



## Spinal Epidural Hematoma Leading to Spinal Cord Injury

### *Spinal Kord Hasarına Sebep Olan Spinal Epidural Hematom*

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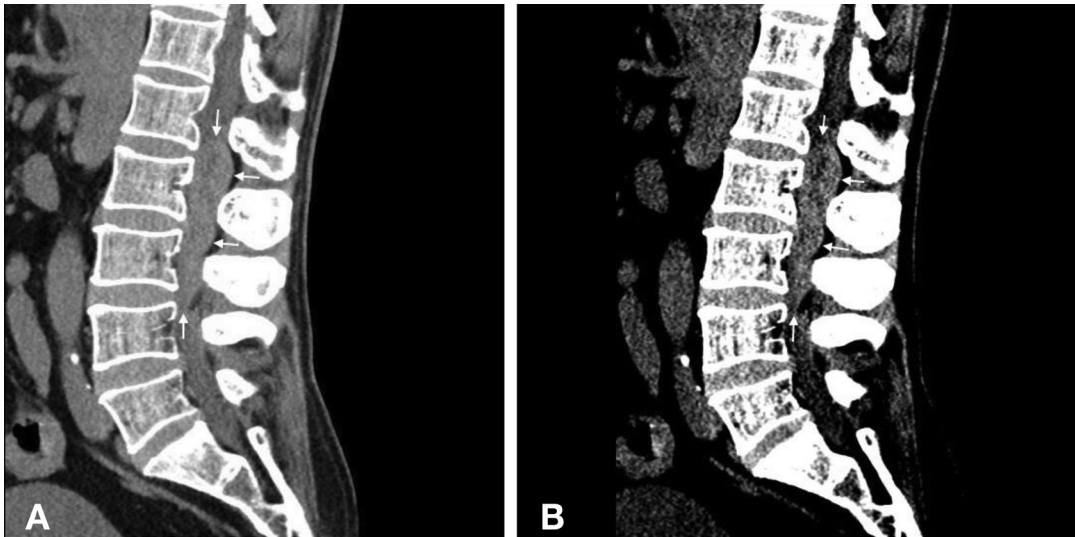
**Anahtar Kelimeler:** Spinal kord hasarı, varfarin, spontan epidural hematoma

Dear Editor,

A 63-year-old male presented with a three day history of flaccid paraparesis and sensory loss in both lower extremities and urinary incontinence. There was no history of trauma or physical exertion. He had been on warfarin therapy for eight years due to aortic valve replacement. The prothrombin time international normalized ratio (PT-INR) was 1.7. No hereditary condition

predisposing to bleeding was established in the laboratory tests. Computed tomography (CT) revealed a spinal epidural hematoma on the dorsal side of the spinal canal between L1 and L5 (Figure 1A, 1B). The patient underwent total laminectomy between L1 and L5, three days after the onset of symptoms.

A 48-year-old man, who had been receiving warfarin treatment due to mitral valve replacement surgery three years



**Figure 1.** A, B) Sagittal view of the computed tomography scan of the lumbar spine showing the hematoma in the extradural space compressing the spinal cord.

