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Traumatic spinal epidural hematoma — an important neurosurgical emergency

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Abstract

Spinal epidural hematomas (SEHs) are uncommon but well-recognized complications of traumatic injury to the spine. Increased awareness of this problem should raise our index of suspicion in the recognition of these lesions. Emergency surgical evacuation is the standard treatment. Clinical suspicion plays an important role in the diagnosis because the X-rays of the spine are not relevant in this case but the symptoms are suggestive for spinal cord injury. MRI examination of the spine establishes the diagnosis and it needs to be done imediatly. Emergency surgical evacuation of the SEH is mandatory for a good recovery.

A 76-year-old man presented with neck and posterior upper thoracic pain, complete paraplegia (Frankel Grade A), transferred from a Regional Hospital after 30 hours from traumatic spinal injury in a fall from height accident. Imaging studies revealed a large posterior SEH at the cervical-thoracic junction. Emergency evacuation of the hematoma provided a very good recovery despite the fact that patient came late after trauma. (Revista de Medicină de Urgență, Vol. 3, Nr. 1: 40-41)

Key Words
Spinal epidural hematoma, emergency MRI examination, emergency surgical evacuation

Introduction

Traumatic SEHs associated with vertebral body or posterior arch fractures and/or ligamentous disruption (1) are a well-recognized but rare entity. Usually patients present with a neurological deficit that progresses over several hours after injury. The clinical onset is generally characterized by radicular pain followed by progressive symptoms of spinal cord compression.(2,3) Although the true incidence of traumatic SEH is not precisely known, according to data from several series it can be estimated to range from 0.5 to 7.5% (4). In US SEH affects 1 per 1.000.000 people annually. SEH are more frequent in men, with a male-to-female ratio of 4:1 (5). Particularly in younger patients, traumatic SEH also may occur in cases of minor trauma, without bone disruption, due to the greater elasticity of the spinal column, probably by tearing of epidural veins during acute disc disruption. Associated clinical conditions may increase the incidence of SEH, for example in patients with ankylosing spondilitis and spinal trauma SEH appear in 10-50% cases (6).

Concerning the mechanism of SEH formation, there is no agreement in the literature as to whether the origin of the bleeding is arterial or venous. The rich spinal epidural venous network, constituted by valveless veins not protected against variation of abdominal or thoracic pressure is believed to be the major source of SEH (3). The origin of bleeding from epidural arteries or the cancellous bone exposed by the fracture is also important in cases of traumatic SEH.

Case Report

History and Examination. This 76 year-old-man was admitted by transfer from a Regional Hospital 30 hours after spinal injury in a fall from height accident. On examination the patient had paraplegia, anesthesia under the T1 level, alteration of bladder and anal sphincter function. X-rays of the cervical and thoracic spine did not show anything significant. Magnetic resonance imaging revealed a posterior spinal epidural hematoma of 25/9 mm extending at C7-T1 vertebral levels with spinal cord compression at this level, without posttraumatic modifications in spinal cord signal and a discrete compression fracture of T1 vertebral body (Fig. 1).

Operation. The patient was taken to the operating room and emergent decompression was done by C7-T1 laminectomy and epidural hematoma evacuation.

After the operation the patient's neurological status gradually improved and after seven days he had light paraparesis, with good bowel and bladder control (Frankel Grade D) and he was transferred to a Special Center for Kinetotherapy.

Discussion

Spinal epidural hematomas are best treated as surgical emergencies and the recognition of symptoms and prompt differential diagnostic evaluation are essential in their management. Operation consists of laminectomy and evacuation of the hematoma. There are some reports about SEHs managed conservatively, with spontaneous resolution in patients with mild symptoms (7,8), but we advocate for surgical treatment in these patients also because of the unpre-

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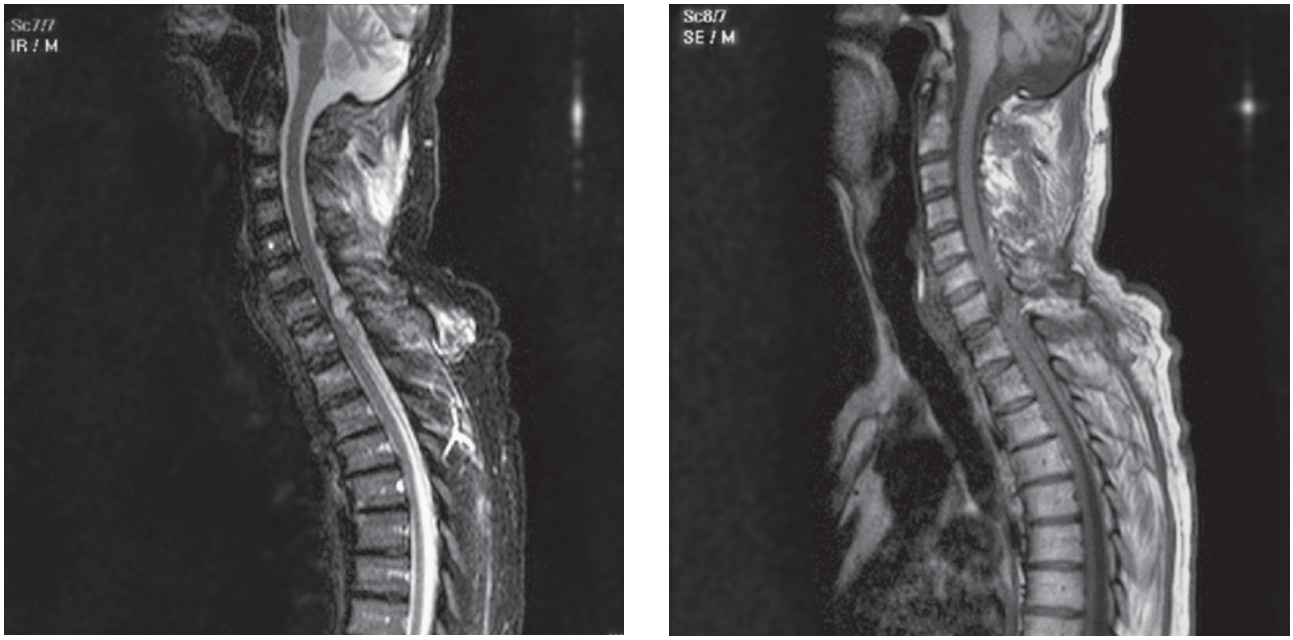

Figura 1. Magnetic resonance imaging studies. Left: Sagittal T2-weighted image obtained on the day of hospital admission .A heterogenous biconvex lesion at the C7-T1 level posterior to the spinal cord producing compression of the sac.Right: T1-weighted image obtained in the same patient.

dictible course of this entity. If the hematoma grows and severe neurological deficit appear, it may not be recovered sometimes.

Multiplanar MR images can be used to visualize the relationship between the spine, hematoma and spinal cord, as well as to assess the extent of the hematoma and degree of spinal cord compression (9). Clinical postoperative follow-up can be combined with MR examination if is necessary.

Conclusions

Spinal epidural hematomas are rare complications of traumatic injuries to the spine with a good prognostic if they are treated optimally. Emergency surgical evacuation is mandatory and represents the standard treatment. A good postoperative neurological recovery is possible if the surgical decompression is done early but also if it is done late can provide a good recovery (if the spinal cord is not contused, but just compressed by the hematoma).

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