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A CLINICAL CASE OF ECHINOCOCCOSIS OF THE SPINE

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Abstract

Introduction. Cystic echinococcosis is a serious problem in various regions of the world. The prevalence of the disease ranges from 2 to 6 percent and higher. In Kazakhstan, echinococcosis occurs in the regions of the republic with developed livestock farming. The localization of the pathological process in echinococcosis can be different, which complicates the diagnosis and, as a consequence, the treatment of the disease.

Aim. To analyze a clinical case of echinococcosis with a rare localization of the pathological process in the spine.

Results of the study. The article presents a clinical case of echinococcosis with spinal lesions, which is an example of a rare lesion of the spine complicated by a paravertebral ductal abscess with the formation of a fistula in which chitinous membranes of echinococcus were found. Echinococcal lesions have no specific clinical and laboratory signs, which led to erroneous diagnosis of spinal tuberculosis with subsequent prescription of anti-tuberculosis drugs and surgical intervention, as a result of which echinococcus was detected during histological examination.

Conclusions. Doctors should be alert to echinococcosis, given the diverse localization of the parasite and the polymorphism of clinical manifestations. Successful treatment of the disease requires multidisciplinary work of doctors, reliable methods of laboratory and instrumental diagnostics, high-tech methods of surgical treatment.

Key words: *echinococcosis, case, spine.*

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Резюме

КЛИНИЧЕСКИЙ СЛУЧАЙ ЭХИНОКОККОЗА ПОЗВОНОЧНИКА

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Введение. Кистозный эхинококкоз представляет собой серьезную проблему в различных регионах мира. Показатели распространенности заболевания колеблются от 2 до 6 процентов и выше. В Казахстане эхинококкоз встречается в областях республики с развитым животноводством. Локализация патологического процесса при эхинококкозе может быть различной, что затрудняет диагностику и как следствие лечение болезни.

Цель. Проанализировать клинический случай эхинококкоза с редкой локализацией патологического процесса в позвоночнике.

Результаты исследования. В статье представлен клинический случай эхинококкоза с поражением позвоночника, который является примером редкого поражения позвоночника, осложненного паравертебральным проточным абсцессом с образованием свища, в котором обнаружены хитиновые оболочки эхинококка. Эхинококковое поражение не имеет специфических клинико-лабораторных признаков, что привело к ошибочной диагностике туберкулеза позвоночника с последующим назначением противотуберкулезных препаратов и хирургического вмешательства, в результате которого при гистологическом исследовании был обнаружен эхинококк.

Выводы. Врачи должны быть настороже в отношении эхинококкоза, учитывая разнообразную локализацию паразита и полиморфизм клинических проявлений. Для успешного лечения заболевания необходимы мультидисциплинарная работа врачей, надежные методы лабораторной и инструментальной диагностики, высокотехнологичные методы хирургического лечения.

Ключевые слова: *эхинококкоз, случай, позвоночник*.

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Түйіндеме

ОМЫРТҚА ЭХИНОКОККОЗЫНЫҢ КЛИНИКАЛЫҚ ЖАҒДАЙ

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Кіріспе. Цистикалық эхинококкоз әлемнің әртүрлі аймақтарында күрделі мәселе болып табылады. Аурудың таралу деңгейі 2-ден 6 пайызға дейін немесе одан жоғары. Қазақстанда эхинококкоз республиканың мал шаруашылығы дамыған аймақтарында кездеседі. Эхинококкоздағы патологиялық процестің локализациясы әртүрлі болуы мүмкін, бұл диагнозды қиындатады және соның салдарынан ауруды емдеуді қиындатады.

Зерттеудің мақсаты. Омыртқадағы патологиялық процестің сирек локализациясы бар эхинококкоздың клиникалық жағдайын талдау.

Зерттеу нәтижелері. Мақалада эхинококкоздың жұлын зақымдануы бар клиникалық жағдайы берілген, ол жұлынның паравертебральды түтік абсцессімен асқынған жұлынның сирек зақымдалуының мысалы болып табылады, онда эхинококкоздың хитинді қабықшалары табылған фистула пайда болады. Эхинококты

зақымданудың нақты клиникалық және зертханалық белгілері жоқ, бұл кейіннен туберкулезге қарсы препараттарды тағайындау және хирургиялық араласу арқылы жұлын туберкулезінің қате диагнозына әкелді, нәтижесінде гистологиялық зерттеу кезінде эхинококк анықталды.

