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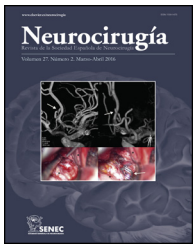

Review article

Surgical outcomes of traumatic cervical fractures in patients with ankylosing spondylitis☆

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ABSTRACT

Objective: Ankylosing spondylitis is an inflammatory rheumatic disease mainly affecting the axial skeleton. The rigid spine may secondarily develop osteoporosis, further increasing the risk of spinal fracture. In this study, we reviewed fractures in patients with ankylosing spondylitis that had been clinically diagnosed to better define the mechanism of injury, associated neurological deficit, predisposing factors, and management strategies.
Methods: Between January 2004 and December 2014, 6 patients with ankylosing spondylitis and neurological complications after injuries were treated. Neuroimaging evaluation was obtained in all patients by using plain radiography, CT scan, and MR imaging. The ASIA Impairment Scale was used in order to evaluate the neurologic status of the patients. Surgical decision was based on relationship of neurological involvement and spinal instability.
Results: A total of 6 cervical injuries were identified in a review of patients in whom ankylosing spondylitis had been diagnosed. Of these, 2 patients were associated with a hyperextension mechanism and 4 cases by flexion mechanism. Posttraumatic neurological deficits were demonstrated in all 6 cases and neurological improvement after surgery was observed in 4 of these cases. The two cases were not improved by the surgery was on a case by presenting a degree of Asia A and another patient who initially improved with surgery but died of pneumonia in the postoperative.
Conclusions: Patients with ankylosing spondylitis are highly susceptible to spinal fracture and spinal cord injury even after only mild trauma. Initial CT or MR imaging of the whole spine is recommended even if the patient's symptoms are mild. The patient should also have early surgical stabilisation to correct spinal deformity and avoid worsening of the patient's neurological status.

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Resultados quirúrgicos de fracturas cervicales traumáticas en pacientes con espondilitis anquilosante

Palabras clave:
Espondilitis anquilosante
Estabilización espinal
Fractura de la columna cervical
Complicación neurológica

RESUMEN

Objetivo: La espondilitis anquilosante es una enfermedad reumática inflamatoria que afecta principalmente al esqueleto axial. La columna vertebral rígida puede secundariamente desarrollar osteoporosis, lo que aumenta aún más el riesgo de fractura vertebral. En este estudio, hemos revisado las fracturas en pacientes con espondilitis anquilosante que habían sido diagnosticados clínicamente para definir mejor el mecanismo de la lesión, déficit neurológico asociado y las estrategias de tratamiento.

Métodos: Entre enero del 2004 y diciembre del 2014, 6 pacientes fueron revisados con espondilitis anquilosante y con complicaciones neurológicas después de caídas. El estudio de neuroimagen se obtuvo en todos los pacientes mediante el uso de la radiografía simple, TC y RM. La discapacidad se valoró según la escala de ASIA, se utilizó con el fin de evaluar el estado neurológico de los pacientes. La decisión quirúrgica se basó en relación con la afectación neurológica y la inestabilidad espinal.

Resultados: Se identificaron un total de 6 lesiones cervicales en pacientes con espondilitis anquilosante: 2 presentaron fracturas por mecanismos de extensión y 4 por mecanismos de flexión. Todos los casos fueron intervenidos quirúrgicamente. Los 6 pacientes presentaron déficit neurológico postraumático y en 4 de ellos se observó mejoría neurológica tras la cirugía. Dos casos no mejoraron tras la cirugía. Uno de ellos presentó un grado de ASIA A y el otro paciente, que mejoró inicialmente con la cirugía, falleció por neumonía en el postoperatorio dos meses después.

Conclusiones: Los pacientes con espondilitis anquilosante son altamente susceptibles a la fractura vertebral y lesiones de la médula espinal, incluso después de traumatismos leves. Se recomienda la TC inicial o la RM de toda la columna vertebral, incluso si los síntomas del paciente son leves. El paciente también debe tener la estabilización quirúrgica temprana para corregir la deformidad espinal y evitar el empeoramiento del estado neurológico del paciente.

Introduction

Ankylosing spondylitis (AS) is a chronic, systemic inflammatory disease that predominantly affects the axial skeleton. The incidence of AS associated with the presence of the antigen HLA B27 and sacroiliitis hovers around 0.1% in the general population.[1,2] Its clinical course means that ankylosis only occurs in some cases of the disease. It is characterised by the ossification of joints and ligaments, leading to progressive rigidity of the spinal column. The fusion of vertebral bodies and joints through the formation of syndesmophytes gives the typical radiological image of a "bamboo spine". Ankylosed spines are very susceptible to fractures[3] due to progressive loss of mobility and secondary osteoporosis. However, it has not been possible to establish a correlation between bone mineral density and vertebral fractures in these patients.[4] Fractures are often caused by minor trauma, such as falls while standing or walking (the most common aetiological mechanism) or road traffic accidents (the second most common).[5,6] The incidence of vertebral fracture in patients with AS is four times higher than in the general population.[1] 75% of these fractures occur in the cervical spine, in particular at the C5-T1 cervicothoracic junction.[3,6,7]

In this study, we review clinically diagnosed fractures in patients with ankylosing spondylitis, with the aim of better defining the mechanism of injury, associated neurological deficit and difficulties in diagnosis and treatment.

Material and methods

We present six male patients diagnosed with ankylosing spondylitis between January 2004 and December 2014, aged between 48 and 76 years, who previously suffered insignificant falls, except for one who fell from scaffolding (Table 1). A simple radiological study showed lesions in two of the six patients. All patients underwent a CT scan, revealing fractures in five of the six patients. MRI could only be performed in three of the six patients, due primarily to cervical hyperkyphosis, which makes this diagnostic test more technically difficult to perform (Fig. 1). The CT scan revealed fractures located at C6–C7 in four patients, C3–C4 in one patient, and in the final patient no fracture was found, only a posterior epidural haematoma.[8] Of the five patients, four presented subluxation fractures (two due to flexion mechanisms and two due to extension), clinically accompanied by cervical myelopathy with an ASIA scale score of C. One patient experienced the onset of complete