

ULTRASONIC MONITORING OF ECHINOCOCCAL CYSTS AFTER PAIR PROCEDURE

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Abstract

The PAIR operation (Punction, Aspiration, Injection, Reaspiration) is a minimally invasive method for treating echinococcosis cysts (EC) of the liver at the CE1 stage. Since in this method of surgical treatment the echinococcosis cyst is not removed from the liver, constant monitoring of patients using complex radiation diagnostic methods is necessary - ultrasound and CT diagnostics.

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Conflict of interest

The authors declare that they have

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liver echinococcosis, radio diagnosis

PAIR отасынан кейінгі эхинококк кисталарының ультрадыбыстық мониторингі

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Аңдатпа

PAIR операциясы (Punction, Aspiration, Injection, Reaspiration) бауырдың эхинококкоз кисталарын (ЭК) CE1 сатысында емдеуге арналған аз инвазивтік әдіс. Хирургиялық емдеудің бұл әдісінде эхинококкоз кистасы бауырдан алынбағандықтан, УДЗ және КТ диагностикасы секілді кешенді сәулелі диагностиканың әдістерін қолданатын науқастарды бақылау қажет.

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Ультразвуковой мониторинг эхинококковых кист после операции PAIR

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Аннотация

Операция PAIR (Punction, Aspiration, Injection, Reaspiration) является малоинвазивным методом лечения эхинококковых кист (ЭК) печени в стадии CE1. Так как в данном методе хирургического лечения эхинококковая киста не удаляется из печени, то необходим постоянный контроль пациентов с использованием комплексных лучевых методов диагностики - ультразвуковая и КТ диагностика.

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Конфликт интересов

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Ключевые слова:

эхинококкоз печени, лучевая диагностика

Relevance

Operation PAIR (PUNCTION, ASPIRATION, INJECTION, REASPIRATION) is a minimally invasive method of treatment of echinococcal cysts (EC) of the liver at stage CE1. Since the echinococcal cyst is not removed from the liver in this method of surgical treatment, constant monitoring of patients using complex radiation diagnostic methods is necessary. - Ultrasound and CT diagnostics.

The purpose of the study: dynamic observation of patients after PAIR surgery, evaluation of the effectiveness of the treatment method, identification of postoperative complications.

Materials and methods

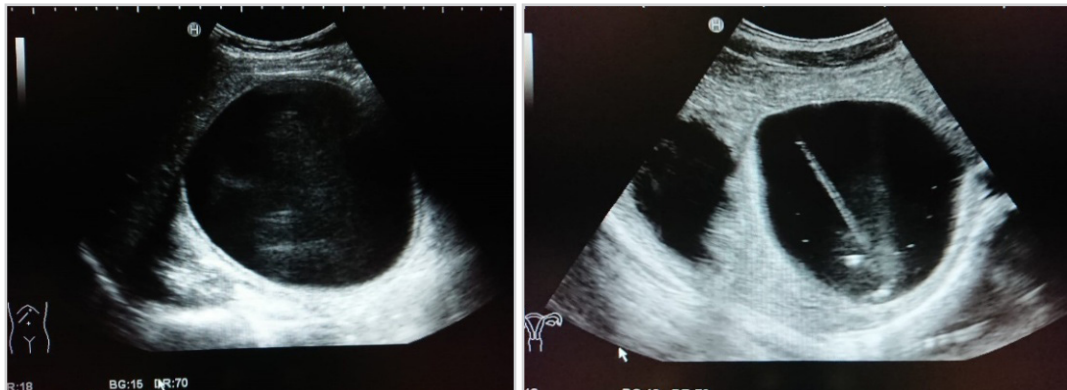
Foundation for the material is a retrospective analysis of 76 patients who underwent PAIR from December 2017 to December 2021 in the conditions of the NSCS named after A.N. Syzganov for every three months.

Results

Brief Ultrasound overview of the PAIR operation.

