

**MINISTRY OF HEALTH OF THE
REPUBLIC OF UZBEKISTAN
TASHKENT MEDICAL ACADEMY**



TEACHER EDITION

**FEATURES OF CLINIC, DIAGNOSTICS
AND SURGICAL TREATMENT
OF PERYAMPULLARY TUMORS,
COMPLICATED BY MECHANICAL JAUNDICE**

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Tashkent – 2015

MINISTRY OF HEALTH OF THE REPUBLIC OF UZBEKISTAN

Tashkent Medical Academy

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_____ 2015

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_____ 2015

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JAUNDICE**



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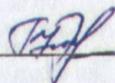
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Teacher edition intended for general practitioners, surgeons, oncologists masters, residents of universities in Surgery and Oncology, as well as graduate student of medical universities.

Introduction. Over the past 20 years clearly increased frequency of occurrence of periampullary tumors (PAT). Inextricable anatomical and functional interconnection of pancreas, duodenum, Vater's papille and terminal section of choledoch, as well as of the most common clinical manifestations of tumor lesions - block the outflow of bile with the extension of mechanical jaundice (MJ) - gives reason to combine these tumors in term "periampullary."

It should be noted that the average patient of PAT after the first symptoms is 6-8 months. However, about 30% of patients die within 1 month after diagnosis and only 1% of them live 5 years. According to current data, it is possible to increase the five-year survival rate to 18% with the early diagnosis and radical surgical treatment. However, early diagnosis of PAT is extremely complicated, that is why it is belated. Thus, the diagnostic phase is often complicated by the MJ, where the conduct of diagnostic invasive procedures often exacerbate the course of the underlying disease, and at the same time expanding biliary hypertension, liver failure, make it extremely risky not only extensive radical, but even palliative surgery (Danilov MV, Glabay VP 2007; Bartoti FB, Arnone GB, et al., 2010; Buckler M., Friess H., 2013). In this context, only 10-20% of patients with this disorder can be subjected to radical surgery.

Despite the fact that the surgeon can not only solve the problem of cancer bilio pancreatico duodenal zone (BPDZ) pancreatectomy is a major component of such complex treatment of patients and the only kind of treatment, which gives a significant chance of survival.

Currently, in large specialized centers, after pancreatic resection 5-year survival rate is 15-20% for cancer of the pancreas, and 50-69% of cancer of LDP. It should be noted that the median life of patients with cancer of the pancreas treated with adjuvant chemotherapy after radical operations reaches 19-25 months compared with 13.5 months for patients who did not receive it (Tempero MA., 2005, Yeo CJ., 2007 2008, Crane C., 2010, Tseng JF., 2014 Patyutko Yu et al., 2007).

Surgery on the pancreas - technically and logistically complex operations, secure the fulfillment of which requires the preparation of not only the surgeon, but

also institutions. Despite the fact that in recent years postoperative mortality decreased to 5-20%, still a high level of post-operative complications, reaching 40-70% (Kubyskhin VA 2003 Gaboyan AS 2008 Patyutko YI . 2012, Vargas R. 2014). According to most surgeons, the main causes of postoperative mortality: pancreatitis, pancreatic stump, insolvency pancreatic jejunum anastomosis, hepatico jejunum anastomosis, liver and liver-kidney failure.

Thus, according to Yu Patyutko et al. (2007), Beger H.G et al. (2014), the frequency of insolvency pancreatico jejunum anastomosis reaches 14-30%, with almost 50% comes death. Serious complication in the early postoperative period is considered destructive pancreatitis, which often leads to insolvency seams pancreatico jejunum anastomosis (Kulakeev OK 2008 AM Ignatov 2005 Korabel'nikov AI 2004, Aramaki M. 2003). A high percentage of postoperative complications and mortality, relatively short duration of life of patients say about the relevance of the problem (Eremeyev AG 2008).

The complexity of the diagnosis and treatment of PAT as well is because the tumors are diagnosed late, even in individuals at risk; complex differential diagnosis of benign tumors and inflammatory processes; not determined the preferred method and term biliary decompression by MJ; not always obvious choice of a method of palliative and radical surgery; complexity is the prevention of postoperative complications.

In this regard, the improvement of existing and search for new diagnostic methods, as well as the definition of adequate surgical treatment once again forced to turn to the issue.

Classification and staging of periampullary tumors.

Staging system applies to all exocrine carcinomas of periampullary area (more than 90% of all tumors). Ductal adenocarcinoma and its variants make up about 80-90% of malignant BPDZ.

