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Spinal accessory neuropathy secondary to diffuse large B-cell lymphoma : Case report

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Background

Spinal accessory neuropathy is a rare disease causing the sternocleidomastoid (SCM) and trapezius muscle palsy, which leads to weakness of contralateral rotation of neck, and scapula winging. Spinal accessory neuropathy caused by tumor is very rare. In this report, we introduce a first case of spinal accessory neuropathy as a result of direct compression by diffuse large B-cell lymphoma.

Case report

A 49 year old male patient was referred to department of PM&R with a complaint for limitation of motion of right shoulder. He also complained of pain on right upper trapezius area and weakness of left neck rotation, right shoulder forward elevation and abduction. A month ago, He was diagnosed as diffuse large B-cell lymphoma. On physical exam, he had winged scapula, with right scapula laterally translocated, while scapula's inferior angle was medially rotated. Atrophy of right trapezius and SCM muscle was noted. (Fig. 1). Manual muscle test revealed weakness in left rotation of neck. He could not actively flex his shoulder more than 110 degree, and abduct more than 70 degree. Sensory function test was normal and deep tendon reflex (DTR) showed all 2+ on both upper extremities. To evaluate peripheral nervous system, we conducted nerve conduction study (NCS) and electromyography (EMG). On motor NCS, right SAN showed prolonged terminal latency (3.9ms), and decreased compound motor action potential (CMAP) amplitude (2.9mV), compared with left SAN. Otherwise, motor NCS on bilateral median, ulnar, musculocutaneous and axillary nerve and sensory NCS on bilateral median and ulnar nerve demonstrated no conduction abnormalities. On EMG, examination on right SCM and upper trapezius muscle revealed positive sharp waves in spontaneous activity and reduced recruitment pattern on volitional activity. The other muscles examined showed normal morphology and recruitment pattern and no denervation potentials (Table 1). These findings of electrophysiologic study were compatible with right spinal accessory neuropathy. On ultrasonography (US), right SCM and trapezius muscle showed atrophy compared to contralateral side. (Fig. 2-a,b) On PET-CT scan, cervical lymph nodes that correspond to Level II-V were enlarged and showed high FDG-uptake (Fig. 2-c) The lymphoma was lined up along the pathway that SAN passes by, and it might have directly compressed and damaged SAN. After three cycles of chemotherapy, electrophysiologic study and PET-CT scan were reexamined. On follow-up NCS, CMAP amplitude of SAN was improved from 2.9mV to 5.8mV and terminal latency was shortened, from 3.9ms to 2.3ms, compared with previous study.

Conclusion

We described a first case of spinal accessory neuropathy caused by direct compression by diffuse large B-cell lymphoma.

Table 1. Motor and sensory nerve conduction studies and needle EMG finding

Motor NCV	Table 1. Motor and sensory nerve conduction studies and Needle EMG Finding				Spontaneous activity	Volitional MUP
	Stimulation site	Recording site	latency (ms)	Amplitude (mV)		
Right median nerve	Wrist	Abductor pollicis brevis	2.9	13.2	Right upper trapezius	positive sharp waves 2+
Left median nerve	Wrist	Abductor pollicis brevis	2.9	13.6	Right sternocleidomastoid	positive sharp waves 2+
Right ulnar nerve	Wrist	Abductor digiti minimi	2.1	17.7	Right rhomboid major	normal
Left ulnar nerve	Wrist	Abductor digiti minimi	2.1	17.7	Right biceps brachii	normal
Right musculocutaneous nerve	Elbow point	Biceps brachii	5.0	14.5	Right deltoid	normal
Left musculocutaneous nerve	Elbow point	Biceps brachii	5.3	14.5	Right biceps brachii	normal
Right axillary nerve	Elbow point	Deltoid	4.3	10.1	Right flexor carpi radialis	normal
Left axillary nerve	Elbow point	Deltoid	4.4	11.1	Right first dorsal interosseous	normal
Right spinal accessory nerve	Neck	Upper trapezius	3.9	2.9	Right C5 paraspinal muscle	normal
Left spinal accessory nerve	Neck	Upper trapezius	2.8	10.4	Right C6 paraspinal muscle	normal
Sensory NCV						
Right median nerve	Second finger	Wrist	2.5	42.8		reduced recruitment
Left median nerve	Second finger	Wrist	2.5	38.2		polyphasic MUP, reduced recruitment
Right ulnar nerve	5th finger	Wrist	2.4	17.8		
Left ulnar nerve	5th finger	Wrist	2.4	21.5		



Fig 1. Right scapula winging. Atrophy of right trapezius and scapula winging is noted

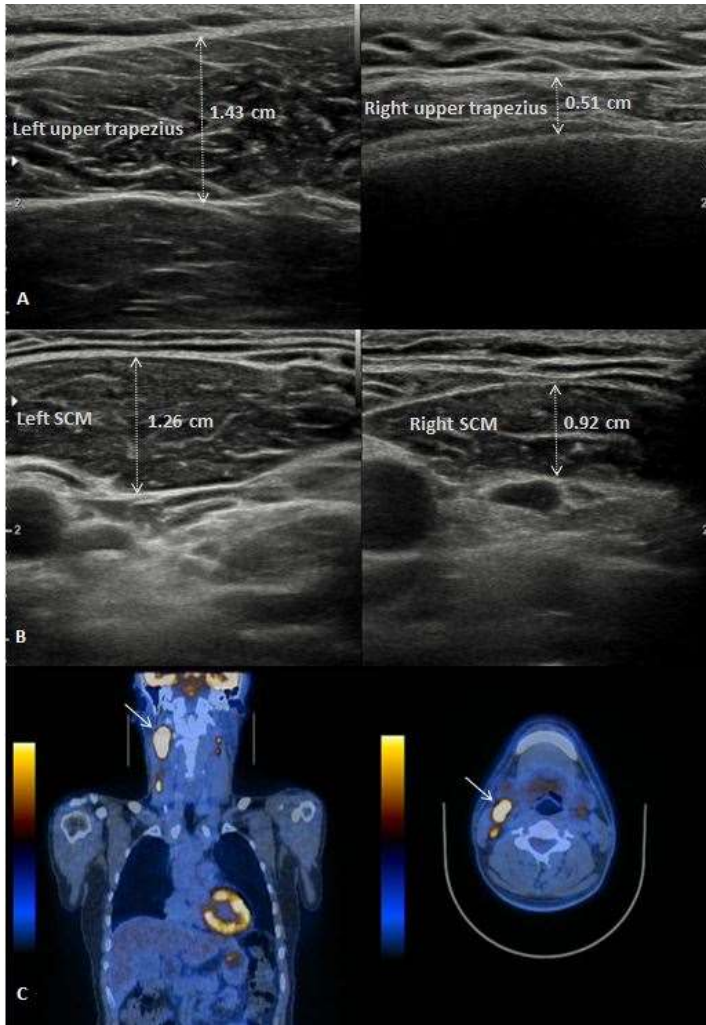


Fig 2. US, PET-CT findings. (A) Short axis view of upper trapezius. Atrophy of right upper trapezius is shown. The thickness of the muscle was measured as 0.51 cm on the right side and 1.43 cm on the left side. (B) Short axis view of SCM muscle. Atrophy of right SCM is shown. The thickness of the muscle was measured as 0.92 cm on the right side and 1.26 cm on the left side. (C) PET-CT findings. High uptake on right cervical lymph nodes.