Ultrasound picture of EC at the CE1 stage before surgery. A rounded homogeneous liquid formation with a clear 2-contour capsule is visualized (Fig.1).

Figure 1.
Insertion of a Chida needle
into the cyst cavity



Ultrasound picture after injection of hypertonic solution. An anechoic rim can be traced between the fibrous capsule and the chitinous membrane, which indicates the beginning of detachment of the chitinous membrane (Fig. 2).

Figure 2.
Ultrasound picture after the
introduction of 96% alcohol

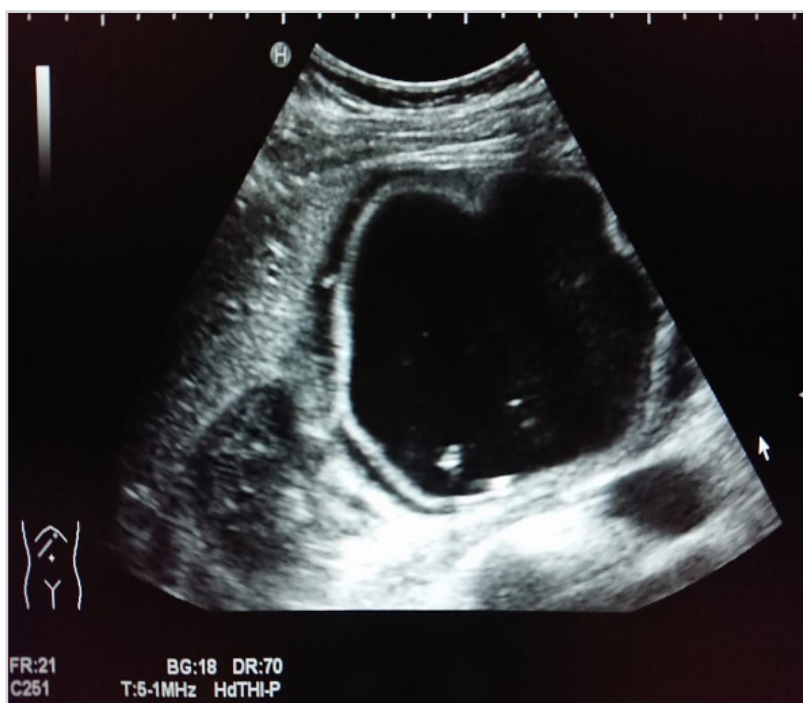


Figure 3.
Ultrasound picture after
aspiration of alcohol. The chitin
membrane was completely
exfoliated





Figure 4.
Ultrasound image on the day after surgery

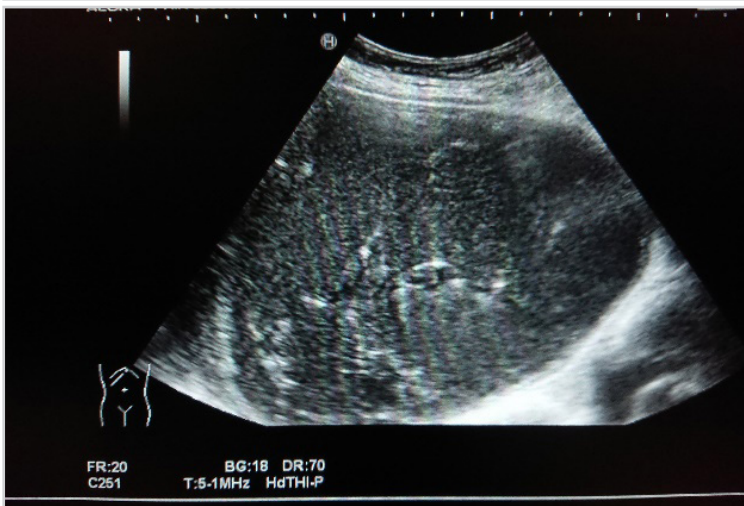


Figure 5.
The last scan shows a slight increase in the fluid component in the lumen of the cyst. This picture corresponds to the EC stage CE3 according to the ultrasound classification WHO-IWGE, 2003

