

Lumbosacral plexopathy due to a pelvic hematoma after a pedestrian traffic accident: A case report



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Introduction

The lumbosacral plexus is a group of nerve fibers derived from the anterior rami of the lumbar and sacral nerve roots that provides motor function of the lower limb and also transmits sensory inputs to the central nervous system. Lumbosacral plexopathy is a condition under damage to the nerves of the lumbar or sacral plexus. Tumor metastasis, generalized infection, and radiation-induced neuropathy are the possible causes of the lumbosacral plexopathy, whereas direct structural injury such as adjacent bony fracture or hematoma secondary to trauma can also give rise to the nerve damage. In this report, we present a case of lumbosacral plexopathy induced by a pelvic hematoma.

Case Report

A 27-year-old male with underlying autism and schizophrenia visited the emergency medical center after a pedestrian traffic accident. After the evaluation using computed tomography of the brain, chest, and abdomen, he was diagnosed with bilateral multiple rib fractures and left abdominal wall contusion with a pelvic hematoma (Figure). He was admitted to the department of general surgery. There was no definite evidence of brain and spinal cord injury.

Despite the patient was undergone conservative treatment for several weeks, his muscle strength of the right lower limb was 3/5 Medical Research Council (MRC) grade and muscle strength of the left lower limb was 3/5 MRC grade on the hip and knee and 2/5 MRC grade on the ankle and toe muscles. Muscle strength of bilateral upper limbs was 5/5 MRC grade. Electrodiagnostic examination was performed to differentially diagnose peripheral neuropathy of the lower extremities, and the result was suggestive of incomplete lesion of the bilateral lumbosacral plexus (Table). The patient was transferred to another medical center shortly after the examination and visited the department of rehabilitation medicine for follow-up about 3 months later. Muscle strength of the bilateral lower limbs improved to 4/5 MRC grade, and the patient will be undergone the rehabilitation therapy through outpatient department for further functional improvement.

Sensory NCS			
Nerve	Latency ms	P-P Amp μ V	Amplitude μ V
R. Sural	2.34	18.3	
L. Sural			
R. Superficial peroneal	No response		
L. Superficial peroneal	2.81	9.3	
R. Lateral femoral cutaneous	No response		
L. Lateral femoral cutaneous	No response		
R. Tibial			
L. Tibial			

Motor NCS			
Nerve / Sites	Latency ms	P-P Amp μ V	Velocity m/s
R. Peroneal - EDB			
Ankle		No response	
Knee			
L. Peroneal - EDB			
Ankle		No response	
Knee			
Plantar flex			
R. Tibial - AB	2.88	16.47	
Ankle	16.09	11.04	41.64
L. Tibial - AB			
Ankle	4.44	7.91	
Knee	15.04	7.04	40.61
R. Peroneal - FA	2.75	7.80	
Plantar flex	4.63	7.43	51.33
L. Peroneal - FA			
Plantar flex	2.81	1.60	
Plantar flex	7.71	1.03	51.75
R. Femoral - VM	1.65	0.21	
Brach. supinat. lig.	4.42	0.09	51.89
L. Femoral - VM			
Brach. supinat. lig.		No response	

EMG Summary Table									
Muscle	Quantitative			MEAP			Interference		
	AM	Fib	FWI	Force	Amp	Over	PPF	Pattern	
R. Tibialis anterior	N	None	1+	None	N	N	N	N	Partial
R. Peroneus longus	N	None	1+	None	N	N	N	N	Partial
L. Tibialis anterior	N	None	1+	None	N	N	N	N	Partial
L. Peroneus longus	N	None	1+	None	N	N	N	N	Partial
R. Abductor hallucis	N	None	1+	None	N	N	N	N	Partial
L. Abductor hallucis	N	None	1+	None	N	N	N	N	Partial
R. Gastrocnemius (Medial head)	N	None	1+	None	N	N	N	N	Partial
L. Gastrocnemius (Medial head)	N	None	1+	None	N	N	N	N	Partial
L. Cavae medialis	N	None	1+	None	N	N	N	N	Partial
R. Adductor longus	N	None	1+	None	N	N	N	N	Partial
L. Adductor longus	N	None	1+	None	N	N	N	N	Partial
R. Biceps femoris (short head)	N	None	1+	None	N	N	N	N	Complete
L. Biceps femoris (short head)	N	None	1+	None	N	N	N	N	Complete
R. Gluteus maximus	N	None	1+	None	N	N	N	N	Partial
L. Gluteus maximus	N	None	1+	None	N	N	N	N	Partial
R. Tibialis anterior	N	None	1+	None	N	N	N	N	Partial
R. Peroneus longus	N	None	1+	None	N	N	N	N	Partial
L. Tibialis anterior	N	None	1+	None	N	N	N	N	Partial
R. Peroneus longus	N	None	1+	None	N	N	N	N	Partial
L. Tibialis anterior	N	None	1+	None	N	N	N	N	Partial
R. Abductor hallucis	N	None	1+	None	N	N	N	N	Partial
R. Abductor hallucis (Medial head)	N	None	1+	None	N	N	N	N	Partial
R. Gastrocnemius (Medial head)	N	None	1+	None	N	N	N	N	Partial
L. Gastrocnemius (Medial head)	N	None	1+	None	N	N	N	N	Partial
L. Cavae medialis	N	None	1+	None	N	N	N	N	Complete
R. Adductor longus	N	None	1+	None	N	N	N	N	Complete
R. Biceps femoris (short head)	N	None	1+	None	N	N	N	N	Complete
R. Gluteus maximus	N	None	1+	None	N	N	N	N	Partial

Table. Electrodiagnostic examination result shows incomplete lesion of the bilateral lumbosacral plexus.



Figure. Computed tomography of the abdomen shows a pelvic hematoma (white arrow) and mild displacement of the intrapelvic organs to the right side.

Conclusions

We report a case of lumbosacral plexopathy due to a pelvic hematoma. Fortunately, the motor strength was recovered since a hematoma was naturally absorbed as the time goes by. We can assume that the direct compressive force to the lumbosacral plexus was also decreased. Since not only fractures of surrounding bones but also other structural lesions around the nerve can induce a neuropathy, radiologic correlation and neurologic evaluation at the early onset should be performed. Surgical intervention may be considered if neurologic deficits do not improve.