Қорытынды. Дәрігерлер паразиттің әртүрлі локализациясын және клиникалық көріністердің полиморфизмін ескере отырып, эхинококкозға мұқият болуы керек. Ауруды сәтті емдеу үшін дәрігерлердің көп салалы жұмысы, зертханалық және аспаптық диагностиканың сенімді әдістері және хирургиялық емдеудің жоғары технологиялық әдістері қажет.

Түйінді сөздер: *эхинококкоз, жағдай, омыртқа.*

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Introduction

Cystic echinococcosis is a serious problem in various regions of the world. Endemic zones are recorded in South America, the Middle East and the Eastern Mediterranean, in some countries of sub-Saharan Africa, in western China and the countries of the former Soviet Union [1-3]. The overall prevalence of echinococcal infection is underestimated because systematic population surveys are not conducted in all endemic areas. However, the number of detected cases is increasing, which may partly be due to the improvement of diagnostic technologies and surveillance programs. In endemic rural areas, prevalence rates range from 2 to 6 percent or higher [4]. In Peru, the prevalence of echinococcosis among humans, detected by ultrasound and/or chest X-ray, ranged from 3 to 9 percent [5-7]. The infection rate among dogs and sheep was 32 and 38 percent, respectively [5]. Between 2019 and 2021, 9511 cases of human cystic echinococcosis were reported in Peru, Argentina and Chile, accounting for 79, 12 and 9 percent of cases, respectively; 16 percent were associated with children under the age of 15 [8]. In the Chinese region, endemic to both E. granulosus and E. multilocularis, the prevalence rates of cystic echinococcus and alveolar echinococcus in rural areas were 6.8 and 6.2%, respectively [9]. The prevalence of cystic echinococcus ranged from 0 to 12 percent, and the prevalence of alveolar echinococcus ranged from 0 to 14 percent. In northern Xinjiang, China, 0.3-3 percent of the population were found to have cystic echinococcus cysts during ultrasound examination [10,11]. The highest prevalence (8.7%) was noted among Mongolian and Kazakh pastoralist communities [12]. These are some of the highest rates recorded worldwide. In a study conducted in Uruguay, it was noted that the overall prevalence was 5.6%; the prevalence increased from 1% among patients aged 4 to 6 years to more than 11% among patients over 60 years old [13]. In the United States, most cases occur among immigrants from endemic countries. Local transmission has been observed in California, Arizona, New Mexico, Utah and Alaska [4,14].

In Kazakhstan, echinococcosis occurs in all regions of the republic, but the most endemic region is the south of Kazakhstan, which is a large livestock center. The highest rates of infection of sheep were found in West Kazakhstan and Almaty regions - 16.7% and 12.52%. The existing system of accounting for patients with echinococcosis and statistical data do not fully reflect the real number of people infected with echinococcosis, since only surgical cases are taken into account [15].

The localization of the pathological process in echinococcosis can be different, which makes it difficult to diagnose and, as a result, treat the disease.

Aim: to analyze a clinical case of echinococcosis with a rare localization of the pathological process in the spine.

Case.

Patient Zh., 42 years old, was admitted to the National Center for Tuberculosis Problems (NCPT) 14.08.2022 with complaints of pain in the thoracic spine, weakness in the lower extremities, general weakness, loss of appetite, weight loss.

From anamnesis: she fell ill in January 2020, when, after an examination, she was diagnosed with tuberculosis of the spine (pain in the lower thoracic spine, general weakness), for which she received category I treatment at the Regional Tuberculosis Dispensary (RPTD) in Semey. The treatment was completed in January 2021. In April 2022, pain in the thoracic and lumbar spine reappeared. She did not seek medical help. On 05.06.2022, after falling on her right side, the pain in his spine increased. She turned to the RPTD, where treatment for category II was started. However, against the background of treatment, the patient's condition worsened, weakness and restriction of movement in the lower extremities appeared. In this regard, the patient was sent to the National Tuberculosis Center for surgical treatment.

