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SURGICAL TREATMENT OF NON-PARASITIC LIVER CYSTS IN CHILDREN

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ABSTRACT:

Non-parasitic, especially serous liver cysts are a fairly common pathology among focal lesions of this organ. One of the best methods of diagnosing these cysts is considered to be ultrasonography and computed tomography. Among all the proposed methods of treatment of this pathology, fenestration with coagulation of the inner shell is a low-traumatic and effective method of treatment.

KEYWORDS: non-parasitic cysts, children, fenestration.

INTRODUCTION:

Cavities in the liver are called cysts and can occur as a single (solitary), and in large numbers (polycystic) [4]. Serous liver cysts are more common every decade, which is associated, on the one hand, with an improvement in diagnostic capabilities, and on the other-with an increase in this pathology. Nonparasitic liver cysts occur in people of any age, often in children, including newborns, and in men less often than in women-1: 3 -5 [2, 10].

Etiology. All theories of the formation of true cysts are divided into two groups. Solitary true cysts are formed during embryonic development, when there is no connection to the general system of the bile ducts of individual intra-lobular and inter-lobular bile tubules. In this case, the epithelium of these aberrant bile ducts secretes fluid, as a result of which they turn into a cyst [3, 7, 14]. The second group of authors believes that polycystic liver disease is an independent disease with augosomal dominant heredity or is a single genetic defect with different prevalence in other parenchymal organs. Confirmation of this hypothesis is the familial nature of the pathology, which is confirmed by our clinical observations. [3, 6, 8].

MAIN PART:

False cysts - traumatic and inflammatory-are formed as a result of subcapsular rupture or focal inflammation of the liver [9].

Classification. I. True cysts of the liver a) single and multiple serous; b) polycystic liver only or with lesions of other organs; C) multi-cystadenoma; d) dermoid (teratoma); d) retention. II. False cysts of the liver: a) traumatic; b) inflammatory. III. Intrahepatic, okaloacoochee and intraligamentary.

Pathological anatomy. The size of true liver cysts varies widely: from microscopic to the size of cysts that contain up to 10 liters of content. They can occur at different depths of the liver parenchyma, in the ligaments and directly next to it.

The outer surface of serous cysts is smooth, shiny, gray-gray in color, and the inner surface is often fine-grained. The walls of the serous cyst are thin without a plane of detachment from the surrounding tissue. The contents of these cysts are liquid, transparent, serous, yellowish or light brown in color. Histologically, the wall of a serous cyst consists of three layers: 1) internal, epithelial of cubic or cylindrical cells; 2) medium, dense of connective tissue fibers, poor in cells and vessels; 3)

external, loose from connective tissue, elastic and muscle fibers, relatively rich in cells and blood vessels. The surrounding hepatic parenchyma, depending on the size of the cyst, is less or more atrophied due to compression.

The wall of traumatic and inflammatory liver cysts consists of various degrees of maturation of connective tissue: externally fibrotic-altered liver tissue with the phenomena of chronic inflammation, and the inner layer-granulation tissue without the presence of epithelial cells. Moreover, the outer part of the false cyst is tightly fused with the surrounding liver tissue. As these cysts increase, the surrounding liver tissue also atrophies due to constant compression [8].

The clinic. The clinical picture of the disease depends on its 3 periods of course: latent, uncomplicated, uncomfortable and complicated, which directly depend on the size of the cysts [1, 10]. With a diameter of cysts up to 3-5 cm, as a rule, there are no clinical manifestations. They are found accidentally during examination in connection with other diseases, during operations on the abdominal organs, as well as at autopsies. As the size of the cysts increases, along with their increase, the abdominal discomfort syndrome increases: constant pain in the right hypochondrium, which increases with physical exertion, a feeling of heaviness, pressure and fullness in the epigastrium and right hypochondrium, decreased appetite, general weakness, weight loss, nausea, sometimes vomiting. Palpation can determine a rounded elastic, moderately tense tumor, closely related to the liver. The third period of the disease is more typical for cysts with a diameter of more than 10 cm - this is the period of complications, which are observed in 4-5% of cases [3]. These include: hemorrhage in the wall or cavity of the cyst, suppuration, rupture or perforation, torsion of the cyst leg, intestinal obstruction, mechanical jaundice, portal hypertension syndrome, ascites, liver failure and malignancy.

Hemorrhage in the cyst is accompanied by sudden severe increasing pain in the right hypochondrium and epigastrium, rapid increase in size and soreness of the cyst or liver, symptoms of internal bleeding.

Suppuration of the cyst is accompanied by a clinic similar to a liver abscess: fever, possible hectic temperature curve, slowly increasing pain in the right hypochondrium with radiation to the back, enlarged and painful liver, sometimes local disease in the intercostal space.

Rupture or perforation of the liver cyst most often develops after sudden physical exertion or local trauma, when there is a sharp pain in the upper quadrant of the abdomen with tension here of the muscle, the Shchetkin - Blumberg symptom is revealed. If the cyst was suppurated, then the clinical picture is dominated by signs of peritonitis.

