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CASE REPORT OPIS PRZYPADKU

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Epidural lipomatosis of the thoracic spine as the cause of a rapid progression of neurological symptoms after applying spine manual therapy

Tłuszczakowatość nadtwardówkowa odcinka piersiowego kręgosłupa jako przyczyna szybkiej progresji objawów neurologicznych po zastosowaniu terapii manualnej kręgosłupa

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Summary

Spinal epidural lipomatosis (SEL) as a pathological accumulation of excessive unencapsulated epidural adipose tissue, with no co-existing disc- or osteogenic degenerative changes reducing the lumen of the spinal canal, is a very rare disease causing symptomatic compression of the neural elements within the spinal canal. It may be connected with hormonal disorders, for example, with a long-term exposure to endogenous or exogenous glucocorticosteroids as well as lipid disorders. There are common cases of the disease in patients with Cushing's disease, hypothyroidism or obesity, however, the immediate cause is often difficult or impossible to determine in the light of current knowledge. The described case concerns a patient with spinal epidural lipomatosis whose neurological condition worsened as a result of the applied manual spinal therapy due to pain in the thoracic spine. It required surgical treatment to decompress the spinal cord.

Streszczenie

Tłuszczakowatość nadtwardówkowa kręgosłupa jako patologiczne odkładanie się nadmiernej ilości nieotorebkowanej tkanki tłuszczowej nadtwardówkowej, bez współistniejących dysko- i osteogennych zmian zwyrodnieniowych redukujących światło kanału kręgowego, jest chorobą rzadko powodującą objawową kompresję struktur nerwowych w kanale kręgowym. Może być związana zaburzeniami hormonalnymi, np. z długotrwałym narażeniem na działanie glikokortykosteroidów endogennych lub egzogennych, jak również zaburzeniami gospodarki lipidowej. Typowe są przypadki wystąpienia choroby w przebiegu zespołu Cushinga, niedoczynności tarczycy czy otyłości, jednak często bezpośrednia przyczyna jest trudna lub niemożliwa do ustalenia w świetle aktualnej wiedzy. Opisujemy przypadek pacjenta z tłuszczakowatością nadtwardówkową kręgosłupa piersiowego, u którego na skutek zastosowanej z powodu bólu w odcinku piersiowym terapii manualnej kręgosłupa doszło do szybko postępującego pogorszenia stanu neurologicznego wymagającego leczenia operacyjnego odbarczającego rdzeń kręgowy.

Conflict of interest
Konflikt interesów
None
Brak konfliktu interesów

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INTRODUCTION

Clinical picture of spinal epidural lipomatosis depends on the level of the narrowing of the lumen of the spinal canal and the increase of the pressure in the spinal epidural space – symptoms of progressive myelopathy are frequently observed in the thoracic spine, the symptoms of the compression of nerve roots in the lumbar spine. Due to a more frequent occurrence

of lipomatosis in the thoracic spine, the symptoms of myelopathy are observed most often. A secondary form of the disease may be induced by steroids treatment or is the result of endocrynopathy such as Cushing syndrome or hypothyroidism. Idiopathic lipomatosis is a pathological accumulation of epidural adipose tissue which is not related to the administration of glucocorticosteroids or an evident endocrinological disease. It concerns mainly males, 75% of whom are obese (1, 2). The form induced by glucocorticosteroids indicates predilection to the thoracic spine, whereas idiopathic lipomatosis concerns mainly the lumbar spine.

The diagnosis of the disease in radiological research is mainly based on Magnetic Resonance Imaging (MRI), in which excessive accumulation of epidural adipose tissue gives a high-intensity signal in a T1-weighted image and intermediate signal on T2-weighted image. Cross-section of the lumbar spine gives an image of a star quadrangle or the "Y" sign determining the shape of the lumbar cistern. T2-weighed sequences with fat suppression are helpful while differentiating other extradural changes. CT-scan allows us to identify the presence of saucerization of the laminae of the vertebral arch in cross-section images or saucerization of the posterior vertebral body in the sagittal view, caused by the increase of the compression in the epidural space. The former cases more frequently develop the symptoms of caudal equine syndrome in the lumbar spine, whereas in the latter ones radiculopathy occurs more often (3).

CASE REPORT

A 46-year-old patient with abdominal obesity, walk difficulties lasting for a few days, lower part of the body and lower limbs paresthesias as well as disorders in the urination and defecation was admitted to Neurosurgery and Paediatric Neurosurgery Clinic in Lublin (fig. 1). The symptoms occurred after the application of spine manual therapy due to pain in the thoracic spine. Neurological examination indicated: increased sensory ataxia, disorders in exteroceptive sensation at the Th6 vertebral level and symmetrically down and a slight spastic paresis of the lower limbs. Conducted nuclear magnetic resonance (NMR) indicated an increased amount of epidural adipose tissue in the dorsal part of the spinal canal at the level of Th3-8 vertebrae with the compression of the spinal cord at Th4-Th6 with the presence of a wiggly vascular structure giving a low-intensity signal on T1-WI and T2-WI. The radiological image, ambiguous at first, might represent an angiolipoma according to a radiological evaluation. To visualize the epidural vascular structures precisely, medullary angiography was conducted, however, it did not indicate any pathological vascularization, especially the fistular ones, in the area of the changes. Despite lack of a clear diagnosis on the basic of the image examination, it was determined that there was a necessity to conduct surgical treatment in the patient with progressive deterioration of mobility of the lower limbs of ataxia and paraparetic gait type as well as sphincter dysfunctions.

