Dementia in a diabetic man

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A 62-year-old diabetic man presented with occasional fatigue in lower extremities and slowed thinking and calculation. He had been treated with oral hypoglycaemic agent for his diabetes mellitus of 19 years duration, and was normotensive. His family and he failed to give any history of head trauma. He had no history of heavy drinking, or taking anticoagulants and had no bleeding tendency.

Neurological examination revealed no remarkable abnormalities, and manual muscle testing was full. Pupillary dilation, papilloedema and symptoms of elevated intra cranial pressure were absent. Complete blood cell count was normal and no coagulopathy was present. His skull was intact radiologically. Magnetic resonance imaging (MRI) was performed for the evaluation of his non-progressing dementia (figure).

Figure T1-weighted MRI

Questions

- 1 What is the most probable diagnosis?
- 2 How would you treat this patient?

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Answers

QUESTION 1

T1-weighted MRI unexpectedly revealed right subacute subdural haematoma (arrow), and left chronic subdural haematoma (arrowhead) which appeared less intense due to increased oxidation of methaemoglobin to non-paramagnetic forms.¹ Higher protein content seems to have caused higher signal intensity of the chronic subdural haematoma than that of cerebrospinal fluid.²

QUESTION 2

Operative resection of haematomas is indicated. In this case, bilateral burr hole irrigation was performed. Dark red, bloody fluid was aspirated from the right subacute haematoma, and transparent yellowish fluid was aspirated from the left chronic haematoma, indicating that each haematoma was formed by separate bleeding episodes, which is also compatible with the different intensity of the two haematomas on T1-weighted MRI. After surgery, slowed thinking and calculation and leg fatigue disappeared.

Discussion

Some patients with chronic subdural haematoma (20–30%) fail to give a history of injury partly due to loss of memory, particularly elderly patients.³ Bilateral subdural haematomas, however, are usually formed by a single episode of head injury or violent movement of the head, and those formed by two or more non-traumatic episodes are rare. Heterogenous intensity inside of the left chronic haematoma

1 Ebisu T, Naruse S, Horikawa Y, et al. Nonacute subdural hematoma: fundamental interpretation of MR images based on bio-chemical and in vitro MR analysis. *Radiology* 1990; 171: 449.

2 Bradley WG. Magnetic resonance imaging of the central nervous system. *Neurol Res* 1984; 6: 91–106.

Learning points

- bilateral subdural haematomas may be formed without traumatic episodes
- relatively elderly patients with dementia of acute onset may have subdural haematomas, which are surgically curable

on MRI suggests recurrent bleeding of a pre-existing haematoma, which indicates the importance of early detection. Large subdural haematomas may be formed in the absence of typical symptoms such as severe headache and without any history of even minor injury or acceleration forces to the head. Our patient lacked severe or persisting headache, nausea or vomiting and typical neurological symptoms were absent, except for slowed thinking and leg fatigue. We must remember that subdural haematomas are not necessarily caused by injury or acceleration forces to the head, even in patients under 65. Non-progressing dementia-like symptoms of rapid onset may be the only prominent symptom and persisting headache may be absent. A computed tomography or MRI of the brain is recommended in suspected patients because burr holes or an emergency craniotomy are often necessary.

Final diagnosis

Chronic subdural haematoma.

Keywords: haematoma, burr hole irrigation, magnetic resonance imaging, headache

3 Ropper AH. Trauma of the head and spine. In: Isselbacher, Adams, Braunwald et al, eds *Harrison's Principles of internal medicine*. 13th edn. New York: McGraw-Hill, 1994; pp 2320–4.