Acute delirium in a 65-year-old man

CASE REPORT

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CASE REPORT

A 65-year-old man was admitted for wandering in a shopping mall with confused speech and violent behaviour. Upon arrival, detailed history could not be elicited as no informant was available. Physical examination revealed a Glasgow Coma Score of 14/15, high fever (40°C) and his blood pressure measured at 200/115 mm Hg. Physical examination revealed that he was in an appalling hygienic state with cellulitis over right ankle area, and no neck stiffness or focal neurological signs could be elicited. Examination of other systems was unremarkable. He had a high white cell count (12.7 x 10^9 /L) with neutrophilia (8.9 x 10^9 /L) and monocytosis (1.7 x 10^9 /L). Liver and renal function test results were normal, but there was hyponatremia (Na, 127 mmol/L) compatible with the syndrome of inappropriate anti-diuretic hormone activity. Clotting profile and toxicology screen were non-contributory. Urgent computed tomographic (CT) scan of the brain showed no gross brain lesion. Lumbar puncture showed an increase in total cerebrospinal fluid (CSF) white cell count (108 x 10^6 /L) with lymphocyte predominance (53%); the red cell count was 2 x 10^6 /L. Cerebrospinal fluid biochemistry showed a marked increase in protein (1.3 g/L); the glucose level was 5.1 mmol/L (with a simultaneous plasma glucose of 7.2 mmol/L). He was empirically treated as having a central nervous system infection with intravenous (IV) antimicrobials (penicillin G + cefotaxime and IV acyclovir). Magnetic resonance imaging (MRI) showed T1-weighted hypointense (**Fig 1a**) and T2-weighted hyperintense lesions in the medial and posterior right temporal lobe, right inferior frontal lobe, right sub-insular, external capsule and the right thalamus (**Fig 1b**). These MRI findings were radiologically compatible with herpes encephalitis (HSE) [**Fig 2**].

Electroencephalography findings were non-specific. The CSF smear and culture revealed no bacteria or fungi (specifically no tuberculous bacilli or cryptococcal antigen). Notably, CSF tested by polymerase chain reaction (PCR) was positive for herpes simplex virus (HSV). Human immunodeficiency virus serology test was negative. He was treated as HSE with IV acyclovir. After 5 days of IV acyclovir, his fever resolved and Glasgow Coma Score became 15/15. In all, he received IV acyclovir for 14 days. A repeated lumbar puncture revealed a CSF with zero total cell count with normal biochemistry, and the PCR was negative for HSV. Clinically, he recovered fully after a course of rehabilitation and was discharged after having made an uneventful recovery.

DISCUSSION

Delirium, or acute confusional state, is a common problem among elderly patients admitted to hospitals. It can result in a prolonged hospital stay, morbidity, and even mortality.[1] Common causes of delirium include central nervous system infection, cerebrovascular accident, head injury, psychotropic drugs, pulmonary or urinary tract infections, electrolyte disturbances, hypoglycaemia, hypothermia, and alcohol abuse.[2] The initial approach to managing a delirious patient involves ensuring safety, as well as prompt diagnosis and treatment of underlying cause.

Encephalitis is a neurologically devastating illness; in elderly patients it is associated with substantial morbidity and mortality. According to a prospective study conducted in Taiwan,[3] herpes simplex was the major cause of encephalitis in the elderly population. In contrast to the usual presentation of HSE in young adults, in elderly patients the presentation can be quite subtle,[4] and may entail behavioural changes and amnestic cognitive disturbance. Also, features of meningeal irritation are not commonly elicited in

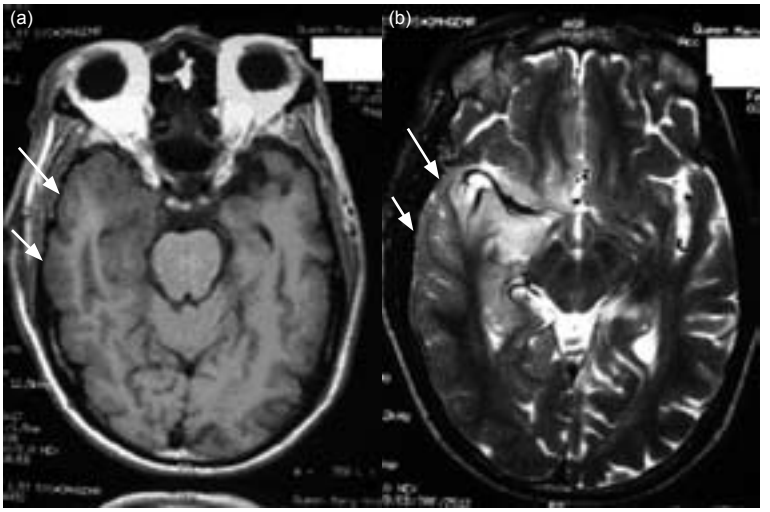

Figure 1. (a) T1-weighted magnetic resonance imaging (MRI) showing hypointense lesions in the medial and posterior right temporal lobe, right inferior frontal lobe, right sub-insular, external capsule and the right thalamus (arrows). (b) T2-weighted MRI showing hyperintense lesions in the medial and posterior right temporal lobe, right inferior frontal lobe, right sub-insular, external capsule and the right thalamus (arrows)

