

A rare lumbar spinal column injury: Glass injury

Ender bir spinal kolon yaralanması: Cam yaralanması

İbrahim TOKER, Özge DUMAN ATILLA, Turgay Yılmaz KILIÇ, Osman TAŞ, Serkan HACAR

Tepecik Eğitim ve Arařtırma Hastanesi, Acil Tıp Kliniđi, İzmir

ABSTRACT

Penetrating injuries to the vertebral column and the spinal cord are rare. Cauda equina injury caused by broken glass shards is even rarer than expected. In this study, a case of spinal column injury was reported in a 25-year-old female patient with glass shards stabbed in to her back, after falling back on top of the table made of glass. A piece of stabbed glass shards was extracted and the wound was sutured at another hospital before she presented to our emergency service. At the time of presentation, the patient had 2/5 muscle strength on her right leg and hypoesthesia below the L4 level. After emergency surgical intervention, the sensory deficit and the muscle strength have completely improved, and the patient was discharged after 6 days. In penetrating traumas to the lumbar region, emergency physician must keep possible spinal column injury in mind.

Key words: Lumbar vertebra/injury, wounds, penetrating/diagnosis

ÖZ

Spinal kolon ve spinal kordun penetran yaralanmaları enderdir. Cam kırılmasına bađlı cauda equina yaralanması beklenenden daha enderdir. Bu makalede cam masa üzerine düşme sonrası, sırtına cam saplanması nedeniyle spinal kolon yaralanması olan 25 yaşında bir kadın hasta sunulmuřtur. Hastanın acil servisimize gelmeden önce başka bir hastanede saplanan cam parçasının bir parçası çıkarılmıř ve yarası dikilmiřti. Hastanın başvurusu sırasında sađ bacakta 2/5 kas gücü ve L4 seviyesinin altında hipostezi mevcuttu. Acil cerrahi müdahale sonrası hastada duyu ve motor defisit tamamen düzelmiř ve hasta operasyondan 6 gün sonra taburcu edilmiřti. Lomber bölgeye olan penetran travmalarda, acil tıp hekimi spinal kolon yaralanması olabileceđini akılda bulundurmalıdır.

Anahtar kelimeler: Lomber vertebra/yaralanma, yaralanmalar, penetran/tanı

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Yazıřma adresi: Uzm. Dr. İbrahim Toker, İzmir Tepecik Eğitim ve Arařtırma Hastanesi, Acil Tıp Kliniđi Gaziler Caddesi No:468, Yeniřehir 35120 İzmir
e-mail: ibrahimtoker9@gmail.com

INTRODUCTION

Injuries to the spinal cord have high morbidity rate and affects commonly young, healthful persons ⁽¹⁾. Stabbing injuries to the spinal cord, also named non-missile penetrating spinal injuries (NMPSI) are unusual in clinical practice ⁽²⁾. A nation-wide epidemiological study in Turkey showed that nonmissile penetrating injuries involve %3.3 of all spinal injuries ⁽³⁾.

We present a case with neurological deficit due to penetrating injury in the lumbar region which resolved after surgery.

CASE REPORT

A 25-year-old woman applied to the emergency department (ED) with chief complaint of weakness in the right leg after falling back on the top of the table made of glass. A piece of stabbed glass was removed and the wound was sutured at another hospital before she presented to our ED. Her vital signs were within normal limits and a linear sutured laceration, approximately 4 cm in length, on the right paraspinal region at the L4 level was revealed. At the time of presentation, the patient had muscle strength of 2/5 on

her right leg and hypoesthesia below the L4 level.

Computed tomography revealed foreign bodies in spinal column and paraspinal structures, soft tissue edema, hematoma and air in spinal canal, while magnetic resonance imaging confirmed narrowing of the spinal canal (Figure 1).

The patient was taken up for surgery. Emergency laminectomy and hematoma evacuation were performed after 2 hours after her admission into ED. Six pieces of glass seen in paravertebral space, lumbar 2-3 interlaminal space and inside of the vertebral column were removed under direct vision and she underwent duraplasty (Figure 1). After operation, the sensory deficit and the muscle strength have comple-

tely improved, and patient was discharged at 6th postoperative day.

DISCUSSION

Spinal cord injuries (SCIs) are among serious health problems, commonly resulting in significant morbidity and permanent neurological sequelae (4). Gunshot or stab wounds are common causes of penetrating injuries to the vertebral column. In addition, bizarre penetrating objects as seen in our case are reported to cause spinal cord injuries (2,5). Peacock et al. (6) reported a study on 450 patients with stab wounds of spinal cord. Apart from this study, global literature only includes fewer case reports and small series. In our case, glass pieces penetrated into the lumbar region revealed and entered the spinal canal by traversing the L2-3 facet joint.

