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Lumbar plexopathy due to gunshot wounds without direct trauma: A case report

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Introduction

Traumatic lumbosacral plexopathy is frequently associated with pelvic or hip joint fractures which are caused by very high velocity and energy at the time of impacts such as fall-down injuries or car accidents. Lumbosacral plexopathy caused by gunshot wounds is rare and the severity of damage varies on the mechanical factors of the gun such as its velocity, bullet dimensions, and kinetic energy. We report a case of a patient with lumbar plexopathy due to gunshot wounds without direct trauma to the plexus.

Case report

A 77-year-old female visited the emergency room due to gunshot wounds in the lower back. The gunshot entrance wound was observed in the right lower back and the exit wound at the left upper arm. On the physical examination, there were no associated neurologic signs such as motor weakness. Deep tendon reflexes were normal. On the chest computerized tomography, metallic hyperdensity on the left lung, lower flank, and back area within a range of the left T9-T11 levels and both T12-L3 levels were detected (Fig. 1). Multiple fractures were also found on the left 7th-12th ribs, transverse process of left T10, T11, T12 and both L1, L2 vertebrae, spinous process of T12 and L1 vertebrae. The bullets did not pass through the fractured vertebral body or peritoneal cavity. It was lodged in the paraspinal muscles and superficial tissues of the left lower flank area. Emergent left lower lobe lobectomy was done because of severe penetrating injury at the lung. After recovery from the operation, the patient complained of paresthesia and tingling sense on the lateral aspect of the left thigh. Electrophysiologic studies showed reduced amplitudes of compound muscle action potential of the both femoral nerves. There was no response of bilateral lateral femoral cutaneous nerves in the sensory nerve conduction study. Needle electromyography revealed denervation of the both vastus medialis and both lumbosacral paraspinal muscles at the L2-L4 levels. These findings were compatible with bilateral upper lumbar plexopathy with direct muscle injury of the paraspinal muscles. A magnetic resonance imaging of the thoracolumbar spine was taken to exclude other conditions and there were no definite findings except diffuse bulging disc with left foraminal stenosis at the L5-S1 levels (Fig. 2).

Fig. 1. The chest computerized tomography shows the bullet tract from the right lower back to the left lung and left upper arm.

Fig. 2. Magnetic resonance imaging of the thoracolumbar spine reveals an intact cord with no signs of neural tissue compression.

Conclusion

Lumbosacral plexopathy following gunshot wounds usually results from a direct injury to the neural tissues by the bullet or fractured bone fragments. In this case, lumbar plexopathy after the gunshot occurred without any direct trauma. We assume that a high-velocity shotgun caused multiple vertebral fractures, and the neural injury in this patient was the result of the kinetic energy, secondary shock wave, and cavitation.