Torsion of the leg of the liver cyst is accompanied by a sudden constant, periodically increasing, abdominal pain. At the time of increased pain, abdominal muscle tension may appear, but the clinical symptoms of peritonitis appear much later, when necrosis of the cyst walls occurs.

Portal hypertension syndrome, ascites, mechanical jaundice and intestinal obstruction develop as a result of cyst compression of the elements of the hepatoduodenal ligament or lumen of the intestine and are accompanied by appropriate clinical manifestations.

Malignancy of cysts is rare and is characterized by a clinical picture of a malignant liver tumor: a small dull pain in the right hypochondrium with radiation to the back, fever with a possible hectic temperature curve, increasing general weakness and fatigue, sometimes mixed jaundice, as well as liver enlargement.

Despite the huge compensatory abilities of the liver with a rapid increase in especially multiple liver cysts or polycystic cysts, as well as with complications of cysts, at some point the functional state of the liver begins to suffer due to compression and fibrous degeneration of the remaining parenchyma. Hepatic insufficiency develops with a possible unfavorable outcome, which is especially common in a combination of polycystic liver and kidneys, as well as other parenchymal organs.

Differential diagnosis of liver cysts should be performed with its echinococcus and tumors, hydronephrosis and tumors of the right kidney, pancreatic cyst, dropsy of the gallbladder, mesenteric and retroperitoneal cysts.

Diagnostics. Diagnosis of liver cysts is based on the study of the clinical picture, instrumental studies and laboratory data (including serological and immunological tests).

Certain information is provided by laboratory tests as the methods are used: a) the general blood test mainly reflects the severity of the inflammatory process and the phenomenon of bleeding; b) the biochemical complex mainly helps in determining the functional state of the liver and kidneys, which is very important in polycystic disease, as well as in complications of liver cysts; c) in the differential diagnosis with parasitic cysts, the serological reactions of hemagglutination and indirect hemagglutination play a relatively important role.

Among the instrumental methods of examination in cysts of the liver is currently the primary role of ultrasonography (USG), rentgenocontrast (CT) and nuclear magnetic resonance (NMR) imaging, which give a lot of useful information accurate localization and prevalence of cysts, shape and size abnormalities, the presence of one-or two-layer shell, the liquid contents with and without impurities, the density of the fluid, accumulate if vasoconstrictive substance. The high reliability of these methods is based on their diagnostic sensitivity - 96% accuracy of the diagnosis. For differential diagnosis, you can use ultrasound in the Doppler mode, which can detect the active blood flow of the internal septa of cysts, with hemangiomas, with multicameral cysts. Of great importance is the intraoperative use of ultrasound in order to establish the exact localization of pathological foci in the thickness of the liver parenchyma, cannulation of biliary and vascular structures.

Not the least role in the diagnosis of liver pathology is played by such radiological methods: a) with a review radiography, you can see the displacement of the diaphragm, obliteration of pleural sinuses, deformation of the edges of the liver, especially the upper anterior, sometimes the liver parenchyma is visible, calcification of false and parasitic cysts can be observed; b) with arterio - and portohepatography, spherical non-vascular areas are visible, around which vascular elements bypass; c) cholangiograms show deformity of the bile ducts in certain areas, and sometimes complete obstruction of the ducts is visible due to their compression; d) radiopaque studies of the stomach and intestines can reveal their deformation and displacement by a pathological process.

Radionuclide studies: a) determination of the absorption-excretory function (PEF) is one of the reliable methods for detecting violations of the functional state of the liver; b) scanning reveals the size of the liver and defects in the accumulation of radionuclide in it, and scintigraphic examination of focal liver formations up to 5 cm in diameter is not reliable due to the overlap of their image with intense signals from the normal parenchyma located above and below. Diagnostic information content of the scan is up to 61%.

The Medicom in the diagnostic capabilities of focal liver pathology is limited.

Therefore, it is practically not used for these purposes.

Laparoscopy, especially modern endovideolaparoscopy with the use of instrumental palpation and manipulators, is a reliable, but invasive method of investigation. The disadvantage of this method is that it is impossible to examine the entire surface of the liver, but if there are doubts about the differential diagnosis, it is possible to perform a targeted biopsy. The diagnostic informativeness of the modern method is 91%.

Treatment. Due to the fact that self-healing of liver cysts does not occur, and conservative treatment is practically not effective, therefore, surgical treatment is indicated for this category of patients.

It is generally accepted that in the non-invasive diagnosis of liver cysts up to 3 cm in diameter, follow-up with a control examination is indicated once a year. If the diameter of the cysts is from 3 to 5 cm, when there are indeterminate clinical manifestations, surgical treatment is indicated as planned. With a diameter of cysts from 5 to 10 cm, when there is a clear clinical picture, surgery is indicated as planned. With a cyst diameter of more than 10 cm, an urgent operation is indicated, because the functional compensatory abilities of the liver are always reduced, and other complications of cysts are also possible. In case of accidental detection of liver cysts during surgery for another disease of the abdominal organs, one of the proposed operations should be used simultaneously to prevent their growth and the development of complications.

