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Introduction

The sciatic nerve originates from the L4 to S3 nerve roots and provides innervation to various muscles of the lower extremities. Directly, it innervates posterior thigh muscles such as the biceps femoris, semimembranosus, and semitendinosus, and branches distally into the tibial and peroneal nerves, further providing motor function of the lower leg and foot muscles. Similar to other nerve injuries, sciatic nerve injury can occur due to mechanisms such as stretching, compression, or ischemia. In this case, we present a traumatic sciatic nerve injury suspected to have occurred following a needlestick injury.

Case Report

A 5-year-old female without significant past medical history visited the emergency department with persistent fever and sore throat. After the evaluation with laboratory tests, she was diagnosed with acute pharyngotonsillitis and admitted to the department of pediatrics. For the purpose of fever control, a 23-gauge needle was used to administer a prescribed dosage of diclofenac into her left buttock, by intramuscular injection. Approximately 30 minutes after the injection, she exhibited the motor weakness of left ankle and toe as well as dragging of left foot while walking. Her muscle strength of the left ankle dorsiflexor and big toe extensor was 2/5 Medical Research Council (MRC) grade. Additionally, sensory evaluation was performed to assess for possible nerve injury, and the patient complained hypesthesia in the lateral area of the left lower leg.

Electrodiagnostic examination was conducted, and to obtain more accurate results, the testing was performed three weeks after the onset of symptoms. The result was suggestive of incomplete lesion of the left sciatic nerve, peroneal division more involved (Table 1). Furthermore, magnetic resonance imaging of left hip was performed to confirm the nerve lesion, and it revealed diffuse thickening of soft tissue and increased T2 signal intensity at the lateral side of the left sciatic nerve (Figure 1).

The patient was transferred to the department of rehabilitation medicine and undergone muscle strengthening exercises for foot drop along with heel strike practice. Additionally, electrical stimulation therapy was administered to the left peroneus longus and brevis muscles. After several weeks of treatment, the patient was discharged in a condition enabling independent gait.

Table & Figure

Sensory NCS			
Nerve	Latency ms	P-P Amp μ V	
R Sural		1.56	37.1
L Sural			No response
R Superficial peroneal		2.14	15.0
L Superficial peroneal			No response

Motor NCS			
Nerve / Sites	Latency ms	P-P Amp mV	Velocity m/s
R Peroneal – EDB			
Ankle	2.23	6.68	
Knee	5.56	5.89	46.50
Popliteal fossa	7.65	5.65	48.00
Gluteal fold	10.81	3.91	50.53
L Peroneal – EDB			
Ankle			No response
Knee			
Popliteal fossa			
Gluteal fold			
R Tibial – AH			
Ankle	2.62	23.85	
Knee	7.46	21.75	40.34
Gluteal fold	11.33	9.36	43.87
L Tibial – AH			
Ankle	2.27	17.19	
Knee	6.73	15.82	45.98
Gluteal fold	10.29	7.26	47.72
R Peroneal – Tib Ant			
Fibular head	2.02	15.75	
Popliteal fossa	3.67	11.62	60.76
L Peroneal – Tib Ant			
Fibular head	2.42	2.72	
Popliteal fossa	4.40	1.03	50.53

Table 1. Electrodiagnostic examination results shows incomplete lesion of the left sciatic nerve, mainly peroneal division involved.

EMG Summary Table								
Muscle	Spontaneous				MUAP			Interference Pattern
	IA	Fib	PSW	Fasc	Amp	Dur.	PPP	
L. Tibialis anterior	N	None	1+	None	N	N	N	Single to partial
L. Peroneus longus	N	1+	1+	None	N	N	N	Single
L. Gastrocnemius	N	None	None	None	N	N	N	Complete
L. Biceps femoris (short head)	N	None	None	None	N	N	N	Complete
L. Biceps femoris (long head)	N	None	None	None	N	N	N	Complete
L. Gluteus maximus	N	None	None	None	N	N	N	Complete



Figure 1. Magnetic resonance imaging of the left hip shows increased T2 signal intensity at the lateral side of the left sciatic nerve (arrow).

Conclusions

We report a case of sciatic nerve lesion probably induced by a needlestick injury. The sciatic nerve is known to exhibit variability in its course with various forms, including instances where the sciatic nerve passes superficially to the piriformis muscle. Therefore, precise injection into the upper outer quadrant, which is anatomically far enough from the nervous structures, is essential for intramuscular injections to the buttocks. Alternatively, depending on the situation, consideration may be given to safer muscle sites such as the deltoid or anterior thigh muscles for injection.