In a dynamic ultrasound study, the patients retained a picture characteristic of an echinococcal cyst in stage CE 3, with an irregularly shaped cavity formation with liquid contents and a detached chitinous membrane of a tortuous form. Within one year, the size and nature of the contents of the cyst did not change significantly. A year later, a slight decrease in size was noted. In the lumen, the liquid component acquired an inhomogeneous gel-like character with the presence of increased and decreased echogenicity in the lumen of tissue structures (Fig.6).



Figure 6.
Dynamic ultrasound picture

During dynamic ultrasound examination, the following complications were identified after PAIR surgery:

- 3 patients had abscessed cavities;
- 1 patient had a breakthrough of the echinococcal cavity into the bile ducts with the development of obstructive jaundice;
- 1 case of relapse in the abdominal cavity.

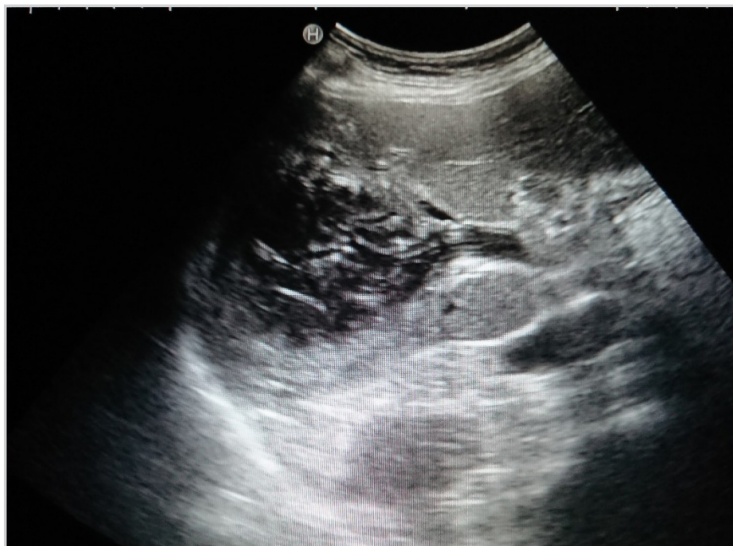
During abscess formation, the cavity of the Echinococcal cyst increased in diameter. Fragments of the chitinous membrane and an inhomogeneous liquid with a suspension were located in the lumen (Fig.7).

Figure 7.
Abscessing of the cavity of the echinococcal cyst



All patients with suppuration of cysts were installed drainage tubes under ultrasound. Within a month, the abscesses successfully resolved with a decrease in the size of the cysts. There was a clear connection between the cyst and the bile duct while a breakthrough of the EC in the lumen of the bile ducts recorded with a polypositional ultrasound investigation. The patient had an expansion of the bile ducts and choledochus, while in their lumens were visualized fragments of the chitinous membrane (Fig.8).

Figure 8.
This scan shows a clear connection between the cyst and the bile duct



This patient underwent Percutaneous transhepatic biliary drainage operation and drainage of the cavity under ultrasound control with drainage tubes Pig tail 8 Fr and 12 Fr, respectively. A month after drainage, the contents of the cyst were completely evacuated, obstructive jaundice resolved safely. Many cysts were visualized in the abdominal cavity of a patient with a relapse in the abdominal cavity, characteristic of EC in stage CE 1.

Conclusion

PAIR is a low-traumatic operation. The average stay of patients in the hospital was about 6 days, which is a perspective method for the treatment of uncomplicated forms of liver echinococcosis in the CE1 stage.

A complex ultrasound examination of patients after PAIR surgery is a highly informative, relatively inexpensive diagnostic method, without radiation exposure to the patient for early detection of complications and dynamic monitoring.

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