Histological types of exocrine carcinomas:

- Severe ductal dysplasia / carcinoma in situ (intraepithelial neoplasia - PanIN III);

- Ductal adenocarcinoma;
- non-cystic mucinous carcinoma;
- signet ring cell carcinoma;
- glandular squamous (adenosquamosal) carcinoma;
- Undifferentiated carcinoma;
- A mixed ductal-endocrine carcinoma;
- Osteoclast similar giant cell tumor;
- Serous cystadenocarcinoma;
- Mucinous cystadenocarcinoma;
- Intraductal papillary mucinous • carcinoma (invasive and non-invasive);
- Acinic-cell carcinoma;
- Acinic-cell cystadenocarcinoma;
- Mixed acinic-endocrine carcinoma;
- Pancreaticoblastoma;
- Solid pseudopapillary carcinoma;
- Border (of uncertain malignant potential) tumors (mucinous cystic tumor with moderate dysplasia, intraductal papillary mucinous tumor with moderate dysplasia; solid pseudopapillary tumor).

Clinical and morphological classification of periampullary tumors.

Modern international classification PAT organization Union Internationale Contre le Cancer (UICC) agreed with the classification of American Joint Committee of Cancer (AJCC) (Editorial VI, 2002, edition VII, 2010).

TNM staging system for data based on the preoperative examination and corrected after surgery and morphological study of remote agents.

Primary tumor (T):

TX - Primary tumor cannot be assessed

T0 - no evidence of primary tumor

Tis - carcinoma in situ (also includes PanIN III)

T1 - the tumor within the gland, no more than 2 cm in greatest dimension

T2 - tumor within the gland than 2 cm in greatest dimension

T3 - Tumor extends beyond the gland, but does not involve the celiac trunk and superior mesenteric artery

T4 - tumor involves the celiac trunk and superior mesenteric artery ("Locally" cancer, the primary tumor "unresectable")

Regional lymph nodes (N):

NX - regional lymph nodes cannot be assessed

N0 - no regional lymph node metastases

N1 - has metastasized to regional lymph nodes

Distant metastasis (M):

MX - Distant metastasis cannot be assessed

M0 - no distant metastases

M1 - have distant metastases ("common" cancers)

Distribution by stages:

Stage 0: $T_{1s}N_0M_0$

Stage IA: $T_1N_0M_0$

Stage IB: $T_2N_0M_0$

Stage IIA: $T_3N_0M_0$

Stage IIB: $T_{1-3}N_1M_0$

Stage III: $T_4N_{0-1}M_0$

Stage IV: $T_{1-4}N_{0-1}M_1$

According to the classification of UICC, tumors that are localized in the breast tissue to the right of the left edge of the portal / superior mesenteric vein, including hook-shaped appendage tumors should be considered the head of the pancreas. Determining the **degree of histological differentiation** (G) allows us to estimate the degree of aggressiveness of the tumor and may affect the prognosis and treatment options. For ductal adenocarcinoma of pancreas are 4 degrees of differentiation:

GX - cannot be assessed

G1 - high-grade

G2 - moderately differentiated G3 - poorly differentiated

G4 - undifferentiated

Classification of **residual tumor (R)** specifies the status of the residual tumor, characterizes the effectiveness of treatment and is a prognostic factor. Means the assessment of completeness as the removal of the primary tumor as well as metastases. Classification can be used after surgery, but it requires a mandatory comparison of surgical and pathological data.

RX - residual tumor cannot be assessed;

R0 - no micro- or macroscopic evidence of residual tumor;

R1 - confirmed microscopically residual tumor;

R2 - confirmed macroscopically residual tumor;

Notes:

1). R0 group may include patients with both the M_0 and M_1 with. But in this case distant metastases as the primary tumor should be removed completely. If the primary tumor of the head of the pancreas is removed completely (in the province no resection of tumor cells), but not removed metastasis (distant or nodal), the resection cannot be considered R_0 .

2). Difficulties with R-classification can occur during tumor removal in parts, but not «en bloc». In such cases, the appropriate category is R_X .

3). Having determined microscopically invasion through tumor resection classified as R_1 , and in the case of non-invasive carcinomas - $R_{1(is)}$.

4). Cases with macroscopically determined residual tumor (R_2) can be divided into R_{2a} (without microscopic confirmation) and R_{2b} (microscopically confirmed).

Cancer of Vater papilla:**Primary tumor (T):**

Tis - preinvasive carcinomas (cancer in situ).

T1 - Tumor limited to VP or sphincter of Oddi;

T2 - Tumor extends to the wall of the duodenum;

T3 - Tumor extends to the gland;

T4 - Tumor extends to the tissue around the head of the pancreas or other structures and organs.

Regional lymph nodes (N):

-metastases N1 regional lymph node.

