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Role of Endobiliary Forces Biopsy in the Treatment of Tumors of the Extrahepatic Bile Ducts

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A B S T R A C T

In recent years, according to the literature, there has been a steady increase in the incidence of cancer of the hepatopancreatoduodenal zone. Currently in developed countries this figure is 9.0 per 100,000 population. Despite the rapid pace of development of modern medicine, the results of treatment and diagnosis of this category of patients remain disappointing. Biliary tract tumors, or cholangiocarcinomas (CCs), are a heterogeneous group of malignant tumors that can affect any part of the biliary tree, from the interlobular canals of Hering to the primary bile duct. Based on their anatomical location, tumors are classified as intrahepatic CC (IHCC) (20% of cases), which arise in the biliary tree in the liver, and extrahepatic CC (IPHC), which arise outside the liver parenchyma; the latter is divided into perihilar cholangiocarcinoma and distal cholangiocarcinoma. In this article reviewed most relevant recent research results related endobiliary biopsy.

Keywords: *Klatskin tumors , obstructive jaundice, palliative recanalization , hepatic cholangiostomy , radical surgical interventions.*

Introduction

Issues of diagnosis and treatment of patients with malignant lesions of the extrahepatic bile ducts are one of the pressing problems of surgical hepatology , which is associated with a steady increase in the number of patients with this pathology [1, 2, 4].

The close anatomical and functional relationship of closely located organs of the hepatopancreatoduodenal zone determines the absence of specific symptoms in IVH cancer. Due to late diagnosis, patients are admitted to the surgical clinic at an advanced stage of the oncological process with severe obstructive jaundice [3, 5, 6].

Extrahepatic bile duct obstruction can be caused by any benign or malignant disease that obstructs the bile ducts or adjacent anatomical structures [1-5].

Stones in the common bile ducts (choledocholithiasis - 50% of cases), strictures of the bile ducts due to malignant or benign growth and extrahepatic compression of the bile ducts with an enlarged pancreas or liver - all this can cause obstruction 40% of all causes of obstruction of outflow can be tumors - adenocarcinomas pancreatic or hepatocellular, gallbladder tumors, or metastatic carcinoma, or may be caused by metastases and lymphadenopathy of the hilar lymph nodes. Potentially, all lymphadenopathy due to lymphoma , neoplasia or many infectious diseases can cause biliary obstruction. In addition, obstruction can be caused by other reasons (10%): stenosis of the major duodenal papilla (MDS), duct stricture, biliary atresia, cholangitis, pancreatitis, liver tumors [4, 6-9].

A mechanical obstruction to the outflow of bile leads to stagnation (extrahepatic secondary cholestasis) and an increase in bile pressure above 270 mmH2O . with t., expansion and rupture of bile capillaries and the entry of bile into the blood or through the lymphatic tract. The appearance of bile in the blood causes direct hyperbilirubinemia (increased content of conjugated bilirubin), hypercholesterolemia , the development of cholemic syndrome due to the circulation of bile acids in the blood, bilirubinuria (urine color - “beer color”) and the presence of bile acids in the urine [10, 11].

Diagnosis of tumors and complications

According to the literature, the sensitivity and specificity of methods for diagnosing liver tumors reaches 88-97% [10-16, 18, 19]. In the last decade, modern ultrasound technologies have been further developed, new modifications and methods of radiation and other types of diagnostics have found widespread use: multilayer spiral computed tomography (MSCT), single-photon emission computed tomography (SPECT), positron emission tomography (PET), multiphase MSCT angiography, MSCT arterioportography, dynamic contrast MRI (DCMRI), MRI cholangioportography , MRI venoportography , MRI spectroscopy [15, 18, 19].

Classic transabdominal ultrasound plays the role of a screening method (elimination factor) in the differential diagnosis of hepatic and subhepatic jaundice and should be performed first of the instrumental research methods. Ultrasound examination can reveal both intrahepatic and extrahepatic dilatation of

the bile ducts. It is a sensitive imaging modality for identifying bile duct obstruction and is often the initial procedure of choice when imaging patients with jaundice.

It may also reveal the presence of extrahepatic bile duct tumors, an obstructing tumor in the head of the pancreas or in the liver, and bile duct obstruction caused by large perihepatic lymph nodes (which can cause external compression of the bile ducts). In cases of distal bile duct obstruction: Dilation of the intra- and extrahepatic bile ducts is visualized. In most cases, this is due to the presence of stones in the common bile duct or a tumor of the head of the pancreas (PHT). Both diagnoses may be obvious on examination, but often the distal common bile duct is poorly visualized on ultrasound, most often due to flatulence. In addition, distal obstruction can be caused by neoplasms of the duodenum (duodenum) or periampullary region, which requires duodenoscopy and biopsy of these neoplasms. The proximal type of obstruction is characterized by dilation of the intrahepatic bile ducts, which usually occurs with obstruction at the porta hepatis. In this case, as a rule, expansion of the distal bile ducts is not observed; such a picture, despite its rarity, is a classic manifestation of intraductal proximal cholangiocarcinoma (Klatskin tumor). Several other pathological processes can mimic these conditions. Paracancrosis in gallbladder cancer, acute cholecystitis, Mirizzi syndrome , or tumor metastases at the porta hepatis can also lead to proximal biliary tract obstruction [13, 20].

