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DIFFICULTIES IN DIAGNOSIS OF A COMPLICATED HYDATID CYST OF THE LUNG IN A CHILD

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ТРУДНОСТИ ДИАГНОСТИКИ ОСЛОЖНЕННОЙ ЭХИНОКОККОВОЙ КИСТЫ ЛЕГКОГО У РЕБЕНКА

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Herein, we present a clinical observation of a child with complicated pulmonary echinococcosis. The patient had experienced difficulties with diagnosis, and he was unsuccessfully treated for chronic pneumonia over 1.5 years in a clinic and various hospitals. The description of this case indicates the importance of detailed history taking and obligatory diagnostic tracheobronchoscopy because the radiological signs in cases of a complicated hydatid cyst in the lung in children may be uninformative.

Keywords: complicated hydatid cyst, lung, surgery, children

Приведено клиническое наблюдение, демонстрирующее трудности в диагностике осложненного легочного эхинококкоза у ребенка, который на протяжении 1,5 лет лечился в условиях поликлиники и в различных стационарах по поводу хронической пневмонии. Описание данного случая указывает на важность детального сбора анамнеза, с обязательным проведением диагностической трахеобронхоскопии, поскольку рентгенологические признаки при осложненном эхинококкозе легких у ребенка могут быть малоинформативными.

Ключевые слова: осложненный эхинококкоз, легкие, хирургическое лечение, дети

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CT – multispiral computed tomography

MRI – magnetic resonance imaging

Echinococcosis is one of the most common zoonotic diseases worldwide [1, 2] and is prevalent in many southern countries of the world, as well as northern livestock regions. In Russia, echinococcosis occurs with varying frequency in the republics of the North Caucasus, the Stavropol Territory, Tatarstan, and Bashkortostan, in the northern livestock breeding regions of the Khabarovsk, Krasnoyarsk, and Altai Territories, and a number of other areas [3, 4, 5]. In recent decades, there has been an increase in the number of this disease in those areas, for which this disease was previously not characteristic. This relates to the significant migration of the population and tourism, with endemic spread of the disease [2, 6].

Liver echinococcosis, followed by the pulmonary form, are the most common localizations of the hydatid cyst, accounting for 30–60 % of cases [1, 7, 8]. Nevertheless, there is often a simultaneous combination of echinococcal lesions in several locations, predominantly in the parenchymal organs (liver, lungs, kidneys, and brain) [3, 9]. Despite the development of detailed diagnostic methods and surgical methods for various forms of hydatid cysts, early diagnosis remains difficult.

In childhood, a rupture of a hydatid cyst in the lung, with the contents entering the bronchi, is a severe problem. In such cases, fragments of the chitinous membrane of the cyst can obstruct the mouths of bronchi of various diameters. This results in an atypical course of the disease, which requires additional examinations, including multispiral computed tomography (CT) or magnetic resonance imaging of the chest cavity, for accurate verification of diagnosis [4, 6, 7, 8]. Herein, we present a clinical observation that highlights the difficulties in diagnosis of complicated pulmonary echinococcosis.

Case Report. A 10-year-old boy was admitted to the Department of Thoracoabdominal Surgery of the State Institution of the National Medical Center of the Republic of Tajikistan on 10 January 2018 with a preliminary diagnosis of fibroatelectasis of the lower lobe of the right lung. According to the anamnesis, the boy had been ill for approximately 1.5 years and had been repeatedly treated for chronic pneumonia in a clinic and various hospitals, without a positive effect.

The condition of the child was of moderate severity, with complaints of coughing, general weakness, lack of appetite, and periodic increases in body temperature to subfebrile numbers. During auscultation, weakened breathing was clearly defined in the projection of the lower lobe of the right lung. Laboratory studies, including specific serological tests for echinococcus, did not reveal pathological changes, with all indicators within the age norm. However, a survey radiograph of the chest organs in the projection of the lower lobe of the right lung showed a shadow formation in the form of atelectasis (Fig. 1). CT of the chest organs in the projection of the lower lobe of the right lung also revealed an irregularly shaped cavity measuring 46'32'42 mm with uneven contours (Fig. 2).

In our department, the child received a course of antibacterial and symptomatic therapy. The patient

underwent fibrobronchoscopy, during which a fragment of the chitinous membrane was found in the mouth of the lower lobe bronchus. Rigid bronchoscopy was performed, with an unsuccessful attempt to completely remove the chitinous membrane. A fragment of the chitinous membrane extracted in the process of rigid bronchoscopy was sent for histochemical examination. The morphological study confirmed the diagnosis of echinococcosis.

