Delayed cervical myelopathy caused by bomb shell fragment

Case report

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A rare case of delayed cervical myelopathy caused by a bomb shell fragment is reported. The fragment lay intradurally with minimum foreign body reaction. Symptoms did not begin to occur until 17 years after injury.

Key Words · cervical myelopathy · Brown-Séquard syndrome · penetrating wound · spinal cord injury

Although there are many reports of penetrating bullet wounds of the spinal canal,1–4 we are reporting this case because of its unique clinical features.

Case Report

This 50-year-old man sustained a penetrating shell fragment wound of the upper cervical spinal canal 29 years before admission. He briefly lost consciousness and was hospitalized for a week. He was free of symptoms for 17 years until 1962, when he developed progressive spasticity of the left leg. Two years later the left arm became weaker and there was subsequent slow progression of symptoms until his admission to the Osaka University Hospital on January 20, 1975.

Examination. The patient had a well-healed scar on the right side of the neck 2 cm below the right mastoid process. No cranial nerve involvement was noticed and there was no restriction of neck motion. Neurological examination revealed spastic hemiparesis on the left side with incomplete Brown-Séquard syndrome. The left shoulder girdle, arm, and leg showed marked muscle wasting. Deep tendon reflexes of the left arm and leg were exaggerated. Superficial sensation was normal on the left. The right arm and leg showed almost normal motor function with moderate hypalgesia. No bladder or bowel dysfunction was noted.

Anteroposterior and lateral x-ray films of the cervical spine showed a metal fragment located in the left half of the spinal canal at the C-2 level. No fracture or destruction of bone was noted (Fig. 1 left). Cerebrospinal fluid examination and Queckenstedt test were normal. A myelogram revealed deflection of the contrast medium to the right without obstruction (Fig. 1 right). The history of the injury, the onset of the symptoms, and the myelographic findings led us to suspect that the fragment lay extradurally.

Operation. On January 30, 1975, laminectomy at C-2 and partial resection of the left side of the posterior arch of the atlas were
Cervical myelopathy after shell wound

Fig. 1. Left: Lateral x-ray film of the cervical spine showing the location of the metal fragment. Right: Anteroposterior myelogram showing the metal fragment deflecting but not destroying the column of contrast medium.

carried out. Fibrous scar tissue was present extradurally on the left. After two directional x-ray examinations, the dura was incised and a $5 \times 7 \times 5$-mm unencapsulated shell fragment was easily found directly compressing the spinal cord and nerve roots. The spinal cord was flattened to about half its normal size and there were adhesions between the cord and dura on the right. The fragment was easily removed, the dura was sutured, and the wound closed with a drain.

Postoperative Course. Postoperatively there was no increase in the neurological deficit. The patient was allowed to walk 2 weeks after operation and discharged at 3 weeks. Examination at the time of discharge showed that the deep tendon reflexes of the left arm and leg were still pathologically hyperactive. However, the patient reported that he could move his elbow, wrist, and fingers more easily. He also found walking easier after the operation.

Discussion

This is a rare case of spinal cord symptoms caused by a fragment of bomb shell that had been present for 29 years. The main neurological deficit was the spasticity of the left upper and lower extremities and the muscle wasting of the left shoulder girdle and left arm. The shell fragment was found intradurally without an envelopment by fibrous tissue or capsule. The foreign body reaction was extremely mild; the histological pictures of the minimal scar of the dura mater at the penetration site showed a small amount of scattered iron powder phagocytosed in fibrous connective tissue cells.

It is noteworthy that the metal fragment reached the left side of the subarachnoid space without causing any direct damage to the spinal cord after it entered the neck on the right, and that it had remained asymptomatic for 17 years.

References


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