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Case report

Delayed encephalopathy with movement disorder and catatonia: A rare combination after wasp stings

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1. Introduction

Wasp stings are relatively common, which may produce local reactions and even systemic toxic reactions such as headache and hypotension. Although there are a few case reports of neurological involvement such as encephalomyelitis, Guillain–Barré syndrome, myasthenia gravis and peripheral neuritis, delayed encephalopathy caused by wasp stings has been rarely reported. Here we report a case of delayed encephalopathy with 20-day remitting period secondary to acute toxic reaction of venom.

2. Case report

A 44-year-old male, with no previous insect sting history, presented with hypokinesia and taciturnity 20 days after wasp stings. On October 9, 2010, he was stung by wasps outdoors on the scalp, face and extremities. He immediately had pain and was unconscious for a few minutes. Without any treatment, he recovered miraculously and walked home alone. He then resumed his daily routine as an agricultural labourer.

He was found to be clumsy and mute 20 days after being stung and was admitted to local hospital. Chest X-ray, electrocardiogram (ECG) and blood routine test were normal. Brain CT found diffuse symmetric low-density lesions bilaterally in globus pallidus (Fig. 1A). MRI showed hypointense signal on T1-weighted image (Fig. 1B) and hyperintense signal on T2-weighted (Fig. 1C) and on fluid-attenuated inversion recovery (Fig. 1D) images. After initial diagnosis of intoxication caused by wasp stings, he was administered with therapeutics for one month with risperidone, sulpiride, benzhexol as well as acupuncture; then, he responded verbally to some stimuli (e.g. pain and hungry). Two months after discharge, the patient was admitted to us since he became immobile, wordless, and refused to eat, drink and even sleep. He made no response to question or command. Physical examination showed lead pipe rigidity in all limbs, with normal deep tendon reflexes. Plantar reflexes were flexor. Laboratory investigation showed an increased level of an erythrocyte sedimentation rate of 18 mm in the first hour. Hepatitis B virus surface antigen and core antibody were positive, with slightly increased level of blood glutamic–pyruvic transaminase (79.0 U/L) and glutamic–oxaloacetic transaminase (49.0 U/L) whereas level of blood ammonia was normal. Blood tests for toxoplasma, cytomegalovirus and herpes simplex virus were negative, and so were venereal disease and human immunodeficiency virus tests. CSF was normal except a slight increase of intracranial pressure at 190 mm H_2O. Electroencephalogram (EEG) only presented a slightly slower alpha rhythm (8–9 Hz) and sporadic theta activity. The lesions in globus pallidus showed by MRI

