offices – PCT and EPO (88 and 80 patents respectively). In other countries, inventive activity was significantly lower.

Summary. The results of the study allow to conclude that scientists from a number of countries around the world have made a significant contribution to the development and patenting of new methods and devices related to the specified problem. The highest inventive activity was noted in the years of the last decade (2017-2026) .

The information presented in this article may be useful to specialists in the field of cardiac anatomy. Patent information is reliable, relevant, has global novelty and is widely used to analyze the inventive activities of scientific organizations and identify trends in the global development of science and technology.

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MYELOPATHY CAUSED BY SPINAL INTRAMEDULLARY SARCOIDOSIS IN A YOUNG MAN: CASE REPORT

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Introduction. Neurosarcoidosis is a manifestation of sarcoidosis in the nervous system. Sarcoidosis is a chronic inflammatory disorder that generally occurs in adults between 20 and 40 years of age and primarily affects the lungs, but can also impact almost every other organ. Neurosarcoidosis occurs in about 14% of cases of systemic sarcoidosis [1, c. 450]. Involvement of the spinal cord in sarcoidosis is less than 1% [5, c. 179]. Patients with intramedullary sarcoidosis present with symptoms and signs

of myelopathy. Diagnosis of intramedullary sarcoidosis is challenging due to its rarity. Positive histopathological findings and exclusion of other inflammatory granulomatous lesions are required to establish the proper diagnosis [4, c. 2].

Purpose. To present a clinical case of intramedullary sarcoidosis of the cervical spinal cord in a young man, to analyze diagnostic challenges, and to discuss treatment approaches.

Case Description. A 37-year-old known diabetic farmer was admitted with neck pain, left upper and lower limb weakness and numbness, urinary hesitancy, constipation, and impotence. The illness began two and a half months prior with neck pain radiating to the left shoulder and upper limb, followed by weakness and numbness in the left limbs.

Physical examination revealed left upper and lower limb weakness (3/5 on MRC scale), brisk reflexes in all four limbs, positive Romberg test, impaired fine touch on the left side of the body, and Babinski response on the left side. Anatomical localization of the lesion was the left posterior lateral white column of the cervical spinal cord.

MRI of the cervical spine (T1, T2, and T1 with contrast) was performed. T2-weighted MRI demonstrated a diffusely hyperintense and swollen spinal cord, consistent with edema (figure 1).

Figure 1 – T2-weighted, sagittal MRI of the cervical spine shows hyperintense spinal cord due to edema (black arrow)

T1 contrast-enhanced sequence showed a patchy enhancing lesion from C3 to C5 levels (figures 2 and 3). Differential diagnosis included multiple sclerosis (MS), tumor (ependymoma, astrocytoma), inflammatory lesions (tuberculosis, neurosarcoidosis). MRI brain with contrast ruled out MS.

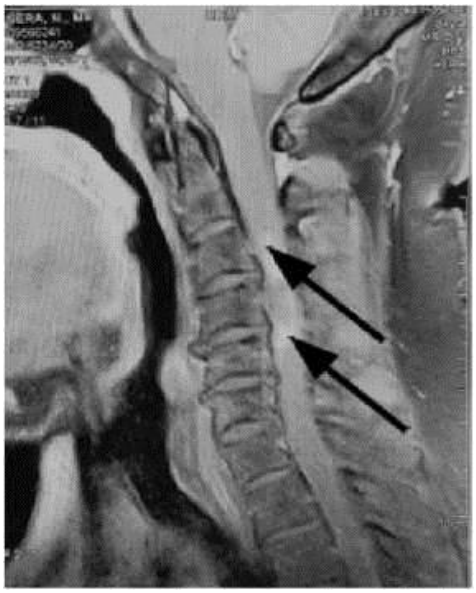

Figure 2 – Sagittal, T1-weighted with contrast MRI of the cervical spine shows enhancing lesions (black arrows)

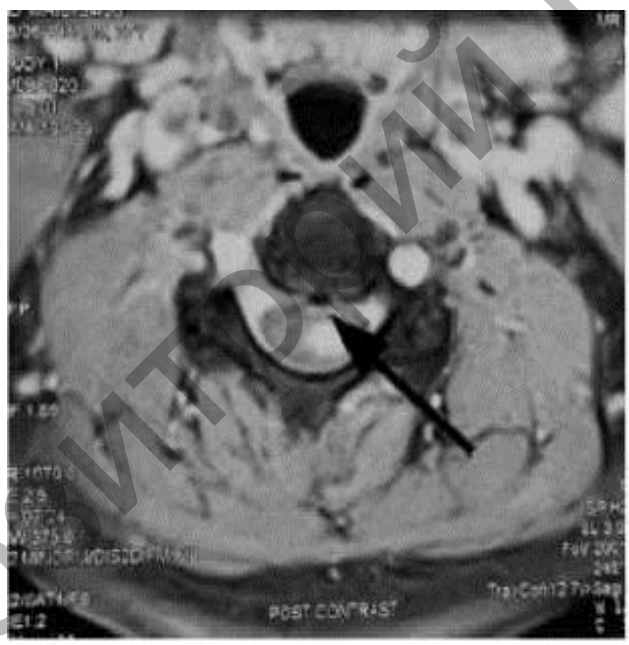

Figure 3 – Axial, T1-weighted with contrast MRI of the cervical spine at C4–C5 level shows enhancing lesion in the left posterior lateral region (black arrow)

HRCT of the chest showed multiple enlarged lymph nodes in the mediastinum, paratracheal region, and right hilum (figure 4). Abdominal ultrasound was normal. Cervical laminectomy from C3 to C5 was performed for biopsy. Intraoperatively, a swollen spinal cord with a superficial lesion on the left posterior region was visualized. Biopsy was taken, and the dura was closed using a fascial graft for decompression.

