Acupuncture is generally regarded as a safe procedure and as a popular treatment for patients with musculoskeletal disorders. We report a case of a 47-year-old male patient with late-onset tetraplegia, developed after acupuncture. He had no trauma, medical, and social history relevant to tetraplegia. Right after the acupuncture, he felt discomfort in his right arm. After 6 days, all 4 extremity weakness developed. Whole-spine magnetic resonance imaging revealed the presence of spinal subdural hematoma extending from the C5 vertebra to the coccyx level. Hand coordination dysfunction, neurogenic bladder, and neuropathic pain were other symptoms. After the management, he recovered muscle strength, but incomplete bladder control and neuralgia were sustained. It is important to be aware of the possibilities of severe complications after acupuncture. (Clinical Pain 2019;18:130-132)

Key Words: Spinal subdural hematoma, Acupuncture

INTRODUCTION

Acupuncture is generally regarded as a safe procedure for the general people and very popular treatment for patients with musculoskeletal disorders. However, complications related to acupuncture such as infection, internal organ or tissue injury were reported. A spinal subdural hematoma (SSDH) is a very rare disease entity, and mostly, it can be associated with coagulopathy, trauma, or iatrogenic procedures. We experienced a case of late-onset tetraplegia following SSDH after acupuncture, which is a rare iatrogenic complication. In this case, tetraplegia and neuropathic pain progressed slowly after acupuncture; therefore SSDH was found late. With medical treatment, SSDH resolved spontaneously, and muscle strength was recovered; however, neurogenic bladder and neuralgia remained.

CASE REPORT

A 47-year-old male patient admitted to the department of neurosurgery because of recently developed tetraplegia. A week ago, he had felt discomfort on the posterior neck. On the next day, he visited a local clinic and received long-needle acupuncture on the posterior cervical area. Exact acupuncture procedure was unknown, and the real depth of needle insertion was unclear, but the patient described that tens of long needles were inserted in the bilateral paracervical area. Right after the acupuncture, he felt tingling and pain in his right arm. On the next day, pain spread to the interscapular area. On the day of admission, he felt severe pain on his right upper extremity. Weakness and paresthesia of both upper and lower limbs were presented on that day.

Muscle strength of the bilateral upper and lower extremities was 4/5 Medical Research Council (MRC) grade. The patient suffered severe neuralgia on his right upper extremity, and a visual analog scale score of his pain was 9. Impairment of light and pinprick sensation in the bilateral upper and lower extremities was found, and the last neurologically intact level was C4 bilaterally. Urinary dysfunc-
Fig. 1. T2-weighted sagittal image showed a hypointense signal collection compared to the signal intensity of the spinal cord (white arrow) in the anterior spinal subdural space (A). T2-weighted sagittal image showed a hypointense signal collection (white arrow) at the L5–S1 level (B). T1-weighted axial image at the C7 mid-body level showed a hyperintense signal collection compared to the signal intensity of the spinal cord (white arrow) in the anterior spinal subdural space with the compression of the anterior aspect of the spinal cord (C). T1-weighted axial image at the S1 level showed a hyperintense signal collection (white arrow) (D).

tion such as urinary hesitancy, intermittency, weak stream, and incomplete emptying was complained.

Magnetic resonance imaging (MRI) revealed SSDH extending from the C5 vertebra to the coccyx level, and SSDH was compressing the anterior aspect of the cervical spinal cord (Fig. 1). Laboratory examination showed platelet count 259,000/μl (normal range, 130,000–450,000/μl), prothrombin time 13.6 seconds (normal range, 11.6–15.5 seconds), international normalized ratio 1.05 (normal range, 0.87–1.24), activated partial thromboplastin time 33.6 seconds (normal range, 28.0–45.0 seconds), and fibrinogen level 274 mg/dl (normal range, 200–400 mg/dl).

He did not take any medications which could increase bleeding tendency. No medical history of hypertension, diabetes, and hemorrhagic diseases such as hemophilia was reported. An intravenous corticosteroid was administered immediately and maintained for 5 days.

Twenty days after being diagnosed with SSDH, the patient was transferred to the department of rehabilitation medicine. On neurophysiologic evaluation, no abnormalities were found in sensory and motor nerve conduction studies, and somatosensory evoked potential (SEP) latency of bilateral upper extremities was within normal limits. However, SEP latency of bilateral lower extremities was prolonged. The bilateral bulbocavernous reflex was within normal limits. The patient received physical therapy such as stair walking training, fine-motor skills training, and application of transcutaneous electrical nerve stimulation. Medications for pain and neurogenic voiding dysfunction were prescribed.

After one month of physical and occupational therapy, muscle strength of the bilateral upper and lower extremities was 5/5 MRC grade. Follow-up MRI with 1-month interval showed that previous hematoma spreading from the C5 vertebra to the coccyx level had been resolved. However, neuropathic pain and urinary hesitancy were sustained. He was discharged home, and he is still taking medications to control remained symptoms.

**DISCUSSION**

Acupuncture is known as a relatively safe treatment with fewer side effects than drugs or other treatments. However, there are several reports of severe complications of acupuncture, including spinal cord injury, spinal cord infection, and spinal epidural hematoma. But SSDH after
acupuncture is unique.\textsuperscript{6,7}

In previous reports about SSDH after acupuncture, weakness and pain developed immediately after acupuncture, and SSDH was diagnosed quickly.\textsuperscript{6,7} After the removal of SSDH, symptoms disappeared gradually and no neurologic sequelae left. However, in this case, symptoms progressed slowly, SSDH was found late, and despite the steroid treatment, neurologic sequelae such as neuropathic pain and neurogenic bladder have remained. We assumed that in this case, the neurologic sequelae had left because the location of hematoma spread from the cervical spine to the coccyx, and the symptom duration was long. The location of hematoma and duration of symptom are important prognostic factors for SSDH.\textsuperscript{8}

Previously reported cases were old age patients, and one of them was taking antplatelet medication.\textsuperscript{6,7} However, in this case, the patient was a middle-aged man, and he did not take any medications. According to the patient, long needle was used, but the accurate length of the needle was not clear. The typical length of a commonly used acupuncture needle is 7 to 125 mm.\textsuperscript{9} Needle insertion with a depth of 40 to 50 mm was reported to be able to lead to epidural or subarachnoid hemorrhage.\textsuperscript{3} Despite the needle length is ordinary, acupuncture can injure the spinal cavity, and sufficient compression for hemostasis after acupuncture is necessary even for patients without taking antplatelet medication or without coagulopathy-related diseases.

On initial MRI (Fig. 1), T2-weighted image showed a hypointense signal collection, and T1-weighted image showed a hyperintense signal collection compared to the signal intensity of the spinal cord. The signals of hematoma in the early subacute stage were reported to be hyperintense on T1-weighted images and hypointense on T2-weighted images.\textsuperscript{10}

This patient has functional dysfunction due to SSDH after the acupuncture, which shows that even severe complications may occur after acupuncture. Therefore, in acupuncture, considering its possible side effects, the practitioners need to perform skilled procedures according to the standardized method and must be aware of the spine anatomy and safe zones of the areas.

**REFERENCES**

1. Bang MS, Lim SH. Paraplegia caused by spinal infection after acupuncture. Spinal Cord 2006; 44: 258-259