

Ring lesions in the brain: a harmless commensal?

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DESCRIPTION

A 72-year-old gentleman, type 2 diabetic, was admitted in the hospital with a head injury which was a result of a fall. Several weeks before, he had been investigated and treated for a community-acquired pneumonia, left pleural effusion and confusion. CT brain showed right frontal encephalomalacia.

On re-examination, drowsiness, extensor plantar responses and signs of a left pleural effusion were recorded. He was afebrile.

His white cell count was $12.3 (4.0-11.0 \times 10^9)$, neutrophils $10.8 (1.5-7.0 \times 10^9)$, C reactive protein 5 (0–4) mg/l, urea 5.0 (1.7–8.3) mmol/l and glucose 6.8 (4.0–7.0) mmol/l. Repeat CT and MRI scans of the brain revealed 'new multiple bi-hemispheric ring-enhancing lesions', thought to represent abscesses (figure 1).¹ Blood cultures were sterile. Transthoracic echocardiogram was normal. A persisting pleural effusion was noted: aspirate of

pus revealed Gram-positive cocci identified as *Streptococcus milleri* on PCR.

He was prescribed a 6-week course of intravenous ceftriaxone, oral metronidazole and a short course of dexamethasone. Continuing clinical and radiological improvement has been documented up to 12 weeks.

The causes of ring-enhancing lesions include infection (eg, pyogenic, tuberculosis, toxoplasmosis and neurocysticercosis), inflammation (eg, sarcoidosis) and malignancy (eg, lymphoma).¹ MRI is the non-invasive modality of choice to characterise cerebral lesions. Restricted diffusion (of water molecules) in an abscess is a feature aiding differentiation from centrally necrotic tumours; however, it is not pathognomonic. Microbiological diagnosis is crucial, and is dependent on adequate sampling, including for anaerobes, of bronchial secretions, blood and pus, before antimicrobial therapy.^{2 3} A biopsy of a brain lesion may be necessary. Unrecognised brain abscess is fatal.

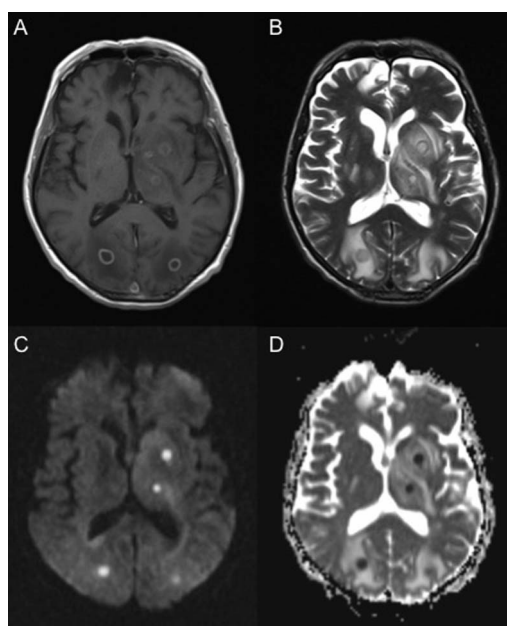


Figure 1 (A) Gadolinium-enhanced T1-weighted axial MRI showing multiple small ring-enhancing lesions within both cerebral hemispheres including the left basal ganglia and thalami. (B) On T2-weighted axial MRI, these lesions have high T2 signal centrally with a rim of low T2 signal and surrounding oedema. (C) The lesions have high central signal on diffusion-weighted MRI with corresponding restriction on the apparent diffusion coefficient map (D), in keeping with cerebral abscesses.

Learning points

- ▶ MRI is the non-invasive modality of choice to characterise cerebral lesions.
- ▶ However, distinguishing brain abscesses and multiple metastases is challenging: a biopsy of a brain lesion may be necessary.
- ▶ The *Streptococcus milleri* group of commensals, inhabiting the oropharynx, gut and vagina, is increasingly recognised as an important cause of brain abscess and empyema in compromised individuals, for example, diabetics, alcohol-dependents, etc.

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Competing interests None.

Patient consent Obtained.

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