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Case Report

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A forgotten diagnosis in the emergency department: Spinal cord injury without radiographic abnormality

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Abstract

Spinal fracture in spinal cord injury may occur without findings on computed tomography, and this, is called traumatic myelopathy. This condition is defined as spinal cord injury (SCIWORA) without radiographic abnormality of the vertebral column. A 57-year-old male patient with a history of DM was brought to the emergency room by his relatives due to a fall at home. Patient's GCS: 15 and although the sensory examination of the patient was normal, he was tetraplegic. No acute pathological finding was detected in the brain and cervical CT imaging of the patient. While acute pathology was not detected in the cranial MRI of the patient, posterior disc herniation at the C3-4 level secondary to trauma was detected in the cervical MRI. The patient was evaluated by neurosurgery, and emergency surgery was promptly scheduled, following which the patient underwent the procedure.

Keywords: SCIWORA, spinal trauma, trauma, emergency department

1. Introduction

Spinal trauma; may result in vertebral column injury, spinal cord injury, or both. The leading causes of spinal injury are vehicle accidents, falls and assaults. Because of its natural flexibility, the cervical spine is the most frequently injured area of the vertebral column (1). CT and MRI are used in the diagnosis of spinal traumas. Sometimes, spinal fracture in spinal cord injury may occur without findings on computed tomography, and this is called traumatic myelopathy. This condition is defined as spinal cord injury (SCIWORA) without radiological abnormality of the vertebral column. SCIWORA is a clinical radiological condition that mostly affects children, but it can rarely be seen in adults (2). In SCIWORA, lesions are mainly found in the cervical spine, but can also be seen less frequently in the thoracic and lumbar spine (3). The use of MRI in SCIWORA patients is prognostic in revealing the lesions. In MRI, edema, hematoma, loss of anatomical continuity in the spinal cord, and prolapse of the nucleus pulposus are usually observed in the area of acute spinal injury in these patients (3).

2. Case Report

A 57-year-old male patient with a history of DM was brought to the emergency room by his relatives due to a fall at home. According to the anamnesis taken from the patient, it was learned that the patient lived alone at home and fell on his face about 10 hours ago and could not move his arms and legs afterwards. Patient's GCS: 15 pupillary isochoric, DIR +/+, IDIR+/+, TA: 147/89 mmHg, pulse: 98/min, fever: 36.2 °C, SO_2: 98%, fingertip blood glucose: 280 mg/ dl, ECG: NSR. In the physical examination of the patient, there was abrasion in the left frontal region and left cheek, and swelling around the left eye. Although the sensory examination of the patient was normal, he was tetraplegic. No acute pathological finding was detected in the brain and cervical CT imaging of the patient. Because the patient was tetraplegic, cranial MR and cervical MR imaging were performed. While acute pathology was not detected in the cranial MRI of the patient, posterior disc herniation at the C3-4 level secondary to trauma was detected in the cervical MRI. The patient was consulted with neurosurgery and emergency surgery was planned and the patient was taken into surgery.

Fig. 1. Sagittal view of computed tomograpy (Degenerative changes in the cervical spine)

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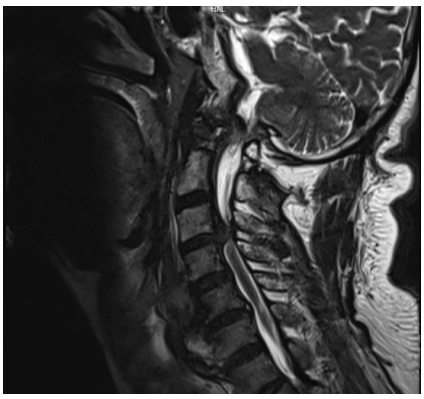

Fig. 2. Sagittal view of magnetic resonance imaging (posterior disc herniation at the C3-4 level)

3. Discussion

Traumatic myelopathy without fracture and dislocation after cervical trauma is mostly seen in children (2), but our case was an adult patient. In addition to traumatic hyperextension or hyperflexion in the spinal cord in adults, age-related degenerative changes in the cervical spine also play a clinically important role in SCIWORA (4). The definitive diagnosis of SCIWORA in adults is made by clinical suspicion and MRI findings. Delayed diagnosis can lead to poor neurological problems in the patient.

Emergency medicine physicians should consider SCIWORA in tetraplegic patients with normal CT imaging and act quickly for early diagnosis and treatment, and MR imaging should be performed early.

Conflict of Interest

The authors declared no conflict of interest.

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Authors' contributions

Concept: F.H.Ç, H.Ç. Design: A.K.D., N.B., Data Collection or Processing: F.H.Ç., N.B., Analysis or Interpretation: N.B., Ö.S., Literature Search: F.H.Ç., N.B., Writing: F.H.Ç., N.B.

Ethical Statement

Ethics committee permission is not required for this study.

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