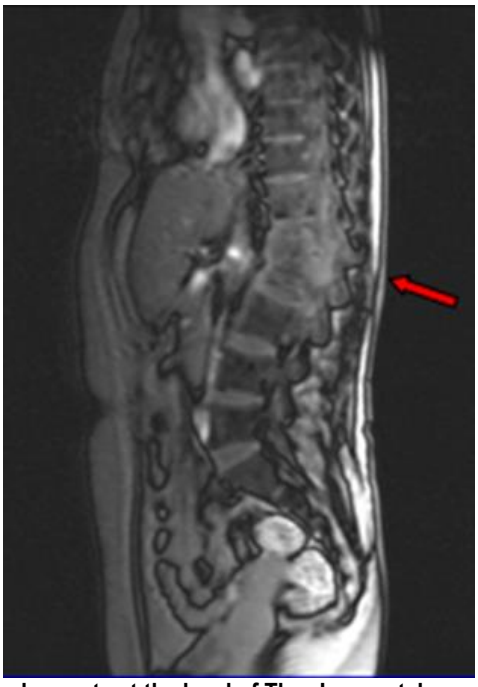
Objective: a condition of moderate severity. There were no abnormalities from the cardiovascular system, respiratory system and gastrointestinal tract.

Status localis: the muscles of the back are tense, there is a high standing of the spinous processes at the level of the bodies Th 12, L 1-2 vertebrae, with axial load at this level it is painful, movements in the lower extremities are limited, sensitivity in the lower extremities is preserved, the functions of the pelvic organs are not impaired.

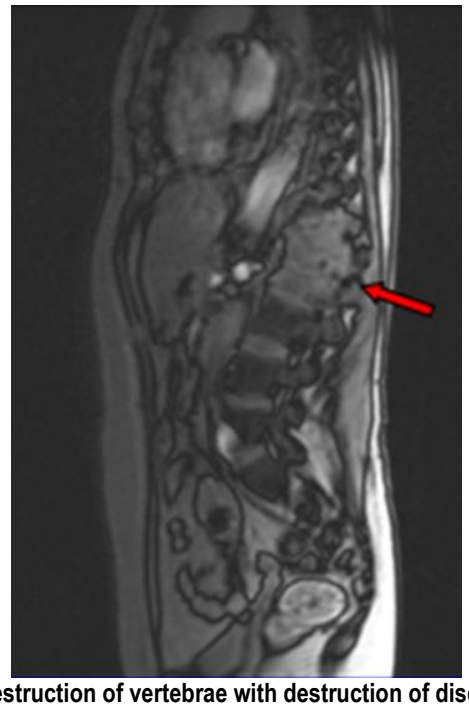
The indicators of the general analysis of blood, urine and biochemical tests were within the normal range.

Chest X-ray from 26.06.2022: residual changes after pulmonary tuberculosis.

CT scan of the chest and abdominal organs from 16.08.2022: metastatic echinococcosis of both lungs? Echinococcal cysts of the retroperitoneal space on the right with displacement of the right kidney anteriorly and destruction of the vertebral bodies at the level of Th 11-12? (Figure 1, Figure 2)



Conglomerate at the level of Th_{12}, L_{1-2}, vertebrae with spinal canal stenosis with cyst formations.
Figure 1. CT scan of the chest and abdominal organs.



Destruction of vertebrae with destruction of discs.

Figure 2. CT scan of the chest and abdominal organs.

On 23.08.2022, the patient underwent surgery: lumbotomy on the right, abscessotomy, sequestration necrectomy Th 12, L 1-2. The results of the histological examination of the surgical material from 28.08.2022: there is no data for tuberculosis. Echinococcus of the spinal column with an inflammatory reaction.

On 29.08.2022, the diagnosis of tuberculosis was removed, echinococcosis of the spine was exposed. The patient was discharged from the NCPT on 21.09.2022 with the final diagnosis: Echinococcosis Th 12, L 1-2.

On September 25, 2022, the patient was admitted to the neurosurgical department of the Medical Center (MC) of the Semey Medical University (SMU). Upon admission: the condition is serious. A patient with low nutrition. An objective examination revealed lower paraparesis with a strength of up to 2.5 points, torpid tendon reflexes from the lower extremities. Of the local (local manifestations), the following were observed: tension of the back muscles, high standing of the spinous processes in the thoracolumbar region, gibus in the lower thoracic spine, painful palpation and axial load, abundant purulent discharge from the drainage tube in the right iliac region.

The patient was diagnosed. Common echinococcosis of the lungs, liver, Th 12, L 1-2 vertebrae, lower paraparesis. Pathological fracture Th 12, L 1-2. Psoaccess on both sides. Elements of spinal canal stenosis. Abscess of the retroperitoneal space and the right iliac region. Concomitant diagnosis: Chronic pyelonephritis. Exacerbation of Chronic renal failure (CRF). Iron deficiency anemia (IDA), grade 2, of mixed genesis.