Distant metastasis (M):

M1 - have distant metastases

Distribution by stages:

Stage IA: $T_1N_0M_0$

Stage IB: $T_2N_0M_0$

Stage IIA: $T_3N_0M_0$

Stage IIB: $T_{1-3}N_1M_0$

Stage III: $T_4N_{0-1}M_0$

Stage IV: $T_{1-4}N_{0-1}M_1$

Cancer terminal part of the common bile duct

Tis - preinvasive carcinomas (cancer in situ).

T1 - Tumor limited to the bile duct;

T2 - tumor invades the wall of the bile duct;

T3 - the tumor spreads to the liver, gallbladder, pancreas, branches of PV or hepatic artery on one side;

T4 - Tumor extends to any of the following structures: PV, bile ducts on both sides, a common hepatic artery, colon, stomach, duodenum, anterior abdominal wall.

Regional lymph nodes (N):

-metastases N1 regional lymph node.

Distant metastasis (M): M1 - have distant metastases

Distribution by Stage

Stage IA: $T_1N_0M_0$

Stage IB: $T_2N_0M_0$

Stage IIA: $T_3N_0M_0$

Stage IIB: $T_{1-3}N_1M_0$

Stage III: $T_4N_{0-1}M_0$

Stage IV: $T_{1-4}N_{0-1}M_1$

Cancer of duodenum

Tis - preinvasive carcinomas (cancer in situ).

T1 - submucosal invasion includes;

T2 - invasion of the muscular layer of the intestine;

T3 - invasion subserous layer or non-peritoneal sites (retroperitoneal space) for no more than 2 cm;

T4 - invasion of the visceral peritoneum, retroperitoneum over 2 cm or adjacent organs (RV) and structures.

Regional lymph nodes (N):

-metastases N1 regional lymph node (pancreatoduodenal, pyloric, hepatic (nodes around the common bile duct, gallbladder, liver gate), the lymph nodes around the superior mesenteric vessels).

Distant metastases (M): M₁ - have distant metastases

Distribution by stages:

Stage I: T₁₋₂N₀M₀

Stage II: T₃₋₄N₀M₀

Stage III: T₁₋₄N₁M₀

Stage IV: T₁₋₄N₀₋₁M₁

Features of clinical and laboratory of periampullary tumors complicated by mechanical jaundice.

The sequence of symptoms, their severity, intensity depends on the location of the tumor in the organs BPDZ. Thus, in the pre-icteric period symptoms in cancer LDP or distal common bile duct, usually less pronounced than in the localization of the tumor in the pancreatic head, and most often, but not always presented slightly-expression of epigastric pain dyspeptic symptoms. MJ in the localization of the tumor in the pancreatic head is also higher than in the location in the body and tail, and the localization of LDP in CBD or even higher. Symptoms of intoxication in the localization of the tumor in the pancreas are more pronounced than in cancer BDS, the distal common bile duct or duodenum. Ductal carcinoma of the pancreas with the same size and location as compared to any other form of histo-

logical exocrine pancreatic cancer is characterized by more severe symptoms, the speed of the disease, polymorphism of the disease, depending on the location of the tumor, its morphological accessories cause diagnostic difficulties.

Consider the most frequent clinical symptoms of PAT.

Her pain localization, irradiation, the nature and intensity, not only to accompany the development of breast syndrome, but precedes it. With PAT, pain due to irritation and damage to the nervous elements in the location of the tumor, the development of local edema, increased hydrostatic pressure in the ductal system of the pancreas and bile ducts, perineural tumor invasion system intraorganic and extraorganic nerve fibers, the tumor has spread to the retroperitoneal nerve plexus inflammation of the tissues of the pancreas, addition cholangitis, spastic contraction of smooth muscle elements in the area of the tumor, arterial spasm, trophic Destroy-tumor properties of the affected organ, invasion of adjacent organs. Meanwhile, positive symptom Courvoisier (presence of a painless, palpation enlarged gall bladder) is a pathognomonic symptom of breast with PAT.

Dyspepsia in the form of belching, vomiting, diarrhea, constipation, bloating conditional by muscle spasm by previously large ducts, blood vessels, trophic disorders of the affected organ tumor and adjacent organs, deficiency of digestive enzymes, in violation of the neuroendocrine regulation of motor and secretory activity of BPDZ, stomach, other parts of digestive tract. Availability hypermotor diarrhea is a sign of tumor involvement in the process of mesenteric vessels. Diarrhea, steatorrhea and kreatoreya emerge as a result of excretory failure of pancreas. Nausea and vomiting undigested food may be due to duodenal obstruction or stenosis. Aversion to eating meat, nausea, fatigue, weakness constant – are characteristic symptoms of cancer intoxication.