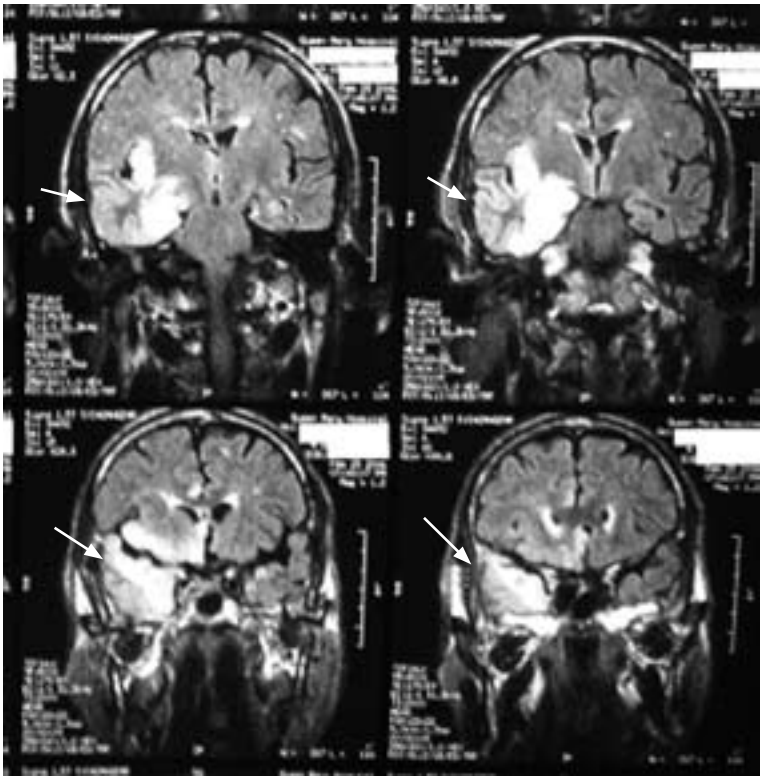

Figure 2. Coronal section of brain showing typical feature of herpes encephalitis (arrows)

this age-group.[3] A high index of suspicion is therefore needed to make the diagnosis of HSE in an elderly person presenting with fever and cognitive changes.

With respect to investigations, CT scans of the head are insensitive for detecting brain abnormalities early in HSE, but may be helpful in excluding space-occupying lesions, such as brain abscess or intracranial haemorrhage, which confer additional risk if a lumbar puncture is performed.

Instead, an MRI scan of the head is the investigation of choice for both the diagnosis and monitoring of treatment response in HSE patients.[5,6] The MRI typically shows involvement of the inferomedial region of one or both temporal lobes.[7] In one study, its sensitivity and specificity were found to be 85% and 60%, respectively.[8] Cerebrospinal fluid is the mainstay of a specific diagnosis, based on PCR analysis for HSV DNA as the main confirmatory test.[9,10] The test has 90% to 95% sensitivity and more than 90% specificity when HSV-1 is the cause of encephalitis[11,12]; while other CSF abnormalities are non-specific. Electroencephalography remains an adjunctive test, and may specifically show abnormal periodic lateralised epileptic-form discharges from the involved temporal lobe. In clinical practice however, clinicians have to make the diagnosis of HSV encephalitis and treat accordingly based on clinical suspicion and typical MRI findings, while awaiting the results of PCR analysis for HSV DNA.

Overall, the outcome of elderly patients with HSE is worse than that in the young.[4] Thus, the importance of early diagnosis and prompt treatment of elderly patients with HSE cannot be over-emphasised.[13] In the acute setting, when the suspicion is first raised, early empirical treatment is recommended while diagnostic evaluation proceeds.[7] Acyclovir, given for 14 to 21 days by IV infusion, is the standard treatment of choice. More severe cases deserve a 21-day course of therapy. Acyclovir is generally well-tolerated, though neurotoxicity and nephrotoxicity should be considered, especially among elderly patients with renal impairment.[14,15] The complications of HSE should be treated individually; the aim being to reduce encephalitis-associated mortality and morbidity (cognitive and motor deficits). Whether prolonged therapy with oral antiviral treatment after standard courses of IV acyclovir offers any advantage remains unproven.

In conclusion, the present case serves to illustrate that prompt diagnosis and management of acute delirium is vital to the outcome. Good neurological recovery is possible after HSE, as long as early empirical IV acyclovir treatment is instituted in the presence of clinically suspicious circumstances.

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