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OLGU SUNUMU / *CASE REPORT*

NÖBETE BAĞLI TORAKAL VE LOMBER VERTEBRA KIRIKLARI

SEIZURE-INDUCED THORACIC AND LUMBAR VERTEBRAE FRACTURES

Servet KERİMOĞLU*, Osman AYNACI*, Çetin ÖNDER*

SUMMARY:

It is well known that epileptic seizures can cause vertebrae and extremity fractures. The most frequently documented injuries are thoracic vertebral body compression fractures. To our knowledge, multilevel compression fractures in the same patient including the thoracic and lumbar regions have not been reported.

A 28-year-old epileptic woman who suffered seizure-induced fractures of the vertebrae T10, T12, and L1, 2, 3, 4 is presented. The case is presented to demonstrate how repeated seizure activity can lead to extensive fractures of the thoracic and lumbar vertebrae. The etiology, clinical presentation, diagnosis and treatment are discussed.

Back pain at a patient with recurrent seizures must be carefully evaluated. One must kept in mind that recurrent epileptic seizures can cause vertebral fractures. The treatment is as same as the other vertebral fractures.

Key words: *Seizure, Lumbar, Thoracic, Vertebral, Fracture.*

Level of Evidence: *Case Report, Level IV*

ÖZET:

Epileptik nöbetlerin vertebra ve ekstremite kırıklarına neden olabileceği iyi bilinmektedir. Literatürde ensık torakal vertebra cisimlerinin kompresyon kırıkları belirtilmiştir. Aynı hastada torakal ve lumber bölge vertebralarında birçok seviyede kırık bilgimize göre daha önceden bildirilmemiştir.

28 yaşında epileptik bir bayan hastada, nöbetin tetiklediği T10, T12, and L1, 2, 3, 4 vertebra kırıkları mevcuttu. Bu hasta, tekrarlayan epileptik nöbetlerin torakal ve lumber vertebraların kırıklarına yol açabileceğini göstermek için sunulmuştur. Etiyoloji, klinik, tanı ve tedavi tartışılmıştır.

Tekrarlayan nöbet geçiren bir hastada sırt ağrısı varsa çok dikkatli muayene edilmelidir. Tekrarlayan nöbetlerin vertebral kırıklara neden olabileceği akılda bulundurulmalıdır. Tedavi ise diğer vertebra kırıklarında olduğu gibidir.

Anahtar Kelimeler: *Nöbet, Lomber, Torakal, Vertebra kırığı*

Kanıt Düzeyi: *Olgu Sunumu, Düzey IV*

** Karadeniz Teknik Üniversitesi Tıp Fakültesi, Ortopedi ve Travmatoloji Anabilim Dalı, Trabzon*

INTRODUCTION

Grand mal seizures can cause severe musculosceletal injuries with the muscular contractions generated during the seizure[8,10]. Fracture complications of convulsions are reported occassionally. Seizure-induced musculosceletal injuries may be secondary to metabolic disturbances like; hypocalcemia after parathyroidectomy[17], dietary-induced hypocalcemia[14], electrolyte or osmolality disturbances[11], diabetic hypoglycemia[2,7], electroconvulsive shock therapy[8], electrical shock[11], poisoning or drug overdose, alcohol or benzodiazepine withdrawal, central nervous system tumors, idiopathic epilepsy[8,10], chronic renal failure[6,15] and myelography[9]. The most common injuries are thoracic vertebral body compression fractures, proximal femur fractures and proximal humerus fracture-dislocations[8,12]. Also the uncommon injuries are bilateral shoulder dislocation fractures, femoral neck and vertebral fractures[12], fracture- dislocation of the lumbosacral spine[5], odontoid fracture[16].

Here, we reported a patient with multi level (T10, T12, L1,2,3,4) vertebral fractures. To our knowledge no multilevel vertebral fractures including the thoracic and lumbar regions in an epileptic patient have been reported in the literature.

CASE REPORT

A 28-year-old woman with a history of epilepsy was seen at our outpatient department. She had suffered from back-aches for two years and it increased after her last grand mal seizure. It was learned that she had recurrent grand mal seizures while she was under a trial of carbamazepine and mysoline. She had no other trauma.

Physical examination revealed a kyphotic deformity at the thoracolumbar region. Neurological examination was within normal limits. The roentgenograms of her axial skeleton revealed kyphotic deformity at last thoracic vertebrae and thoracolumbar junction with loss of height at T10, T12, L1,2,3,4 vertebrae (Figure 1). Magnetic resonance imaging (MRI) of the spine demonstrated loss of height due to compression fractures of the vertebrae T10, T12, L1,2,3,4 and Schmorl nodules (Figure 2). In the preoperative roentgenograms, a local kyphosis angle was measured 44° between T11 and L1 vertebrae. Since her pain and kyphotic deformity increased, surgery was planned. A posterior fusion was performed under distraction with pedicle hooks at T7,9,10 and pedicle screws to L2,3 (Figure 3). Because the restricted movement did not occur, the fusion was terminated in L3. Allograft was used for posterior fusion. She made an uneventful recovery. In the early postoperative roentgenograms, a local kyphosis angle was measured 18° between T11 and L1 vertebrae. Mobilization was begun on postoperative day 3 within a Jewett brace, which the patient wore for 12 weeks. At the end of third year (Figure 4), the fixation materials were removed and formation of the fusion was confirmed intraoperatively. Finally, local kyphosis angle was measured 20° between T11 and L1 vertebrae. The patient is asymptomatic 5 years of follow-up. The epileptic seizure did not occur after the operation.

DISCUSSION

Musculoskeletal injuries, especially vertebrae fractures secondary to epileptic seizures are well known and defined in the literature[8,10,12,13-18]. Vertebrae fractures at the epileptic patients can be secondary to seizure itself, to antiepileptic drug associated osteomalacia or to both of them[3,10]. Chronic alcoholism, anti-epileptic drugs or corticosteroids might have facilitated a demineralization[3]. This "anticonvulsant osteomalacia" inclu-

des the following laboratory manifestations: Hypocalcaemia and/or raised serum alkaline phosphatase levels, decreased serum concentrations of 25-OH-D3 and a decreased bone mineral content[10]. The serum levels of calcium, phosphor, alkaline phosphatase, 25-OH-D3 and carbamazepine were within normal limits in our patient. Bone densitometry was also normal. These showed us that the fractures were not secondary to osteomalacia or osteoporosis. We concluded that the multipl vertebrae fractures in this case resulted from recurrent seizures, which suggests an additive mechanism as McCullen, et al.[8] reported. Vertebral fractures may be related to the compressive forces exerted on the vertebral column by the contractions of the truncal muscles, during a seizure. The risk of fracture increases with age, associated osteoporosis, muscularity, increased duration of isolated seizure, and repeated stresses as seizures recure[8].

However fractures of the thoracic and lomber spine are well recognized following an epileptic seizure, the fracture of the cervical spine is reported once as a displaced odontoid fracture type 2[16]. The most common seizure-induced fracture location was T3 to T8[1,3,4,8,13]. Most of them are compression fractures[1,3,4,13], and burst fractures are very rare[8,18]. Fractures may be seen at multi levels, but compression fractures of both thoracic and lumbar vertebrae have not been reported previously.

In conclusion, in the case of an idiopathic or suspicious vertebral fracture, one must kept in mind that the cause may be a seizure. A complaint of backache or mild paraspinal pain, even in the setting of a normal neurological examination should prompt appropriate radiographic evaluation. Radiological examination should include the cervical, thoracic, lumbar and sacral vertebrae as well as the pelvis.

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