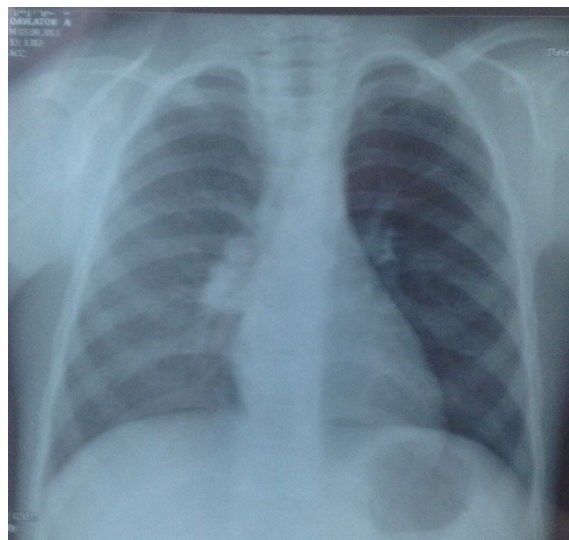


Fig. 1. Chest x-ray at the admission of the patient (10 years of age). In the projection of the right lung root, a 4-cm diameter roundish formation with an irregular shape was observed. Pneumatization of the lung tissue was not impaired, and there was no displacement of the mediastinal organs

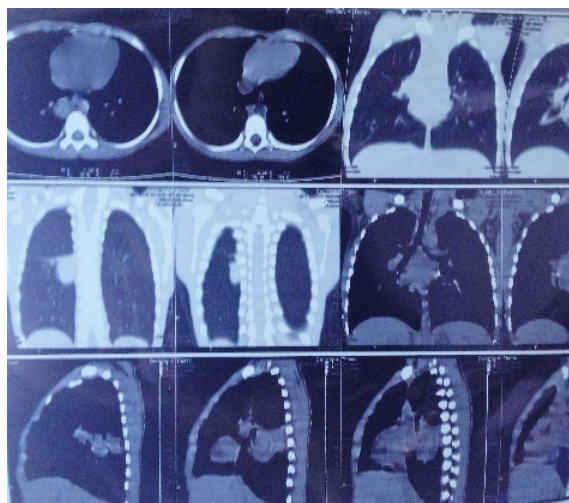


Fig. 2. Computed tomography (CT) of the chest organs of the patient at admission. A series of CT was used to determine the volumetric formation in the projection of the basal segments of the right lung and middle mediastinum

With a diagnosis of a hydatid cyst of the lung involving an echinococcal cyst opening in the bronchi of the lower lobe of the right lung, anterolateral thoracotomy was performed in the 5th intercostal space on the right. During the operation, the hydatid cyst was found located in the projection of the lateral and posterior basal (9 and 10) segments of the lower lobe. The fibrous capsule was cut along the perimeter, the chitinous membrane removed, and the fibrous capsule treated with 960 ethyl alcohol. One bronchial fistula was sutured, and the residual cavity of the fibrous capsule (up to 4 cm) was removed by interrupted sutures (Vicryl 4/0). All lobes of the right lung were straightened, and the pleural cavity was washed with a 0.02 % decamethoxin solution in isotonic sodium chloride solution and was drained. A rehabilitation bronchoscopy was performed after completion of the operation.

The early postoperative period was uneventful. The pleural drainage was removed on the 4th day after surgery. Control x-ray of the chest organs revealed that the lung had straightened, the focal shadows were not detected, the roots of the lungs were structurally sound, the shadow of the mediastinum was not expanded, and that the sinuses were free.

The child was discharged in a satisfactory condition with recovery and received two complete courses of albendazole at an age-specific dosage at 2-week intervals in the postoperative period. A control examination was performed at eight months recovery. The child had no complaints and met age-appropriate growth and development standards. The control x-ray of the chest showed no signs of relapse of the disease.