The American Spinal Injury Association (ASIA) impairment scale can be used to sort the degrees of the injury and is a good predictor of neurologic outcome (7) (Table 1). Following SCI, factors affecting neurologic recovery are etiology and severity of injury. Neurological improvement is more common in incomplete injuries (8). Marino et al. (10) found that %66.7 of the patients with grade C had progressed to grade D and only %3.8 of the patients with grade C had progressed to grade E in 1 year. In our case, the patient was assessed as a grade C by ASIA classification and the lesion progressed to grade E at discharge (9).

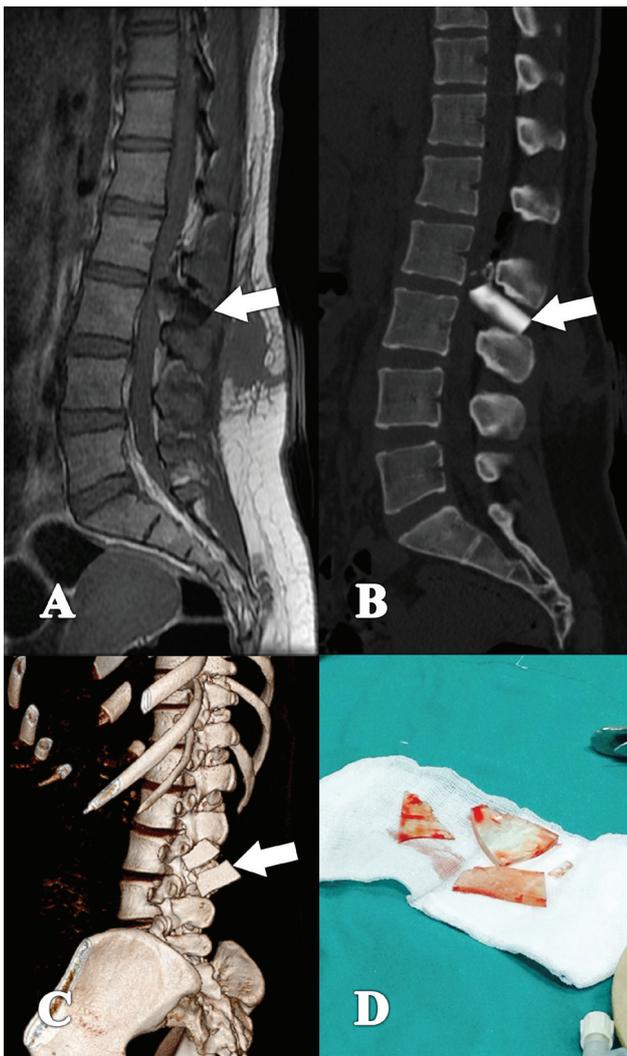


Figure 1.

Table 1. ASIA impairment scale.

Category	Description
Grade A	Complete. No motor or sensory function is preserved in the sacral segments S4-S5
Grade B	Sensory incomplete. Sensory but not motor function is preserved below injury level and includes S4-S5 (Motor complete)
Grade C	Motor incomplete. Motor function is preserved below the neurological level, and more than half of key muscles below the neurological level have a muscle grade less than 3 (Grade 0 to 2)
Grade D	Motor incomplete. Motor function is preserved below the neurological level, and more than half of key muscles below the neurological level have a muscle grade greater than or equal to 3 (Grade ≥ 3)
Grade E	Normal. Motor and sensory function are normal

ASIA: American Spinal Injury Association

Because of capability to show foreign objects, bony fragments, intravertebral and paravertebral hematoma, CT scan is a suitable imaging technique for the patients with NMPSI. On CT scan, a metallic object like blade may produce streak artifacts, but this defect aids in localization of tip of blade ⁽¹¹⁾.

In SCI, MRI demonstrates medulla spinalis compression, ligamentous and vascular injuries and also can show trajectory of missile, spinal contusion and vertebral hematoma. But there are some safety concerns such as migration of metallic object during MR imaging. Because of this reason the physician should consider additional possible injury ^(1,12).

Most of the spinal cord injuries require non-operative treatment. Decision of operation should be considered if the patient has a potential for neurological recovery and neural element compression exists. Regardless of initial neurologic status, surgical intervention is critical for neurologic outcome ^(11,13,14).

The optimal timing of surgical intervention for spinal cord injury is controversial. Early decompression (<24 hr) should be considered as main stream of the therapeutic management of any patient with SCI, especially those with cervical SCI ⁽¹⁵⁾. In our case, early decompression within 24 hours was performed and full neurologic recovery occurred.

In conclusion, patients with penetrating trauma to the lumbar region should be assessed for spinal cord injury. When SCI is suspected, immediate medical assessment is essential. In this case, the patient's diagnosis was missed before being presented to our ED. Because of this reason, in emergency medicine, initial neurologic examination is essential for penetrating spinal cord injuries.

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