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PROBLEMS IN THE TREATMENT OF PATIENTS WITH SUPUPORATIVE LIVER DISEASES AND THEIR TREATMENT TACTICS

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HEPATIC ABSCESS: PROBLEMS AND MANAGEMENT OF PATIENTS

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Abstract:
The presented work analyzes the results of treatment of 168 patients with liver abscesses, who were hospitalized in the TMA multidisciplinary clinic, for the period from 2015 to 2022. The main instrumental methods of investigation were: Ultrasound and multispiral computed tomography. To date, minimally invasive interventions are highly effective, subject to adequate local sanation and targeted antibiotic therapy. These operations must be performed in specialized institutions and by high-level specialists, since repeated punctures with an attempt of catheterization result in traumatization and complications development; the recommended tactics of patient management allows to stop the inflammatory process, with adequate clearing of abscess cavity. Inclusion of prolonged intra-arterial catheter therapy in the complex of therapeutic measures at the stage of infiltration allows to prevent abscess formation.

Keywords: Liver abscess, errors, prolonged intra-arterial catheter therapy

INTRODUCTION.

Liver abscess is a purulent cavity caused by invasion and proliferation of microorganisms within healthy or diseased liver parenchyma [1]. Microbes can enter the liver parenchyma through the bile ducts, bloodstream (hematogenous, most often portal) or by contiguous spread, especially through the gallbladder bed. They are mainly caused by parasitic or bacterial microflora and require hospital treatment. There may be cases of mixed and fungal etiology [2].

Liver abscess is common in Asian countries such as Taiwan, Singapore and South Korea, where the cause is amoebic in origin [3]. In the United States, the incidence is 2.3 per 100,000, predominantly in older men, and the risk of development is the presence of concomitant diseases accompanied by a decrease in immune status. The most common pathogen in these regions was Streptococcus milleri, followed by Klebsiella pneumoniae. This is in contrast to South Korea and Taiwan, where K. pneumoniae is the most common pathogen found in liver abscesses [1,4].

Every year, in the world, amoebic liver abscesses occur in 40-50 million people, mainly in developing equatorial countries. People of all races are equally susceptible to the disease. Risk factors may include travel and residence in endemic areas. The peak incidence is observed in people aged 20 to 50 years. Men get sick 7-12 times more often, but among children there is no clear dependence on gender [5]. Over the past 70 years, the incidence of pyogenic liver abscesses has not changed significantly. In developed countries it is 8-15 cases per 100 thousand population; in countries where health care is underdeveloped, this figure is much higher. The incidence ratio between men and women of the same age is approximately 2:1, respectively. Pyogenic liver abscesses are more common in people aged 30 to 60 years [6].

Liver abscess was first described by Hippocrates 400 BC. He suggested that the severity of the disease may depend on the nature of the abscess contents [7-9].

Dieulafoy and Fitz considered suppurative diseases of the abdominal organs among various causes of the formation of liver abscesses [10, 11].

In 1903, Rogers noted the association between suppurative cholangitis, bile duct obstruction, and liver abscesses.

In 1926, pylephlebitic liver abscess was first described in a patient with diverticulitis.

In 1938, Ochsner and DeBakey, after analyzing surgical reports and autopsy material, found that in 35% of cases the cause of the formation of liver abscesses was appendicitis. Pylephlebitic abscesses accounted for 43% of cases, cholangiogenic – 14% and cryptogenic – 22%. In most cases, abscesses were multiple, mortality was 80%.

H. A. Pitt, in an analysis of 525 observations of liver abscesses, found that cholangiogenic abscesses were diagnosed in 37% of patients. In 40% of patients with

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cholangiogenic liver abscesses, malignant neoplasms of the hepatopancreaticoduodenal zone were detected. The author considered immunosuppression caused by the tumor process as the cause of abscess formation. Cryptogenic and pylephlebitic liver abscesses accounted for 25 and 18%, respectively [12, 13, 14].

Since 1980, many publications have presented biliary tract diseases as the main cause of liver abscesses, accounting for 37–55%. [15, 16-19].