Discussion. Complicated pulmonary echinococcosis occurs in 13–39.5 % of cases. The most common complications are suppuration (19.2–34.5 %) and hydatid cyst in the bronchus (38–63 %) or the pleural cavity (4.9–26.3 %). These complications typically occur with large and multiple cysts [1–5, 7]. Complications of pulmonary echinococcosis are associated with rapid growth of the cyst, pericystic pathology, and other factors that dramatically change intrathoracic pressure such as broncho-pericystic fistulas and pleural adhesions. Complicated pulmonary echinococcosis is a severe disease and is characterized by a variety of clinical manifestations. Patients with this pathology typically require surgical treat-

ment, with earlier treatment having better outcomes. Expectant management for complicated forms of pulmonary echinococcosis is currently rejected by all surgeons [2–5, 7–9].

In cases of a sizeable bronchial fistula, there is some evidence that this process can be treated conservatively when it is possible to successfully remove the entire chitinous membrane by bronchoscopy [3, 5]. However, attempts to remove the chitinous membrane using bronchoscopy are often unsuccessful. In such cases, the open method of surgical intervention is preferred because the remaining chitinous membrane can cause prolonged recurrent chronic inflammation of the respiratory tract, as observed in our case. Bronchoscopic removal of the chitinous membrane through the tracheobronchial tree was also unsuccessful in our case because of the mismatch of the sizes of the anastomosis between the parasitic cyst (a significant volume of the chitinous membrane) and the bronchus.

This case highlights that even with quite frequent echinococcal lung damage in the area where the child lives, the parasitic nature of the disease was not immediately suspected. Indeed, the child was treated for chronic pneumonia by pediatricians and tuberculosis doctors for 1.5 years before diagnosis. The localization of the parasitic cyst in the projection of the root of the lung and the emptied fluid component distorted the radiological picture. As such, the pediatricians did not suspect the parasitic nature of the disease. The difficulty in establishing the diagnosis was because of the lack of data on a typical clinical picture with a parasitic cyst opening in the bronchi, such as the acute and sudden onset of the disease with expectoration or swallowing of a significant amount of contents of the cyst. At the first request of the child for medical help, this information was ignored by parents, who did not notice the details of the disease manifestation. As such, the diagnosis was focused on inflammatory lung disease.

Conclusions. Overall, this case description indicates the importance of detailed information collection on the disease manifestation, in combination with CT and tracheobronchoscopy, which allowed the diagnosis of complicated pulmonary echinococcosis and treatment that cured the child.

Disclosures:

The authors declare no conflict of interest.

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LAPAROSCOPIC PARTIAL RESECTION OF A POST-TRAUMATIC PANCREATIC CYST WITH DISTAL ROUX-EN-Y PANCREATICOJEJUNAL ANASTOMOSIS IN A CHILD

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ЛАПАРОСКОПИЧЕСКАЯ ЧАСТИЧНАЯ РЕЗЕКЦИЯ ПОСТТРАВМАТИЧЕСКОЙ КИСТЫ ПОДЖЕЛУДОЧНОЙ ЖЕЛЕЗЫ С НАЛОЖЕНИЕМ ДИСТАЛЬНОГО ПАНКРЕАТОЕЮНОАНАСТОМОЗА У РЕБЕНКА

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Cystic formations of the pancreas in children are relatively rare. In most cases, pseudocysts arising after injury or inflammation of the gland parenchyma, are diagnosed. The article presents a clinical observation of a 7-year-old child with a post-traumatic pancreatic cyst. Conservative treatment was ineffective. The child underwent laparoscopic partial resection of the pancreatic cyst and Roux-en-Y distal pancreaticojejunostomy. The selected treatment method allowed preserving the distal part of the pancreas, ensured reliable long-term drainage of the contents into the gastrointestinal tract and recovery of a child.

Keywords: children, pancreas, pancreatic injury, pancreatic pseudocysts, laparoscopy, Roux-en-Y pancreaticojejunal anastomosis

Кистозные образования поджелудочной железы у детей встречаются относительно редко. В большинстве случаев диагностируются псевдокисты, возникающие после повреждений или воспалений паренхимы железы. Представлено клиническое наблюдение посттравматической кисты поджелудочной железы у 7-летнего ребенка. Консервативное лечение оказалось неэффективным. Ребёнку было выполнено лапароскопическое частичное иссечение кисты с наложением дистального панкреатоеюноанастомоза на отключённой по Ру петле. Выбранный метод лечения позволил не только сохранить дистальную часть поджелудочной железы, но и обеспечить надежный длительный дренаж содержимого в просвет желудочно-кишечного тракта с выздоровлением пациента.

Ключевые слова: дети, поджелудочная железа, травма поджелудочной железы, псевдокиста, лапароскопия, панкреатоеюноанастомоз