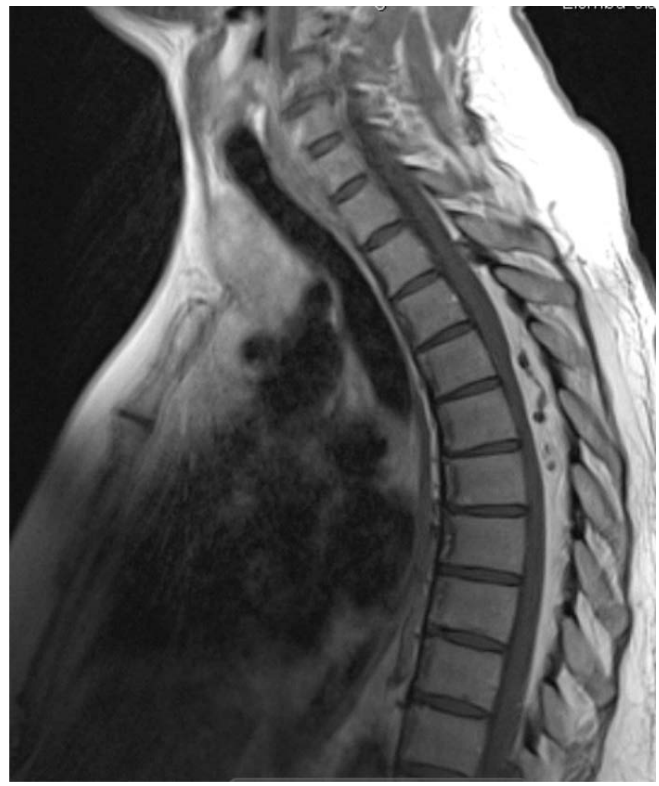

Fig. 1. T1-weighted image of the thoracic spine

A surgical operation was conducted to decompress the spinal cord by the resection of vertebral arches from Th2 to Th6 and pathological mass located epidurally and compressing the spinal cord from the dorsal side. The change had a form of hypertrophiert compact adipose tissue of increased firmness and thickness. Material was collected to conduct pathological examination and the result confirmed lipomatosis. Further endocrinological diagnostics did not indicate hormonal disorders. The patient underwent a rehabilitation therapy. After a few months from the surgical procedure, gait disturbances and sphincter disorders disappeared completely. The patient was advised to lose weight.

DISCUSSION

The described case of the patient with epidural lipomatosis in the thoracic spine confirmed the effectiveness of surgical procedures to decompress the spinal cord in a situation of rapid progression of neurological symptoms (4, 5). In patients with central obesity and mild symptoms of lipomatosis, it may be enough to lose weight, treat lipid disorders and improper glucose tolerance. Observations show that epidural lipomatosis may manifest metabolic syndrome (6). In cases of patients with hyperadrenocorticism, the basic treatment of the accompanying lipomatosis is to level hormonal disorders in the main disease, whereas patients treated immunosupressively with glucocorticosteroids should stop taking steroids or reduce the dose to a minimal one. In some patients, surgery to decompress nerve structures of the spinal canal may be necessary in case

conservative treatment is ineffective. Literature data indicate that the results of surgical treatment of lipomatosis is better in the lumbar spine than the thoracic spine (7) and in the idiopathic form of the disease (8). The authors emphasize that it is necessary to include spinal epidural lipomatisis in the the differential diagnosis of back pains as it is the back pain that is the most frequent symptom of the disease and occurs long before the presence of other symptoms. We would like to point out that it is essential to conduct spine imaging in order to eliminate such diseases as lipomatosis before starting the treatment of back pains with the use of epidural application of medication, especially injections containing glucocorticosteroids. Such analgesic procedures are ineffective in the case of lipomatosis and may intensify the symptoms (9).

CONCLUSIONS

Spinal epidural lipomatosis (SEL) as a pathological accumulation of excessive unencapsulated epidural adipose tissue, with no co-existing disc- or osteogenic degenerative changes reducing the lumen of the spinal canal, is a very rare disease causing symptomatic compression of the neural elements within the spinal canal. It may be connected with hormonal disorders, for example, with a long-term exposure to endogenous or exogenous glucocorticosteroids as well as lipid disorders.

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