Fever is a manifestation of cholangitis, cholecystitis on the background of MJ or tumor lysis.

Weight loss – is a characteristic symptom of PAT. It is the leading cause of digestive disorders caused by an enzyme deficiency, lack of bile into the small intestine at MJ. It also leads to weight loss anorexia, expectation of pain when eating,

inflammation of the bile ducts, pancreas. Weight loss maximally expressed, while the oppression of exocrine function of the liver, pancreas and duodenal obstruction.

Important role in reducing body weight play a metabolic disorder resulting from cancer intoxication, progressive metastases - "cancer and metastatic disease."

Laboratory parameters. Characterized primarily by progressive anemia, mixed origin - B12 deficiency, iron, accelerated erythrocyte sedimentation rate. When joining cholangitis, in the peripheral blood observed leukocytosis, increased absolute and relative number of young forms of granulocytes (neutrophils stab, meta-, and myelocytes). As the disease progresses develops vitamin A, D, E and K.

Clinical and laboratory signs of mechanical jaundice syndrome characterized primarily by: icteric staining of skin, mucous membranes, sclera, redness, clarification of feces. Color of the skin, mucous membranes, sclera become saturated dark yellow color with the progression of hyperbilirubinemy in contrast to the pale yellow color with hemolytic jaundice and bright lemon-yellow color of the skin in viral hepatitis. Ictericness sclera become apparent at the rate of total bilirubin more than 40 mmol / l, with a gradual staining of the skin and mucous membranes.

Itchy skin - is the most characteristic feature of the breast and the most pronounced in this type of jaundice. Itching of the skin begins to appear at rates of total bilirubin above 70-80 mmol / l and is permanent, increasing the progression of jaundice. The cause of pruritus is a cluster of metabolic products in the epidermis and activation of inflammatory mediators.

On examination, the patient show signs of scratching the skin. On the body spontaneously appear and disappear thrombosis syndrome (Trousseau), Palpatomo determined positive symptom Courvoisier, hepatomegaly. Splenomegaly occurs in portal hypertension due to thrombosis or tumor ingrowth into the portal vein and is considered one of the adverse factors in the choice of surgical tactics.

In the blood, when MO hyperbilirubinemy observed (normally up to 20.5 mmol / l), mainly due to increase of the line (bound) fraction of bilirubin (normally up to 4.3 mmol / l). Indicators cytolysis of hepatocytes are increased activity of al-

kaline phosphatase (normal 90-250 U / L). The decrease in total protein (normally 65-85 g / l). The increased activity of alanine aminotransferase (ALT) (normally up to 40 IU / L) and AST (normally up to 37 IU / L) was also observed, but to a relatively lesser degree than the AP, and gradually increases as the duration of cholestasis.

De Ritis coefficient - the ratio of AST to ALT also applies to the prognostic criteria of hepatic cytolysis against the backdrop of jaundice. So, with a coefficient equal to or below 0.7, due in elevated ALT activity, characterized by the first criterion intrahepatic cholestasis on the background of diffuse liver disease that just can often eliminate the mechanical nature of the development of jaundice.

Signs of endocrine and excretory pancreatic insufficiency, is-is the growth of blood cholesterol concentrations, clinical manifestations, it can be developed advent xanthelasmas around the eyes.

Indicators are characterized by an imbalance between coagulation and thrombolytic components of the blood coagulation system, and are expressed in increase of coagulation and anticoagulation depletion potential as tumor growth and progression of obstructive jaundice, decreased production of coagulation proteins as a consequence of a violation of the educational function of the liver.

Hemostasis characterized by increased levels of fibrinogen (normal for adults 2-4 g / l), 2-2.5 times and suppression of fibrinolytic activity in 70-80% of cases, indicating a decrease clot lysis. Increase performance SFMC (4-5 times) according ortofenantrolin sample, which explains the severity of DIC. Against the background of a hypercoagulation indicators PTI (normal adult one-step method for Quinke - 11-15 sec.) Are reduced by 25-40% due to an increase in the duration of the formation of a fibrin clot and aPTT prolongation (normal 28-40 sec.) 15-20 %, contributing to a drop of the synthetic capacity of the liver.

This explains the fact of hemorrhagic complications observed in the breast, such as bleeding of hemic - characteristic manifestation of prolonged breast. Recurrent bleeding from acute erosions and ulcers of the digestive tract - is the fre-

quent cause of death in patients with long-standing jaundice syndrome tumor nature.

Changes in urine characterized by a decrease in the concentration of urobilinogen, and increasing the concentration of bilirubin, which gives urine a richer, darker shade.

