Alzheimer’s disease identified in a patient with bullous pemphigoid by dementia screening scales

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To the Editor: A 73-year-old man presented with erythemas on his trunk and limbs with significant itching, which he had experienced for 11 months [Figure 1A and 1B]. Histological examination of his skin biopsy revealed sub-epidermal blister formation with eosinophilic and lymphocytic infiltration in the dermis. Direct immunofluorescence revealed the presence of a linear deposition along the basement membrane zone (BMZ). Indirect immunofluorescence revealed that the patient’s serum was positive (titer ≥1:320) for anti-BMZ antibodies. Anti-BP180 antibody was 102 U/mL. Based on these findings, a diagnosis of bullous pemphigoid (BP) was established.

The patient was admitted to our hospital on September 21, 2017. During his hospitalization, we noticed that he exhibited bluntness and impaired short-term memory. Further investigation revealed a history of about 2 years of memory decline and a positive family history of dementia; both his father and sister had had dementia. Screening tests for dementia revealed an impaired cognition, as revealed by a score of 25 on the mini-mental state examination (MMSE) and a score of 19 on the montreal cognitive assessment (MoCA). A detailed neuropsychological test battery was implemented by a neurologist at our hospital, and the results demonstrated cognitive deficits in multiple domains, including memory, executive function, and visuospatial abilities. His apolipoprotein E (ApoE) genotype was ε4/ε4, which has been shown to be directly correlated with Alzheimer’s disease (AD).[1] Electroencephalogram was mildly abnormal. The T2-weighted magnetic resonance imaging of brain showed mild hippocampal atrophy [Figure 1C] and high-signal intensities in periventricular white matter. The patient was diagnosed with AD by the neurologist, who then prescribed him with vitamin B6 (10 mg/day), folic acid (5 mg/day), and cobalamin (0.5 mg/day).

This patient was treated with methylprednisolone (48 mg/day) and tripterygium glycosides (60 mg/day). He was reminded to visit a neurologist regularly for his AD control and had no recurrence of BP after 18 months of follow-up.

In recent decades, BP has been shown to be associated with neurological disease (ND). AD is the most common ND associated with BP, and usually progress gradually, such that it can go undiagnosed for years. Indeed, dermatologists are sometimes the first to discover neurological abnormities in patients with BP.[2] Diagnosing ND earlier would result in more effective health care and a better quality of life.

Early-stage dementia is associated with relatively mild symptoms and is thus often overlooked in clinical practice. Comprehensive diagnosis of dementia requires multiple evaluations performed by neurologists, including cognitive functioning tests and brain imaging. In this case, the neurologist diagnosed AD based on clinical appearance, various imaging examinations, laboratory tests, and the results of dementia screening scales. This allowed us to intervene and medicate the patient in a timely way, which might improve his prognosis. MMSE and MoCA are widely used scales for screening dementia, and are adopted around the world. Studies have shown that while the MMSE could effectively distinguish between normal patients and those with dementia, it is less able to differentiate between normal patients and those with mild cognitive impairment (MCI).[3] The MoCA can go some way to make up for this, since it has a higher sensitivity in the diagnosis of MCI than does the MMSE.[4]

This case study suggests that, when identifying a patient with BP and suspected mental disorders, clinicians should be aware of the possibility of ND. We recommend the combined use of the MMSE and MoCA to examine this,
as these are sensitive tools for cognitive impairment screening.

**Declaration of patient consent**

The authors certify that they obtained all appropriate patient consent forms. The patient also provided consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and all efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

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**Conflicts of interest**

None.

**References**