Etiology and pathogenesis.

Cholangiogenic liver abscesses. In most cases, they are formed when the patency of the bile ducts is impaired [15, 14, 16, 20–23]. The most common causes are cicatricial strictures of the bile ducts and long-term choledocholithiasis [20, 22, 23].

Patients with biliodigestive anastomoses or fistulas without impaired bile passage are also at risk for the formation of cholangiogenic liver abscesses [19,20]. According to a number of authors [24, 25], 10–13% of patients with choledochoduodenostomosis develop liver abscesses within 2–8 years.

In case of injury, abscess formation can occur within 14 days to 2 months after injury. Acute cholecystitis, according to the literature, is one of the most common causes of the formation of liver abscesses [12, 15, 19, 26]. According to some authors, liver abscesses that arise as a result of direct spread of infection from the gallbladder are most often solitary and located in close proximity to its bed [26].

The proportion of cryptogenic liver abscesses is 25–57% [5,6, 27]. This is due to the increasing proportion of minimally invasive percutaneous methods, which obviously exclude the possibility of intraoperative revision and identification of the primary source of infection [20].

In recent decades, there have been changes in surgical treatment tactics - these patients are more often successfully treated with minimally invasive techniques. "Open" surgery, as the first line of treatment, is now not used in many clinics. The role of "open" surgery in the treatment of purulent liver abscesses is limited only to complicated ulcers (opened into the abdominal or pleural cavities), or to eliminate the etiological factor itself (duct strictures, cholangitis, chronic foci of inflammation) [13].

To summarize the above, it should be noted that at present, the problem of treating liver abscesses remains very relevant, actively discussed in domestic and foreign literature, despite a fairly wide range of diagnostic and treatment methods. In this regard, we set ourselves the goal of assessing the effectiveness of diagnostic and treatment tactics for patients with liver abscesses.

Material and methods.

This work is based on the results of treatment of patients undergoing treatment at the Republican Center for Purulent Surgery and Surgical Complications of Diabetes Mellitus of the Multidisciplinary Clinic of the Tashkent Medical Academy, for the period 2015 - 2022, where 168 patients were treated during this period.

Analysis of the distribution of patients by gender showed that there were 89 men (52.9%), women - 79 (47.1%). The age of the patients ranged from 26 to 87 years, and the development of pathology depending on age was not identified. There were 74 (44.0%) patients over 60 years of age, 94 (53.0%) under 60 years of age. The timing of admission varied. At the same time, we conditionally divided the patients into two groups: primary and secondary. The first group is represented by patients who directly contacted our clinic. The number of such patients was 19 (11.3%). The second group of patients was represented by 149 (88.7%) patients who were hospitalized in primary care and, as a result of either progression of the process or ineffectiveness of the therapy, were transferred to our clinic. These patients dominated (pic. No. 1)

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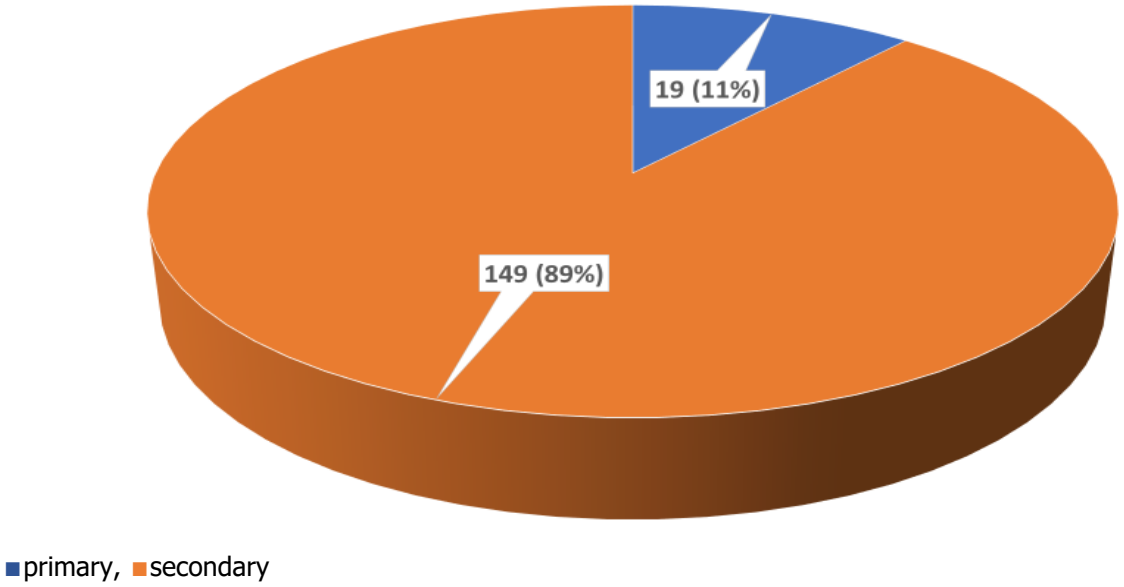

