

Spinal Infarction: Anterior Spinal Artery Syndrome. Presentation of a Clinical Case.

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Abstract

Diseases of the nervous system are sometimes confined to the spinal cord, and there they give rise to peculiar syndromes that depend on the special physiological and anatomical characteristics of that organ. On the other hand, spinal arteries do not tend to show atherosclerosis and emboli rarely lodge in them, giving rise to vascular diseases (1%) where infarctions occur with some regularity at this level. The most common clinical presentation is anterior spinal artery syndrome, a sudden-onset pathology with neurological involvement and devastating and disabling consequences for the affected patient. Its manifestations vary depending on the level of occlusion in the affected area. We present the case of a 74-year-old female patient, who was admitted due to sudden loss of muscle strength in both lower limbs, with a timely diagnosis achieved through clinical and magnetic resonance imaging of the dorsolumbar spine.

Keywords: Spinal Cord, Anterior Spinal Artery, Atherosclerosis.

Introduction

The spinal cord is the part of the central nervous system that extends from the medulla oblongata to the lumbar region (L1-L2). Its irrigation comprises three arteries: two posterior spinal arteries and one anterior spinal artery. The lower thoracic medulla does not have such a profuse collateral circulation and is less vascularized, so the risk of infarction is higher in it [1, 3]. Both sexes appear to be affected equally, although some studies indicate predominance in the female sex and an uncertain pathophysiology of fibrocartilaginous embolism [4,7,8]. On the other hand, the anterior spinal artery syndrome described by Spiller in 1909 is usually a consequence of the disease of an extravertebral collateral artery or aortic involvement, which may be advanced atherosclerosis, a dissecting aneurysm or transoperative occlusion that decreases the supply of important segmental spinal arteries at birth [2]. The initial and subsequent signs and symptoms are dependent on the location of the infarction [5]. The following case is presented.

Case Report

A 74-year-old female patient, with a pathological history of Diabetes Mellitus (DM) and Psychiatric Disorders, with a history of having started abruptly at home in the morning, with difficulty getting up due to muscle weakness in both lower limbs that in hours progressed to total loss of mobility in these limbs, associated with bladder sphincter disorders. Injuries or other data of interest are denied.

Physical Examination: Afebrile and vital signs according to his age at the time of admission. On neurological examination, conscious and uncooperative because of his basic mental state. No cranial nerve alterations. Power in upper limbs 5/5; Lower limbs power 1/5 proximal and distal. Not well cooperative but has severe hyposthesia in lower limbs. Deep reflexes are generalized decreased (8 years of evolution with DM).

Complementary: Hemochemistry: Within normal limits.

A lumbar puncture was not performed because there was no suspicion of any infectious process.

MRI THORACO-LUMBAR:



Figures 1 (A-C): Spinal cord showed increased signal intensity noted at the level of D7 and C extending downward where it is in the upper part showed involvement of the anterior segment and distally showed involvement of the most of the spinal cord.

By the hyperacute clinical feature and the pictures in MRI suggesting a Spinal Cord Infarction. On treatment with antiplatelets and physiotherapy. During the 10 days of admission patient fully conscious and oriented. Despite having been diagnosed and treated in time, it is of interest that the patient responded very little to rehabilitation treatment from the motor point of view and died a few months later due to complications of prostration.

Discussion

Compared to the brain, the spinal cord is rarely the seat of vascular disease, and heart attacks in this area are rare, accounting for 1.2% of all strokes (Sandson and Friedman). [8]. In its incidence, risk factors have been described, such as age, dyslipidemia, smoking, menopause, family history of vascular diseases and especially hypertension and diabetes mellitus. In 80% of patients with anterior spinal artery syndrome, there is at least one associated cardiovascular risk factor, and this is evidenced in the case of our elderly patient (74 years old) with a history of Diabetes Mellitus for years. Despite this, the etiology remains unknown in more than half of the cases; In the remaining cases, the most common pathology is aortic (aneurysm, mural thrombus, dissection, aortic surgery) and its most common location is the thoracolumbar region [9,10].

The symptomatology in anterior spinal artery infarction anatomically describes bilateral involvement of the corticospinal tract (motor involvement) and the spinothalamic tract (sensory deficit in the form of loss of sensitivity to pain and temperature)[6] Therefore, the characteristic clinical pattern at this level has been described as a common occurrence in almost all cases and consists of neck or back pain and the onset of motor paralysis (bilateral lower limbs), with dissociative sensory loss (disappearance of pain and temperature sensations) below the level of the lesion accompanied by paralysis of sphincter function with or without autonomic symptoms. 50% of those affected reach the symptomatic peak in the first twelve hours and almost all of them in the first 72 hours [2,11].

The complementary general evaluation, the markers of infection and the cerebrospinal fluid do not provide specific markers of fibrocartilaginous embolism and are usually normal, the diagnosis of certainty is only achieved with the autopsy [7]. However, in our patient, clinical suspicion was achieved through the collection of data from the beginning, the associated risk factors, the neurological physical examination and with the exclusion of other etiologies of spinal cord involvement, supported by imaging studies such as Magnetic Resonance Imaging that was performed at the thoracolumbar level. where the typical imaging pattern of hyperintense T2 lesion that is not enhanced by gadolinium (vascular distribution of the anterior spinal artery at this level) was found.

Magnetic Resonance Imaging is essential for the diagnosis of anterior spinal artery infarction, in the hyperacute phase the images may be normal, but, if there is a high clinical suspicion, it is advisable to repeat the study within two to seven days. In its varied sequences, it allows to exclude other causes of acute spinal cord syndrome, such as: trauma, compressive myelopathies, vascular malformations, myelitis or tumors [5, 11].

The therapeutic options will depend on the etiology present; according to a review carried out by Baba and collaborators, they were able to see that certain patients were infused with high doses of steroids obtaining a total remission of the condition and in other isolated cases in the acute phase they support the use of intravenous fibrinolysis. [7:13]. Another alternative that should be evaluated is the surgical approach in those cases associated with aortic dissection. The only treatment that has been shown to be effective in positive outcomes is rehabilitative physiotherapy [3]. However, there is currently no reliable preventive means due to the etiological variety of this entity, but it is possible to deepen compliance with support measures and thromboembolic prevention, associated complications (bedsores and infections) and glycemic control, as well as blood pressure levels and other predisposing factors that will help reduce all types of risk of vascular diseases [9,12].

The evolution and prognosis will depend on the location and extent of the lesion [10]. Our patient was not a successful case despite having made a timely diagnosis with adequate pharmacological and rehabilitative treatment.

Conclusions

The grouping of spinal cord disorders into syndromes facilitates clinical diagnosis and reduces the number of complementary studies needed in front of a patient. For this reason, before the clinical suspicion of an arterial spinal artery infarction, magnetic resonance imaging is necessary for its confirmation, for the exclusion of other entities and as a primary tool in the definitive diagnosis, facilitating an adequate therapy in order to achieve a favorable prognosis in the patient's quality of life.

Conflict of Interest

The authors declare that they have no conflict of interest.

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