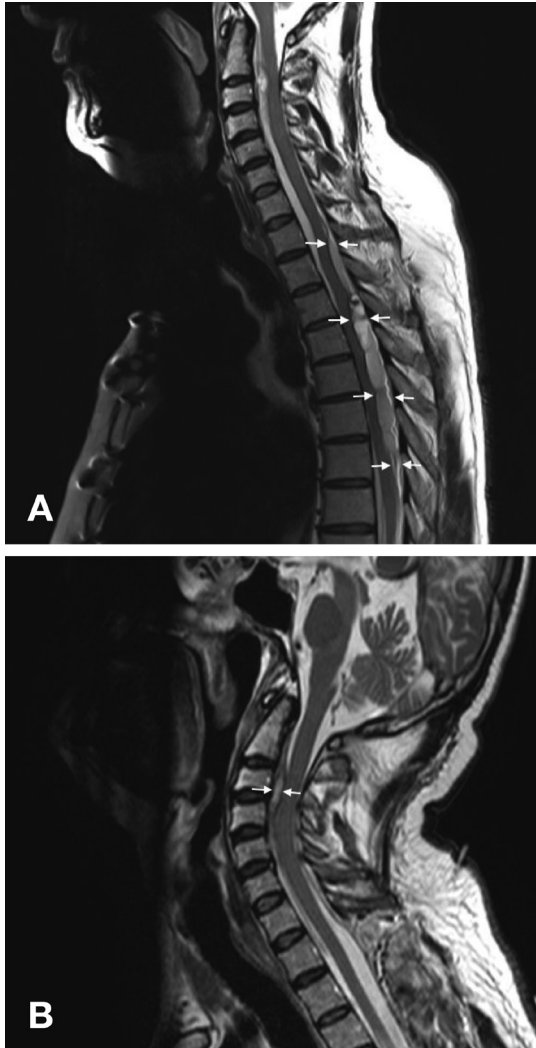
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ago presented with a one-day history of numbness and weakness in both lower extremities, pain in the interscapular region, and urinary incontinence. He had also felt tingling without any motor deficit in his upper extremities for one hour. He had no trauma or physical exertion. PT-INR was 2.3. magnetic resonance imaging (MRI) showed a large epidural hematoma extending from T3 to T7 and minimal epidural hematoma extending from C2 to C4 (Figure 2A, 2B). Warfarin therapy was immediately discontinued. He underwent total laminectomy between T3 and T7, C3 and C4, and C2 partial laminectomy.



**Figure 2.** T2-weighted sagittal magnetic resonance images. A) Spinal epidural hematoma extending between T3 and T7, compressing the spinal cord (arrow), and minimal epidural hematoma at T1 level. B) Spinal epidural hematoma extending between C2 and C3 compressing the spinal cord (arrow)

Spinal epidural hematoma can be seen secondary to trauma, tumors, vascular malformations, bleeding disorders (hemophilia, thrombocytopenia), and iatrogenic problems such as spinal surgery, epidural anesthesia, and lumbar puncture (1). Spontaneous spinal epidural hematoma (SSEH) is a rare disease and generally associated with the use of anticoagulants and can cause severe neurologic dysfunction. A history of warfarin treatment can be obtained in 25% to 70% of patients with SSEH. However, there are no recommendations in the literature for the prevention of SSEH. Among patients on warfarin, INR values are within the therapeutic range in many of the reported SSEH cases (2). Imaging techniques such as CT and MRI are helpful in the diagnosis. Spinal CT is often performed first because it is usually more available. Changes in the hyper acute and acute development of hematoma cannot be specified and clarified through CT scans. As a result, it does not inform about the degree of spinal cord compression, edema, and extension of hematoma due to the isointense appearance in relation to the spinal cord and other surrounding tissues.

MRI is the method of choice to diagnose spinal hemorrhages. It can also be helpful in the choice of surgical procedure with cranio-caudal and dorsoventral extension, the degree of cord or root compression, time of injury, and spinal cord edema of the hematoma. In the hyperacute and acute phase, the presence of oxyhemoglobin in the hematoma produces an isointense signal on T1-weighted images and a hyperintense signal on T2-weighted images (3). Rapid diagnosis and early surgical decompression play an important role in the neurologic recovery.

#### Ethics

**Informed Consent:** Consent form was filled out by all participants.

**Peer-review:** Internally peer-reviewed.

#### Authorship Contributions

Surgical and Medical Practices: B.A., S.K., Concept: E.A., B.Y., Design: B.A., B.Y., Data Collection or Processing: B.A., E.A., Analysis or Interpretation: E.A., B.Y., Literature Search: B.A., S.K., Writing: B.A., S.K.

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