



A Difficult Complication of Ankylosing Spondylitis: Thoracic Vertebral Fracture-Induced Paraplegia

Ankilozan Spondilitin Zor Bir Komplikasyonu: Torakal Vertebra Fraktürüne Bağlı Parapleji

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ABSTRACT

Radiographic spondyloarthropathy, also known as ankylosing spondylitis, which is an important subgroup of spondyloarthritis, is a subgroup of diseases that we meet frequently in rheumatology practice. In untreated cases, the progression of the vertebrae to the shape of bamboo spine and the ankylosing of the sacroiliac joints causes the restriction of the movements of the patient and the more openness to traumas. With the use of biological treatments, the clinical scenario can usually be prevented. In this case report, it is aim reviews the literature by mentioning a case of paraplegia that developed after vertebral fracture in a case with AS whose follow-up and treatment were not regular.

Keywords: Ankylosing spondylitis; paraplegia; vertebra fracture.

ÖZET

Spondiloartritlerin önemli bir alt grubu olan radyografik spondiloartropati, diğer adıyla ankilozan spondilit, romatoloji pratiğinde sık karşılaştığımız bir hastalık grubunu oluşturmaktadır. Tedavisiz olgularda ilerleyerek vertebraların bambu kamışı şeklini alması, sakroiliyak eklemlerin kapanması kişinin giderek hareketlerinin kısıtlanmasına ve travmalara daha açık hale gelmesine sebep olmaktadır. Biyolojik tedavilerin kullanımı ile bu tablo genellikle önlenilmektedir. Bu olgu sunumunda, takip ve tedavileri düzenli olmayan ankilozan spondilitli bir olguda vertebra fraktürü sonrası gelişen paraplejiden bahsedilerek literatürün gözden geçirilmesi amaçlandı.

Anahtar sözcükler: Ankilozan spondilit; parapleji; vertebra fraktürü.

Spondyloarthritis (SpA) is a group of inflammatory disease that affects the spine and/or peripheral joints with various clinical manifestations.^[1] Ankylosing spondylitis (AS) is important subgroup of SpA, in which axial structures are involved.^[2] Vertebral fracture may develop due to restrictions of movement between vertebrae and poor bone quality. Many patients usually have minor trauma, such as a low-speed motor vehicle accident and falling while standing.^[3] While the risk of developing vertebral fracture in patients with AS is four times higher than in

the health group, the risk of spinal cord injury is 11 times higher.^[4,5] The aim of this case report is to review the literature by mentioning a case of paraplegia due to vertebral fracture, which is a rare and catastrophic complication of AS.

Case Report

A 67-year-old male patient with has coronary artery disease, diabetes mellitus, essential hypertension, and obstructive sleep apnea syndrome has been complaining of back pain for

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five months and thoracic kyphosis for three months. It was also learned that the patient was diagnosed with AS 20 years ago. The patient was out of follow-up and did not receive any treatment during this time. He also has 40 pack/year smoking history. He applied to the orthopedic outpatient clinic with complaints of weakness in the left leg, numbness, and difficulty in walking, which had started two months ago. Thoracolumbar magnetic resonance imaging (MRI) and electromyography were planned for the patient who was evaluated by neurology and neurosurgery on the same day. He said that he had difficulty getting up from the examination table and that his weakness progressed after he fell at home the same day. T9–T10 vertebral fracture was detected in thoracolumbar vertebrae MRI, and he was operated by neurosurgery two days later. However, the next day, due to the development of complete loss of sensation and muscle strength in the lower extremities, he was operated again and stabilization was achieved with a 4-level bilateral rod screw. The postoperative MRI of the patient is shown in Figure 1. Due to ongoing weakness in the lower extremities, he was admitted to our inpatient clinic for rehabilitation.

In the physical examination of the patient, there was no unsupported ambulation and sitting balance, and his in-bed activities were dependent. His sensory level was T10. While both upper extremity muscle strength was 5/5, it was 0/5 in

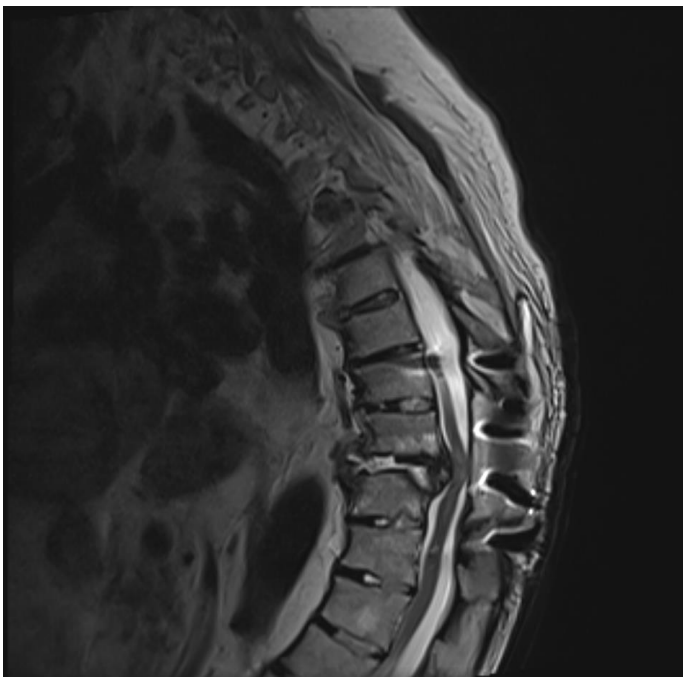


Figure 1. Thoracic vertebra Magnetic resonance imaging, sagittal T2 section, vertebral fracture, and spinal cord compression in T9–T10.