On 09.10.2022, the patient underwent surgery: opening and drainage of the retroperitoneal and iliac abscess on the right. Ultrasound of the retroperitoneal space from 06.11.2022 – no pathology was detected in the retroperitoneal space. Upon discharge (13.11.2022), the patient's condition stabilized, persistent paraparesis persisted with strength in the legs up to 3 points, rougher in the feet, elements of pelvic disorders.

On 14.01.2024, the patient was re–admitted to the neurosurgical department of the MC of SSMU with complaints of pain and burning in the thoracic spine, weakness in the legs, drooping feet - more on the left. The deterioration has occurred over the past two months. Upon admission, the condition is of moderate severity. From objective data, only: the lower paraparesis is deep distally up to 1.0 points. Locally: a postoperative scar on the right at the level of Th 11 with a length of up to 15 cm, in the left lumbar region there is a scarring with secondary tension of up to 3 cm in size.

On 15.01.2024, the patient underwent fistulography: there are fistulous passages in the paravertebral regions on the left at the level L 2-3, L 4-5. On 21.01.2024, the patient underwent surgery: lumbotomy on the left, revision and drainage of the abscess, fistulous passages were excised. Partial resection of the body of the L2 vertebra was performed. Drainage of a lumbotomic wound.

Pathohistological examination of the surgical material dated 29.01.2024: in the preparations, fat and muscle tissue with foci of necrosis surrounded by epithelioid cells, lymphocytes, giant multinucleated cells, fragments of chitinous membranes of echinococcus are visible in the foci of necrosis. Conclusion: echinococcosis in the area of the fistula.

Since August 2022, along with surgical treatment, the patient received 28-day cycles of anthelmintic treatment - albezol 675 mg in 2 doses, separated by a 14-day break in taking the drug.

Clinical diagnosis: Echinococcosis of the spinal canal at the level of Th 12, L 1-2 vertebrae, complicated by a paravertabral flow abscess with the formation of a fistula in the lumbar region on the left. Pathological fractures of the Th 12, L 1-2 vertebrae. Lower paraparesis. Concomitant diagnosis: Grade 1 IDA. Cardiosclerosis.

On 17.05.2024, the patient was discharged in a satisfactory condition. There is a wound in the lumbar region with a slight purulent discharge. Movement and strength in the lower extremities are reduced to 2 points.

"Written consent form" was obtained from the patient for the dissemination of his medical information.

Discussion

Echinococcal cysts can be found almost anywhere in the body, either as a result of primary infection or as a result of secondary spread. The liver is affected in about two thirds of patients, the lungs in about 25 percent, and other organs, including the brain, muscles, kidneys, bones, heart and pancreas, in a small proportion of patients. Damage to one organ occurs in 85-90% of patients with E. granulosus infection, and in more than 70% of cases there is only one cyst.

Bone cysts usually proceed asymptomatically until a pathological fracture develops; the growth of the parasite in bone tissue is a very slow process; the spine, pelvis and long bones are most often affected [16,17]. The incidence of bone damage in Cystic Echinococcosis ranges from 0.5% to 4% of all cases of CE [18].

According to McManus DP and others (2003), primary extrahepatic is very rare (1%). Multiorgan disease was described in 13% of cases in one series, in which the parasites affected the lungs, spleen or brain in addition to the liver.

The rare localization of echinococcal cysts makes timely diagnosis difficult. In general, any extensive formation may clinically resemble an echinococcal cyst. The differential diagnosis of cystic echinococcosis includes various diseases, including tuberculosis [19]. Clinical features, laboratory and instrumental tests make it possible to differentiate similar conditions.

In the above clinical case, the patient was diagnosed with tuberculosis and received specific treatment for a long time, which could weaken the patient's immunity and lead to a prolonged course of echinococcosis [20].

Treatment of echinococcosis includes antiparasitic therapy in combination with either surgical resection of the cyst or percutaneous aspiration and instillation of scolicidal agents [21-23]. This patient underwent a combination of conservative and surgical therapy, which led to a positive result.

Conclusions

the presented clinical case of echinococcosis is an example of a rare spinal lesion complicated by a paravertebral flow abscess with the formation of a fistula, in which chitinous membranes of echinococcus were found. Echinococcal lesion has no specific clinical and laboratory signs, which led to an erroneous diagnosis of spinal tuberculosis, followed by the appointment of anti-tuberculosis drugs and surgery, as a result of which echinococcus was detected during histological examination. For the successful treatment of the disease, multidisciplinary work of doctors, reliable methods of laboratory and instrumental diagnostics, high-tech methods of surgical treatment are necessary.

Conflict of interest. *No conflicts of interest have been declared.*

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