

Multiple isolated spinous process fracture (Clay-shoveler's fracture) of cervical spine: a case report

Servikal omurganın çoklu izole spinöz proses kırığı (Clay-shoveler's kırığı):
Olgu sunumu

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Fractures of isolated spinous processes of cervical and thoracic vertebrae are called as Clay shoveler's fracture. In this report, a case of 32-year-old male with multiple isolated spinous process fracture of cervical spine is reported. The patient treated conservatively with a cervical collar. These fractures may be a warning sign of more severe spinal injuries.

Key Words: Clay shoveler's fracture; spinous process.

Servikal ve torakal vertebraların izole spinöz proses kırıkları, Clay-shoveler kırığı olarak adlandırılırlar. Bu yazıda, servikal omurgada çoklu izole spinöz proses kırığı olan 32 yaşında erkek hasta rapor edilmiştir. Olguya boyunluk ile konservatif tedavi uygulanmıştır. Bu tip kırıklar, daha ciddi omurga yaralanmalarının uyarıcısı olabilir.

Anahtar Sözcükler: Clay shoveler's kırığı; spinöz proses.

Isolated spinous process fracture, Clay-shoveler's fracture, is an avulsion type fracture of spinous processes of the lower cervical or upper thoracic vertebra. These fractures are common but are often having little clinical importance.^[1] Generally, these injuries cause pain and do not required surgical treatment. Isolated spinous process fracture should be accepted as a warning sign for more severe spinal injury,^[2] therefore it is needed to be evaluated carefully to detect more severe spinal injuries.

In this case report, we present a case of multiple isolated spinous process fracture of cervical spine. Possible mechanisms and clinical significance of these injuries were discussed.

CASE REPORT

32-year-old male was admitted to our outpatient clinic with neck pain which was radiating bilaterally into the shoulder regions. He had history of automobile accident two weeks prior to this evaluation. Physical examination revealed tenderness over the posterior cervical spine. Neurological examination was normal. Cervical spine X-rays showed isolated spinous process fracture of C-6 and C-7 vertebrae (Fig. 1a). On lateral extension-flexion views, the bone fragments and vertebral bodies were not mobile. Dislocation of vertebral bodies was not seen. Magnetic resonance imaging (MRI) revealed that spinal cord was normal and there was no additional

soft tissue injury (Fig. 1 b). Patient was prescribed on muscle relaxant and analgesic therapy. Cervical immobilization was maintained for four weeks with a cervical collar.

DISCUSSION

Fractures of the vertebral spinous process can be produced by several mechanisms such as a direct blow to the posterior aspect of the neck, cervical hyperextension and hyperflexion injuries and muscle and ligament stresses that generally due to shovel heavy loads. These injuries were well known at the beginning of the 20th century, but have become relatively rare with the introduction of earth-moving machinery.^[3] Today, falls automobile or pedestrian accidents are the most likely cause of spinous process fractures. Also, these injuries may occur in athletes during athletic events. In the present case, the mechanism of injury was hyperextension injury due to an automobile accident. Patient hits a wall while he was driving with seat belt buckled up.

The most common symptom of isolated spinous process fracture is pain.^[1] Pain may radiate up to the

head and down to the arms. Physical examination may reveal tenderness on the skin over the posterior spine. Neurological signs and symptoms may be associated with additional spinal injuries.

The most useful imaging study for a Clay shoveler's fracture is radiography. A double spinous process shadow at the affected level can be detected on antero-posterior views.^[4-6] Downward displacement of fractured bone fragment can be seen on lateral views. Computed tomography and MRI of the cervical spine may be useful for detecting more serious spine fractures. These radiological investigations provide significantly more information regarding the bony and soft tissue of the spinal canal. MRI is especially useful in the demonstration of ligament disruption. Anterior longitudinal ligament and anterior annulus fibrosus injuries are compatible findings with hyperextension injuries on MRI.

