IMAGING IN HEMIPARESIS: DANGEROUS PITFALLS

Simon S Gill
BSc MBBS
Radiology SpR
Department of Imaging
Imperial college Healthcare NHS Trust
Fulham Palace Road, London, W6 8RF, UK
simon.gill@doctors.org.uk

CASE REPORT

A hypertensive 45-year-old Afro-Caribbean lady, presented with left-sided facial and body weakness. On examination, she had left-sided: visual inattention; upper motor neurone seventh cranial nerve palsy; and lower limb sensorimotor deficit with extensor plantar response. Capillary glucose was raised at 22 mmol/l. She was clinically diagnosed with right-sided stroke and type 2 diabetes mellitus. On day 1, computer tomography (CT) imaging did not clearly demonstrate any areas of haemorrhage or infarction. However, on day 3, magnetic resonance (MR) images were suggestive of a ring-enhancing lesion, with appearances highly suspicious of a tumour or an abscess (panel A). The patient had no recent history of exotic travel, was apyrexial with normal inflammatory markers. The team broke the bad news to the patient and her family, of a most likely metastatic cancer of an unknown primary. Over the next several weeks, the extremely religious family engaged in regular bedside prayer. Surprisingly, the patient started to significantly regain her function and strength. The family declared the extraordinary recovery as a divine miracle. Following multidisciplinary team discussion and further imaging, the diagnosis was corrected to an ischaemic stroke rather than a space-occupying lesion (panel B).

DISCUSSION

Stroke is the third most common cause of death in the United Kingdom and second most common cause of death worldwide(1). It is characterised by the rapid development of a neurological deficient, whose effects last more than 24 hours or leads to death, with only a vascular cause identified(2). CT
Panel A: Initial cross-sectional imaging (left, day 1 CT and right, day 3 MR). The latter showing luxury perfusion phase of ischaemic stroke, which can be mistaken for a ring-enhancing lesion.

Panel B: Interval cross-sectional imaging (left, week 6 CT and right, month 6 MR). The latter showing cortical laminal necrosis within an infarct.
and MR image interpretation, in the early stages of acute ischaemic stroke are problematic. In particular, between days 3 and 21, the peri-infarct region undergoes luxury perfusion, which can be misinterpreted as a ring-enhancing lesion on MR, as in this case(3). A misdiagnosis during this time can lead to inappropriate anxiety for the patients and significant delays for acute stroke intervention. In acute ischaemic stroke imaging, the signal increase in diffusion weighted MR can be very useful, with the apparent diffusion coefficient falling within minutes of a vascular occlusion(4). We report a case of a common condition with misleading cross-sectional appearances of a ring-enhancing lesion, highlighting the importance of both: multidisciplinary team discussion and diffuse weighted MR in stroke imaging interpretation.

REFERENCES

[3] Positron emission tomography in ischaemic stroke: cerebral perfusion and metabolism after stroke onset Masahiro Yasaka MD PhDa, Stephen J. Read MBBSa, Graeme J. O'Keefe PhDb, Gary F. Egan PhDb, Owen Pointon MD FRACPb, W. John McKay MD FRACPb and Geoffrey A. Donnan MD FRACP