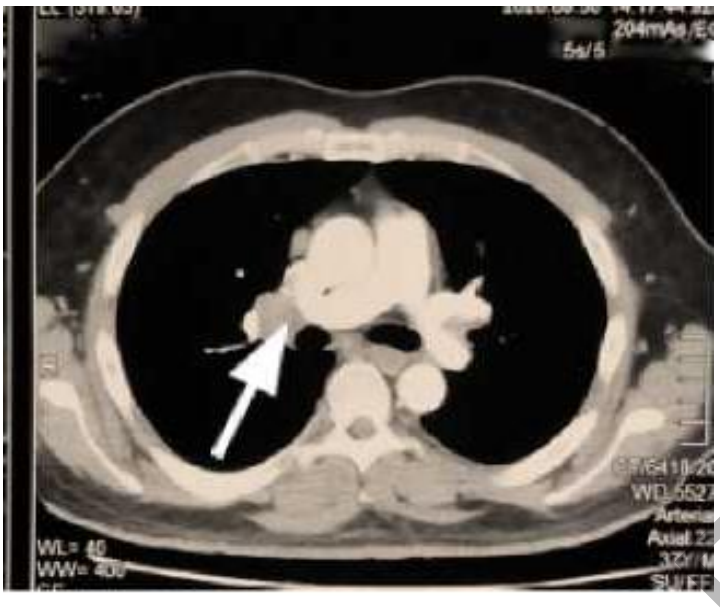

Figure 4 – Axial section of HRCT of the chest shows enlarged lymph node in the right lung hilum (white arrow)

Histopathological examination revealed noncaseating epithelioid cell granuloma compatible with sarcoidosis. Tuberculosis was excluded based on low ESR (7.0 mm), negative Mantoux test, and negative chest X-ray. Serum ACE was normal.

Considering MRI findings, enlarged mediastinal lymph nodes, histopathological report, and exclusion of other pathologies, a definitive diagnosis of intramedullary sarcoidosis was established according to Zajicek criteria [4, c. 3].

The patient was started on oral prednisolone 30 mg daily with vigorous physiotherapy. He improved in muscle power and sensory impairment and was discharged on the 7th postoperative day.

Discussion. Sarcoidosis is a granulomatous disease that is usually systemic. At autopsy, about 14% of patients with sarcoidosis have CNS involvement, but only 3% have CNS findings without systemic manifestations [1, c. 451]. Neurosarcoidosis primarily involves the leptomeninges; however, parenchymal invasion often occurs. Documented spinal cord involvement in sarcoidosis is rare (0.3-0.4% of all cases) [5, c. 180].

MRI is the gold standard for investigating myelopathy. T2-weighted images show hyperintensity due to edema; T1 with gadolinium shows patchy enhancing lesions [2, c. 587]. However, intramedullary sarcoidosis is difficult to diagnose and must be differentiated from tumors, MS, NMO, tuberculosis, and myelitis.

Typical sarcoid lesions are «naked» noncaseating granulomas with sparse lymphocytic infiltrate at the margins. According to the modified Zajicek diagnostic criteria, the diagnosis of neurosarcoidosis can be definitive or probable [4, c. 2].

Corticosteroids (prednisolone) are the primary treatment. Other options include immunosuppressants, hydroxychloroquine, and infliximab. Physical therapy and rehabilitation are important for managing myelopathy due to spinal sarcoidosis [3, c. 2228].

Conclusion. Spinal intramedullary sarcoidosis is rare and diagnosis is challenging. An enhancing lesion on spinal MRI should be vigorously investigated for sarcoidosis. Histopathology is essential for correct diagnosis. Other causes of myelopathy should be excluded, and patients should be simultaneously screened for systemic sarcoidosis.

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ВОЗМОЖНОСТИ ПРИМЕНЕНИЯ УЛЬТРАЗВУКОВОГО ИССЛЕДОВАНИЯ В ИЗУЧЕНИИ МОРФОЛОГИЧЕСКИХ ОСОБЕННОСТЕЙ СЕДАЛИЩНОГО НЕРВА

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Введение. Визуализация периферических нервов имеет важное теоретическое и практическое значение в современной анатомии и клинической медицине. Седалищный нерв является самым крупным периферическим нервом в организме человека и одним из наиболее часто повреждаемых нервов нижней конечности, в том числе и при проведении внутримышечных инъекций. Анатомические особенности седалищного нерва могут приводить к развитию синдрома грушевидной мышцы, седалищной кокцигодинии и другой неврологической патологии [1, с. 2]. Такие методы визуализации как рентгенография и компьютерная томография малоинформативны для оценки состояния нервных структур, а магнитно-резонансная томография, хотя и является высокоточным методом, отличается высокой стоимостью, трудоемкостью и ограниченной доступностью [1, с. 4; 2, с. 74]. В связи с этим ультразвуковое исследование представляет собой перспективный метод изучения анатомии седалищного нерва. УЗИ позволяет в режиме реального времени визуализировать нерв на всём его протяжении, оценить его структуру, толщину, площадь поперечного сечения, контуры, эхогенность, а также точно