Fibroesophagogastroduodenoscopy (FEGDS) is performed following ultrasound . With its help, the pathology of the upper gastrointestinal tract is determined: varicose veins of the esophagus, stomach tumors, pathology of the major duodenal papilla (MDP), deformations of the stomach, duodenum due to compression from the outside. In this case, it is possible to perform a biopsy of the area suspicious for cancer. In addition, the technical feasibility of performing ERCP is assessed [20].

To determine the specific cause of obstructive jaundice and acute cholangitis, further CT or magnetic resonance imaging (MRI) is usually required.

If there is a reasonable suspicion of cancer, a contrast-enhanced CT scan is performed. CT is of great importance, as it allows, along with identifying dilatation of the ducts and the cause of their obstruction, to perform a targeted biopsy or decompression intervention. Unlike ultrasound, the diagnostic abilities of the method are not reduced by flatulence, ascites, or obesity. In recent years, magnetic resonance cholangiopancreatography (MRCP), which has high accuracy in diagnosing the causes of obstructive jaundice, especially in assessing the nature and extent of biliary tract strictures, as well as intraductal formations, has become widespread . However, this method lacks puncture drainage therapeutic capabilities [21-23, 25].

The widespread introduction of spiral CT and MRI has made a certain revolution in the diagnosis of obstructive jaundice. Abdominal computed tomography (CT) may also be useful in assessing extrahepatic obstruction. Biliary dilatation may be obvious, and this imaging modality may be more effective than ultrasound in identifying and characterizing liver or pancreatic masses or lymphadenopathy . Abdominal CT with intravenous contrast allows you to assess the anatomy and nature of pathological changes, but at the same time, CT is less sensitive than ultrasound in detecting choledocholithiasis, but is indispensable when malignant neoplasms are suspected, allowing you to identify even the smallest tumor foci and localize the level of obstruction. A large retrospective study (380 cases of obstructive jaundice of tumor origin) showed that CT is highly accurate in determining tumor resectability [25].

The most reliable information about the state of the bile ducts is provided by direct contrast methods [21]: retrograde Cholangiopancreatography and percutaneous transhepatic cholangiography . When determining indications for various methods of preoperative preparation and timing of surgical intervention, many authors rely on the classification of the degree of liver failure [23]. However, it should be noted that the very concept of liver failure has not yet received a final definition, and the variety of liver functions makes it difficult to choose criteria for assessing its failure [24].

It is known that none of the modern diagnostic methods - ultrasound, MRI, X-ray CT, radionuclide methods - allow us to determine with complete confidence the nature of the pathological process in the liver, but only clarifies its location, possibly metabolic processes in the formation [24]. In this regard, the main principle of oncological verification involves the use of puncture technologies to obtain material not only for cytological and histological, but also immunohistochemical studies [13, 18]. According to some authors, the sensitivity of puncture biopsy is 80%, specificity and predictive value – 90 and 100%. Complications associated with liver biopsy range from 0006-0.3% [8, 17]. In a number of publications, diagnostic punctures based on the method of collecting material for morphological examination are divided into fine-needle aspiration biopsies (FNA), when the tissue structure of the biopsy is not preserved, and microhistological punctures - by the method of semi-automatic or automatic trephine biopsy (TRB), when in most cases it is possible to preserve the structure of the biopsy [8, 18, 24]. According to some publications, in order to collect material for morphological verification of liver tumors, in the majority (78-85%) of cases, percutaneous transhepatic targeted biopsy of liver tumors under ultrasound navigation [8, 13]. The other part of the puncture biopsies is performed laparoscopically after endoscopic assessment of the liver and abdominal cavity [4, 24]. According to a number of authors, complex FNA in combination with material sampling using the tru-cut method is a fairly simple, low-traumatic method for verifying the diagnosis of focal lesions in tumor and non-tumor liver pathologies [18, 19, 20]. In clinical practice, to obtain microhistological material, various modifications of semi-automatic instruments from Magnum / Bard are used , which allows material to be collected by trephine biopsy under the control of an ultrasound scanner [24]. A number of researchers recommend choosing biopsy needles based on the doctor’s personal experience and the task at hand. In everyday practice, Menghini needles and tru-cut needles are considered convenient to use . Aspiration biopsy is recommended to be carried out mainly with Chiba or Cook needles with a cross-section of 22 G and a length of 12-25 cm; sampling of material is 20 g with a syringe. 18-16 G needles are recommended for use when the contents of a cystic formation or parasitic lesion are expected to be dense [18, 24].

The indications and choice of puncture technology method for diagnosing various formations remains controversial in the literature [24, 27]. According to most researchers, puncture biopsy of focal changes in the liver is indicated in cases where their picture does not correspond to reliable signs of uncomplicated liver cysts, cavernous hemangiomas or typical metastases with the established primary localization of the tumor according to instrumental research [13, 18].

Thus, the issues of diagnosis, treatment and prognosis for Klatskin tumors currently remain relevant. The implementation of extensive liver resections, a combination of surgical interventions with resection of vascular structures with their subsequent reconstruction, the development of new drugs and the introduction of new protocols for preoperative preparation and postoperative management of patients have improved long-term treatment results. Expanding knowledge about the processes occurring at the molecular genetic level and underlying the pathogenesis of the disease will make it possible to further improve and improve methods of examination and treatment of such patients, will open new ways for targeted therapy, which will affect the treatment results and prognosis for portal cholangiocarcinoma in the best side.

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