Herpes simplex virus infection presenting as stroke-like symptoms with atypical MRI findings

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A previously independent 63-year-old women with obesity, obstructive sleep apnoea, type 2 diabetes, and hypercholesterolaemia presented to our stroke team on July 25, 2017, with sudden-onset receptive and expressive dysphasia and right-sided neglect. Her symptoms were managed with antiplatelets. 5 days earlier, she had fallen and sustained an undisplaced fracture of the right humerus. Subsequently, she had intermittent confusion (eg, she was unable to recall her daughter's name and had placed her mobile phone in boiling water). Low attenuation mimicking acute infarction was visible, on an unenhanced CT brain scan, in the left insular cortex. She progressed rapidly, developing pneumonia, heart failure, and seizures.

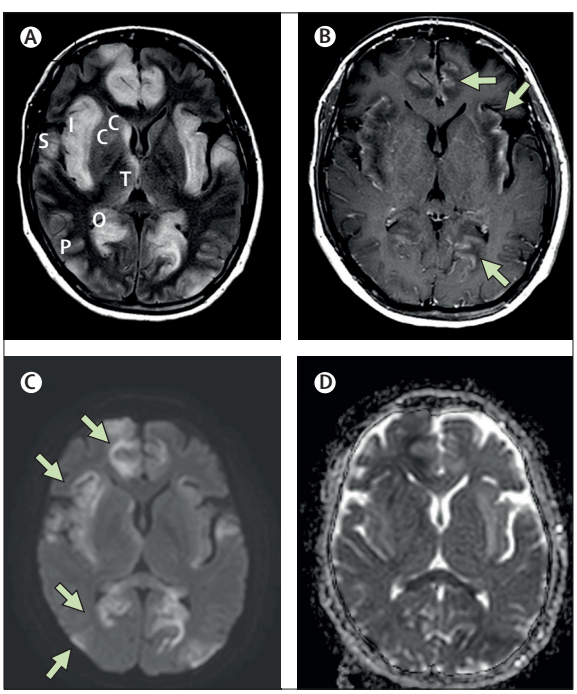

Figure: **Brain MRI showing restricted diffusion and areas of subcortical oedema**
(A) Fluid-attenuated inversion recovery image. Signal changes are observed in the sub-frontal (S), parietal (P), occipital (O), and insular lobes (I); bilateral thalami (T); and right caudate and lentiform nuclei (C). (B) Axial post contrast image showing gyriform enhancement (arrows). (C) Diffusion-weighted image showing regions of restricted diffusion (arrows), with corresponding apparent diffusion coefficient map (D).

Her brain MRI (figure), acquired on Aug 2, 2017, shows restricted diffusion and areas of subcortical oedema, which did not conform to vascular territories. The abnormalities predominantly affected the limbic system with widespread leptomeningeal involvement, which can be suggestive of viral encephalitis. Cerebrospinal fluid (CSF) PCR confirmed herpes simplex virus type 1 encephalitis. She completed a 21-day course of 10 mg/kg intravenous aciclovir (initially calculated for actual bodyweight, then adjusted for ideal bodyweight) until Aug 23, 2017; CSF PCR done that day confirmed clearance of the virus. Her level of alertness continued to fluctuate and she was discharged to the Royal Hospital Chelsea for Neuro-disability.

The most common presentation of herpes simplex virus encephalitis is usually asymmetric, sparing the basal ganglia and occipital and parietal lobes. For this patient, in addition to the classic changes involving the temporal lobes, cingulate gyri, and insular cortices, there was involvement of the subfrontal, parietal, and occipital lobes, bilateral thalami, and right caudate and lentiform nuclei (figure).

This case shows that the presentation of herpes simplex virus type 1 encephalitis can be sufficiently acute to mimic an infarct, as was the case for this patient with the initial CT imaging. The atypical nature of this presentation led to a subsequent delay in diagnosis and treatment. This case also shows non-haemorrhagic symmetrical involvement of the limbic system, which is more typically seen in children with herpes simplex virus infection.

Contributors
CNC drafted the manuscript and reviewed the patient notes. NK selected the patient images. ACP revised the manuscript. All authors have approved the final version of the manuscript.

Declaration of interests
We declare no competing interests.