The surgeon is faced with the dilemma of choosing the scope of the operation, since several methods are proposed, and the choice of an intervention always depends on the type of non-parasitic cyst, its relationship with the tubular formations of the liver, the presence or absence of complications, as well as the severity of the patient's condition. It should be remembered that none of the proposed operations guarantees against newly formed true liver cysts [3].

With false liver cysts, surgical tactics are generally accepted, when after opening, emptying and treating their cavity, the intervention is limited to external drainage. In large cavities with thick sclerotic walls, it is sometimes necessary to perform liver resection. In serous cysts, there is still no consensus on the choice of the volume of intervention.

According to the literature data, in serous, true liver cysts, such operations as: marsupialization of the cyst with its tamponade and drainage, cystoentero-and gastrostomy, opening and drainage, as well as partial excision of the protruding cyst walls with subsequent suturing and drainage of the residual cavity are considered irrational. The fact is that these operations are often complicated by bleeding, sequestration of liver areas, fistulas, the formation of residual cavities with subsequent suppuration, relapses.

Due to the possibility of the formation of new true liver cysts, all the proposed operations are not radical [3]. Conditionally radical surgery is considered to be enucleation of the cyst, but it is often traumatic due to fusion with the liver parenchyma or with deeply located cysts, and is also practically not applicable in polycystic disease.

Liver resection also refers to conditional radical surgery and should be performed for multiple cysts and polycystic cysts within one segment or half of the liver, cystadenomas, complicated cysts, cystic malignancy, bleeding, absceding, or infiltration around the cysts. This amount of surgery is quite traumatic and is often accompanied by significant blood loss.

Percutaneous puncture of cysts under the control of ultrasound or CT with the evacuation of its contents was at one time widely used. However, it is accompanied by frequent relapses and complications in the form

of bleeding and infection. The reasons for relapse are that the rigid stroma of the liver tissue does not allow the walls of the cyst to stick together. In this regard, the inner shell of the cyst continues to secrete exudate, which fills the residual cavity. Treatment of the inner shell of the cyst with one of the coagulating solutions to stimulate the formation of granulation tissue is accompanied by the release of a large amount of exudate, especially for the first 3 — 5 days, which is proved by micro-drainage of the residual cavity. When the coagulating solution is delayed in the residual cavity, it is absorbed into the liver parenchyma and has a toxic effect on the adjacent hepatocytes. A sufficient amount of fibrin in the exudate stimulates the formation of granulation tissue in the residual cavity, followed by transformation into a scar. If the punctures are repeated repeatedly, then either infection or bleeding is added directly in proportion to the frequency of the procedures, which is estimated by the quality of the exudate. This kind of minimally invasive intervention is indicated only for those patients who cannot tolerate a more rational operation or categorically refuse it.

In 1968, Lin T. Y. proposed fenestration, that is, excision of the protruding walls above the surface of the liver, as the main method of treating serous cysts. The positive aspect of this operation is the maximum preservation of intact liver tissue. This operation is less traumatic and can be performed through laparotomy and laparoscopic method. The disadvantage of this operation is the healing of the residual cyst cavity with a rough, often deforming scar. In the presence of large cysts with a wide flat bottom, scarring may not occur, and the release of serous exudate into the abdominal cavity continues in large quantities, because of this, it does not always have time to be absorbed by the peritoneum and accumulates in the form of ascites. If there is a lot of fibrin in such an exudate, then the development of abdominal adhesive disease is possible [3]. In such cases, after coagulation of the inner shell of the cyst, it is appropriate to drain such a residual cavity with a strand of the large omentum on the pedicle, which increases the local suction surface of the peritoneum.

To prevent these disadvantages of fenestration of liver cysts, it is proposed to tampon the residual cavity with special drugs — allopan, tachocomb, etc.

Polycystic liver disease or polycystic disease is accompanied by the appearance of new cysts in the course of the patient's life with a constant increasing compression of the liver parenchyma and gradual violations of its functional state until the development of a hepatic coma. Surgical treatment of polycystic disease remains problematic, so some authors [10] argue that this problem is not surgical. A radical method of treatment for this pathology is organ transplantation. Conditionally radical hemihepatectomy is applicable only when half of the liver is affected, which is extremely rare.

CONCLUSION:

Thus, serous liver cysts are a fairly common pathology among the focal lesions of this organ. One of the best methods of diagnosing these cysts is considered to be ultrasonography and computed tomography. Among all the proposed methods of surgical treatment of this pathology, open or laparoscopic fenestration with coagulation of the inner lining of the cyst is a low-traumatic and effective method of treatment.

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