Pic. No. 1. Frequency of requests.

Before admission to the clinic, the patients underwent conservative therapy, but there was no surgical activity among these patients.

The main complaints of the patients were: heaviness in the right hypochondrium, general weakness, periodic increase in body temperature, ranging from 38 to 400C. A special feature was the absence of bursting pain in the right hypochondrium.

We analyzed the frequency of occurrence of this pathology by region of the Republic (Table No. 1).

Table No. 1. Distribution of patients by region.

Localization	**Quantity**	
	n	%
Tashkent	25	14,9
Tashkent region	51	30,3
Andijan region	2	1,2
Buxara region	12	7,1
Jizzax region	5	2,9
Kashkadarya region	7	4,2
Navoi region	4	2,4
Namangan region	3	1,9
Samarkand region	8	4,8
Surxondarya region	32	19,0
Sirdarya region	8	4,8
Fergana region	10	5,9

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Xorezm region	1	0,6
Total	168	100

As can be seen from the table, the pathology covered all regions of the Republic. The dominant regions were: Tashkent - 25 (14.9%), Tashkent region - 51 (30.0%) and Surxandarya region 32 (19.%). The first two regions are closely located regions, which explains their high share. The number of patients from the Surxondarya region is associated with the peculiarities of the region and the high frequency of parasitic liver diseases among the population.

The dominant factors in the diagnosis of liver abscesses are clinical data, physical examination and laboratory parameters. When examining blood in a clinical analysis, signs of inflammation were noted (high levels of leukocytes, a shift in the leukocyte formula to the left, an increase in ESR). Indicators of bilirubinemia and increased activity of liver enzymes are not always absolute laboratory criteria for liver abscesses. For topical diagnosis of pathological changes in the liver parenchyma and assessment of nearby organs (biliary tract, pancreas, stomach), ultrasound and CT of the abdominal cavity were performed.

RESULTS AND DISCUSSION

Analysis of the causes of liver abscesses showed that they are multifactorial in nature, the data of which are presented in Table No. 2.

Table No. 2. The cause of the development of liver abscess.

Cause	**Quantity**	**%**
Blunt abdominal trauma (not operated on)	7	4,2
Postoperative complications	51	30,3
Liver echinococcosis	10	5,9
Liver neoplasms	4	2,4
Etiology not established	93	55,4
Sepsis	3	1,8
Total	168	100

As can be seen from the table presented, in half of the cases – 55.4%, the root cause of the development of the abscess was not identified. In second place are postoperative complications in the hepatobiliary region - 51 (30.3%). Suppuration of echionococcal cysts was recorded in 10 patients (5.9%). In 7 patients, the cause of development was blunt abdominal trauma. The development of purulent infection against the background of neoplasms was detected in 4 patients (2.4%) and in 3 patients the process developed as a result of an existing septic condition.

Table No. 3. Nature of surgical interventions.

