. MRA (a) Left aortic/renal artery false aneurysm with (b) non visible kidney. The right kidney was normal, as was the remainder of the study.



Fig. 12. Angiogram showing the left renal false aneurysm (arrow) with no visible left kidney. The right nephrogram is normal, although the right renal artery (open arrow) is irregular and diseased.

Patient reviews

Patient 1, a 26-year old female, presented with a right hemiplegia and confusion. Seropositivity for HIV had been discovered a year prior to this presentation. Her CD4 count presently was 14 cells/mm³. The patient had never been on antiretroviral treatment.

A CT scan of the brain without and with intravenous contrast revealed the findings illustrated. The patient also underwent a MRI scan and a computed tomography arteriogram (CTA) (Figs 1 - 7).

The patient died a week after the presentation and imaging. The postmortem findings corresponded with the radiological findings. Histology revealed fibrosis of the media with loss of the muscularis, destruction of the internal elastic lamina and hyperplasia of the intima.

Patient 2 was a 30 year-old HIV-positive male with a CD4 count of 150 cells/mm³. He was being treated with antiretroviral agents. He presented with stridor, as well as a swollen right face and neck. He underwent imaging with a chest radiograph, CT chest and digital subtraction angiography (DSA) (Figs 8 - 10).

Patient 3 was a 22-year-old male, known to be HIV-positive for 2 years and treated on antiretroviral agents for 1 month. He presented with severe hypertension and abdominal pain. He was imaged using magnetic resonance angiography (MRA) and DSA (Figs 11 and 12).

Acknowledgements

Dr S Candy, Mr S Mamputha.

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