Isolated spinous fractures are most frequently involving the T-1, then C-7, T-2, T-3, and C-6.^[4,5] Sixteen percent of these injuries involve more than one spinous process.^[4] The number of involved spin-

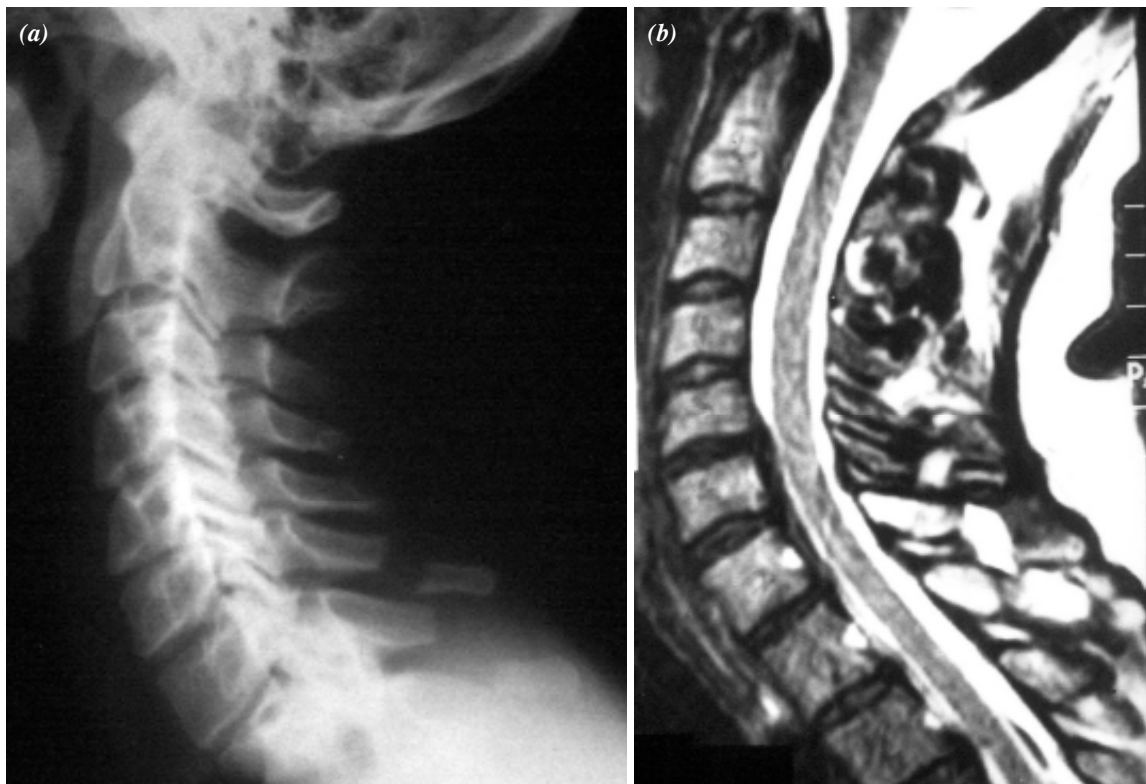


Fig. 1. (a) Lateral cervical spine radiograph demonstrating spinous process fractures of C-6 and C-7. (b) Sagittal T1-weighted magnetic resonance image shows spinous process fractures of C-6 and C-7.

REFERENCES

ous processes may provide important clues about the severity of trauma. More severe trauma is likely to be accompanied by additional injuries.

These injuries are stable fractures, although they may be painful. In most patients, immobilization of neck by means of a collar and restriction of physical activity for 4 to 6 weeks frequently result in pain relief but healing of the fractures does not usually occur.^[4,7] Surgical removal of fracture is rarely indicated. Hirsh et al. reported that fractures which produce significant pain and temporary disability may require surgical intervention.^[1] Our patient was treated conservatively with a cervical collar.

In the presence of isolated spinous process fracture, a high index of suspicion should be maintained for more severe spinal injuries. Further neuroradiological investigations should be performed to rule out additional spinal column injury.

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