Cause	**Quantity**	%
Abscess puncture with aspiration	3	1,8
Drainage	83	49,4
Laparatomy with abscess drainage	2	1,2
Long-term intra-arterial catheter therapy (TICAT)	12	7,1
Drainage with DVACT	15	8,9
Redraining	4	2,4
Without surgery	49	29,2
Total	168	100

Therapeutic measures included antibacterial therapy from the moment the patient was admitted to the hospital, detoxification therapy using efferent detoxification methods, as well as symptomatic therapy. The essence of antibacterial therapy was the prescription of broad-spectrum penicillins with a beta-lactamase inhibitor (piperacillin + tazabactam), a group of lincosamides (clindamycin) and aminoglycosides (amikacin sulfate). A mandatory component was the inclusion of antifungal drugs (flucanazole).

Of 168 patients, drainage of the abscess cavity was performed in 83 patients (49.4%), drainage in

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combination with long-term intra-arterial therapy in 15 (8.9%) patients. An arterial catheter was installed at the mouth of the celiac trunk. Isolated use of long-term intra-arterial catheter therapywithout drainage was performed in 12 (7.1%) patients. I would like to note that the criterion for performing long-term intra-arterial catheter therapy without drainage is the presence of a pronounced inflammatory process in the liver parenchyma, which was detected by CT data, the presence of multiple small cavities up to 2.0 cm in size. The nature of the surgical interventions consisted of puncture of the abscess cavity, which was performed in 3 patients, drainage of the abscess cavity - 83 (49.4%). Drainage was carried out under Rg control, leaving a catheter for drainage of cavity formations of the "Pigtail" type, 10-12 Fr in size.

In 2 cases, due to the appearance of peritoneal phenomena after drainage, the patients underwent laparatomy, opening and drainage of the abscess cavity, leaving 2 luminal silicone drains. In 4 patients, as a result of non-functioning drainage, manifested by difficulty in the outflow of purulent contents, re-drainage was performed, and the catheter was replaced with a larger diameter.

49 patients refused the operation, while 27 patients applied again, were hospitalized and had their abscess cavity drained.

After installing the catheter, the material was taken for bacteriological examination and passive evacuation of the contents was carried out for two days, which made it possible to create a sealing of the area of the inserted catheter. Subsequently, sanitation of the abscess cavity was carried out. As sanitized drugs, we used fluoroquinolones (moxifloxacin, gatifloxacin), which were administered depending on the size of the abscess cavity, while tight filling was not performed, due to the possible risk of leakage. The catheters were blocked and the drug was exposed to the cavity for 2 hours. Subsequently, active aspiration of the contents was performed and fluoroquinolones were reintroduced, with the volume being 1/3 of the cavity. In this state, the contents were subject to passive aspiration. This manipulation was carried out twice a day. The criterion for stopping sanitation was the absence of pus in the exudate.

During microbiological examination of the abscess contents, in 24 patients (14.3%), the pathogen was identified in monoculture - Enterococcus faecalis, in 71 patients (42.3%) diculture - Escherichia coli and Streptococcus. In 13 (7.7%) cases, polyculture was noted: Acinetobakter, Escherichia coli and Proteus miabilis. The remaining 60 patients (35.7%) had no growth of flora.

In 134 (79.7%) cases, the abscess was located in the right and in 34 (20.3%) cases - in the left lobe of the liver. Segmentally in the right lobe, in 102 (60.7%) patients the cavity was located in segments VII and VIII, in 32 patients in segment VI. In the left lobe, the cavity in 34 patients was located in segment III.

The length of time the catheter was in the abscess cavity varied between 32 and 44 days, which depended on the degree of cleansing and shrinkage of the abscess cavity, which was assessed through fistulography.

In our study, complications were observed in 6 (3.6%) patients. In 4 cases, drainage was performed and in two cases laparatomy was performed. No deaths were observed.

To summarize, we can conclude that minimally invasive drainage operations are highly effective and applicable in the treatment of liver abscesses of various etiologies; operations should be carried out in specialized institutions and by high-level specialists, because multiple punctures with attempts at catheterization lead to trauma, with the development of complications; The recommended tactics for managing patients allows you to stop the inflammatory process, with adequate cleansing of the abscess cavity; inclusion of long-term intra-arterial catheter therapy in the complex of treatment measures at the infiltration stage helps prevent the formation of an abscess.

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