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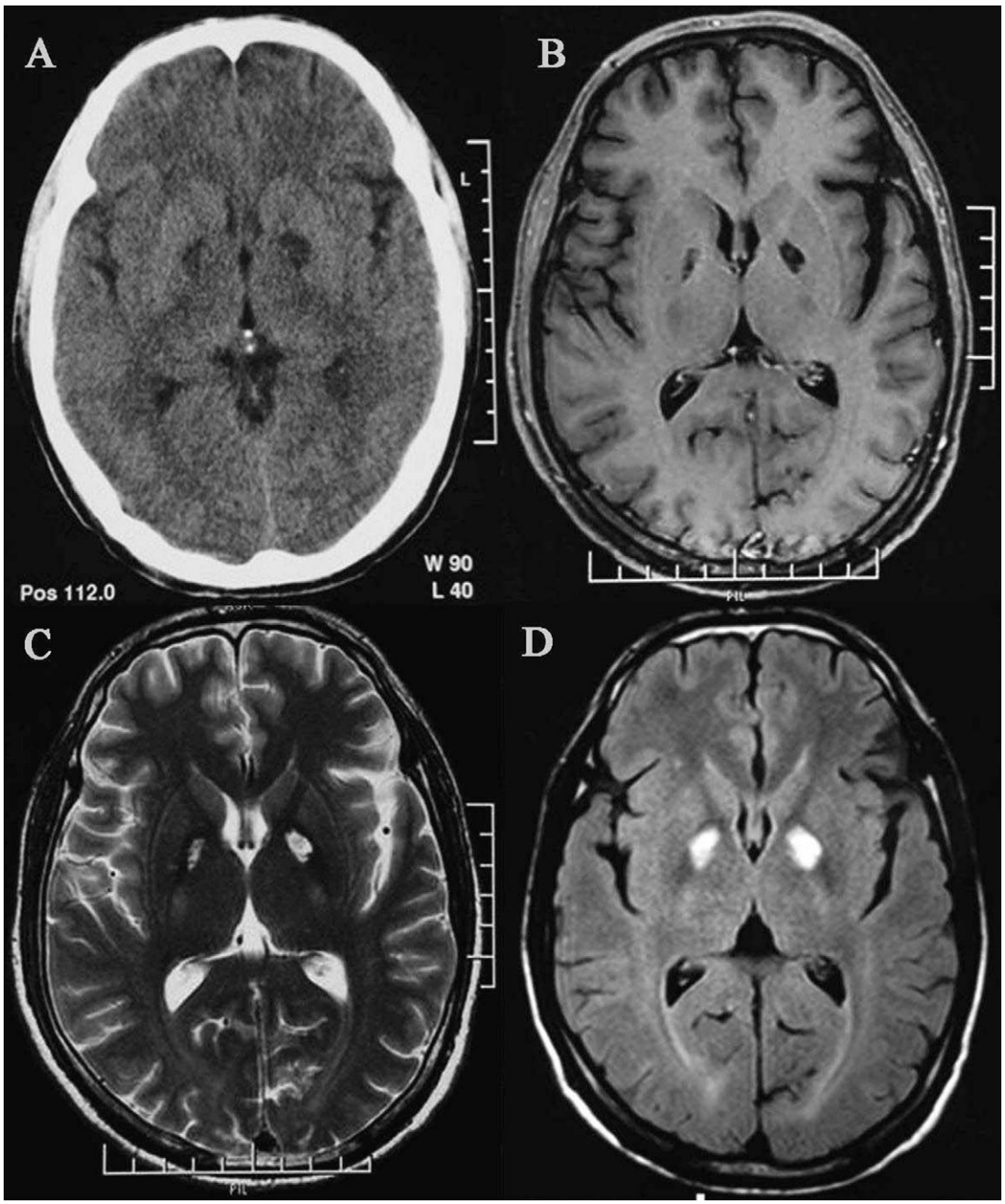

Fig. 1. Images are obtained when the patient had been stung for 20 days and was admitted to local hospital. CT shows diffuse low density bilaterally in globus pallidus (A). Axial T1-weighted MR (B) image shows hypointensity in the same regions, and hyperintensity in T2-weighted (C) or fluid-attenuated inversion recovery (D) images.

in our hospital were almost the same as the findings 20 days after stings in local hospital. The proton MR spectroscopy (1H-MRS) at 3.0 T with TR/TE of 1500/144.0 was performed on lesions to determine the metabolite pattern. Results in the metabolite peaks were revealed by ratios (Fig. 2A1 and B1). After assessment of the patient with the 14-item Bush-Francis Catatonia Screening Instrument (BFCSI), he scored 9 and was diagnosed as catatonia. Upon evaluation of severity of catatonic signs using the 23-item Bush-Francis Catatonia rating scale (BFCRS), the patient scored 23. Considering the risk of venom immunotherapy, we treated with sulpiride, madopar, benzhexol and hyperbaric oxygen therapy for 16 days with no apparent clinical improvement.

A follow-up study performed 8 months later, one year after stings, revealed that the patient had recovered almost completely but a mild rigidity persisted in the left lower limb. He could walk and feed himself. He was able to do some housework and responded verbally to a majority of questions. In addition, the follow-up MRS (Fig. 2A2 and B2) was performed in the same way and the data were compared with the initial ones and those of five control participants. NAA/creatine (NAA/Cr) and choline/creatine (Ch/Cr) were both increased compared with the initial MRS though there were no obvious changes on MRI scan. The results are summarized in Table 1.

3. Discussion

The venom from wasps contains many biological active components such as mellitin, phospholipases and apamin [1]. After stings, typical allergic symptoms such as headache and hypotension usually occur within minutes. Although the blood