the both lower extremities. The plantar reflex was extensor in both lower extremities. Deep tendon reflex could not be obtained in the patella. No spasticity and clonus was detected. There was decubitus in the left leg. He had an anal reflex. His urine was followed by a Foley catheter. His neurological level was accepted as T10 and American Spinal Cord Injury Association impairment scale-C. In the laboratory tests of the patient, hemoglobin was 9.8 g/dL, glucose was 116 mg/dL, and C-reactive protein was 121.1 mg/L. Nitrite, leukocyte, and erythrocyte were found positive in the urinalysis.

The rehabilitation program was started with in-bed exercises. Strengthening exercises were given to both upper extremities and passive range of motion exercises were given to both lower extremities. Neuromuscular electrical stimulation was applied to bilateral knee extensors and ankle dorsiflexors. Fosfomycin therapy was given for urinary tract infection. For vitamin D deficiency, cholecalciferol was added to treatment as 2 × 20 drops/day. Indomethacin prophylaxis was started for heterotopic ossification. As deep vein thrombosis prophylaxis, enoxaparin 0.6 mg/0.6 mL subcutaneous injection was added to the treatment, and anti-embolic socks were recommended. On the 12th day of the patient's hospitalization, neurosurgery was consulted because of the transparent, locally clotted and hemorrhagic discharge in the thoracic incision line. Contrast-enhanced thoracolumbar spine MRI and thoracic vertebrae computed tomography (CT) were repeated. In addition, due to the detection of Grade 2 anterolisthesis and instability at the T10 vertebra level in CT (Fig. 2), he was referred to the neurosurgery clinic of the center where he was operated. The patient's pre-transfer muscle strength was 0/5 and sitting balance could not be regained due to instability in the thoracic region.

Discussion

Fractures in AS are often difficult to detect and treat. When combined with osteoporosis, the bones become weak and open to minor traumas.^[6] Enthesophytes and spondylophytes are formed after bone erosion and increased inflammation in the vertebra, apophysis, and entheses. Calcification of the longitudinal ligaments restricts spinal movements and a bamboo spine appearance develops. The spine, which hardens and the ability to absorb shock decreases in AS, paves the way for spinal fractures.^[7]

Spinal fractures are higher in AS than in the general population, with an incidence of 5–15%. The risk of neurolog-



Figure 2. In thoracic vertebral computed tomography, listhesis and instability are seen at the level of T9–10 vertebrae.

ical complications and early death has increased.^[8] While it is stated that the risk of spinal cord injury is higher at the cervical level, there are also spinal cord injuries at the thoracic level, as in our case.^[9,10] In addition, Cooper et al.^[11] reported that the risk of vertebral fracture increases cumulatively and peaks in the third decade after diagnosis. Male gender, advanced age, low body mass index, osteoporosis, disease duration, degree of syndesmophyte development, peripheral joint involvement, increased modified Stoke AS Spine Score, decreased spinal range of motion, and increased occiput wall distance create vertebral fracture risk in individuals with AS.^[12]

It may be difficult to detect vertebral fracture on conventional radiographs. In cases with newly developing neck and back pain, further imaging with MRI and CT may be required, even if there are no neurological findings. In addition, the use of a rigid spinal corset or stretcher during transport and reduction maneuvers may also cause spinal

cord injuries in these patients. For this reason, it is very important to provide transport with vacuum splints or padding material.^[10,13]

While stable fractures are usually treated conservatively, surgical treatment is planned in the presence of worsening neurological status, irreducible deformity, and findings, suggestive of spinal cord compression.^[14]

To prevent vertebral fracture and spinal cord injury in AS, in risky patients, making necessary arrangements in the house and bathroom, making good lighting and handrails, avoiding contact sports and high-energy activities, and taking precautions that seem to limit daily life, such as using seat belts, are very important in preventing morbidity and mortality.^[15]

Conclusion

Vertebral fractures in patients with AS may develop spontaneously due to structural weakness or due to minor trauma. In addition, osteoporosis may accompany in advanced age. For this reason, this complication should always be considered in patients whose spinal movements are restricted and who develop bamboo spine appearance on X-ray, and necessary warnings should be given to the patient.

Disclosures

Informed consent: Written informed consent was obtained from the patient for the publication of the case report and the accompanying images.

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