In feces, as well a decrease in the level of urobilinogen and stercobilinogen, feces becomes thus acholic.

Diagnosis of periampullary tumors complicated by mechanical jaundice.

Over the past two decades, the possibility of surgery have increased significantly. There was a giant leap in the development of medical technologies. These studies suggest that the symptoms that develop when PAT non-specific, and do not depend on the location of the tumor lesion that causes untimely detection of such tumors. In before jaundice period of the disease, diagnose PAT is rarely possible. Manifestations of the disease in this period of uncertainty and variable. Epigastric pain, weight loss, loss of appetite, nausea, upset his chair, often regarded as gastro-duodenitis symptoms, gastric ulcer and duodenal, chronic pancreatitis, patients with the duration of the observed therapists, gastroenterologists. Only with the advent of obvious signs of disease, patients treated in specialized hospitals where medical intervention to perform worsen prognosis.

In a number of cases in stage I disease, flowing asymptomatic, detected as "accidental discovery" in the survey about the other pathologies in which the difficulties for the surgical treatment usually does not arise. In process stage II prevalence slightly larger and the structure including the adjacent organs, but, in contrast to step III, there is no lymph nodes. Stage of the disease has important prognostic value, and finally set after the planned pathologic study. The absence of distant metastases does not always mean the opportunity to perform the operation. There are cases when the survey data indicate a tumor resectability, and at laparotomy found out that the prevalence of different surgical procedures and limited biopsy. Therefore, in cases of suspected PAT need a comprehensive examination, including highly informative medical diagnostic and laboratory and instrumental methods

allow a minimum degree of infestation accurate diagnosis. The first step in the survey is the actual identification of the tumor, its definition organ-tackle and morphological forms. Next, examine the prevalence of the process and the degree of tumor invasion into the adjacent blood vessels and organs.

Non-invasive methods of diagnosis of periampullary tumors.

Ultrasonography to determine the presence of tumor nodule greater than 2 cm, its location, shape, size, contour, structure and propagation to adjacent organs. Modern techniques allow the US to clarify the structure of the tumor, to assess the degree of vascularization, as well as adjacent to the pancreas large venous and arterial vessels.

Signs of neoplastic lesions of the pancreatic head is local or diffuse enlargement of the deformation body with a change in its structure. The contour of the head of pancreas cancer is uneven, fuzzy (Fig. 1).



Fig. 2 Ultrasound. Space-occupying lesions of the pancreatic head. The contours of the gland rough, fuzzy

According to the ultrasound can determine the level of the block, dilation of the common bile duct, intrahepatic bile ducts (Fig. 2). The sensitivity of ultrasound in detecting upper abdominal and retro peritoneal lymph nodes was 78.9%. The sensitivity and specificity of ultrasonography in detecting pancreatic head tumors was 83%, 99%, respectively.

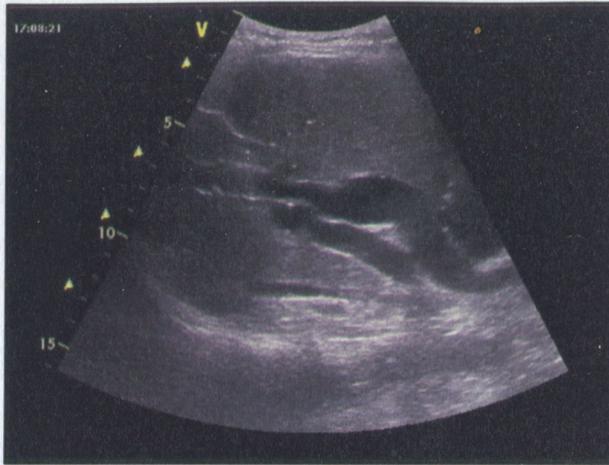


Fig. 1 US, dilated common bile duct, extended intrahepatic bile ducts

The diagnostic capabilities of percutaneous ultrasound elevated in duplex scanning using color Doppler evaluation of blood supply to tumors and state adjacent vessels. Malignant tumors are characterized by enhanced blood supply, along with a change in the anatomic position, and the arteries. An important feature of cancer is a change in the lumen of the main veins (splenic, superior mesenteric and portal) and the appearance of blood clots in them.

Practical importance as well immunochemical tests syvo Rothko-2 antigen in the blood - CA 19.9 and CEA. SA 19.9 - glycoprotein, whose figure to 37 U / l is considered normal. The average sensitivity of the marker is 80%, specificity of the marker is limited. CEA - cancer embryonic antigen glycoprotein. In adults, normally considered a value not exceeding 2.5 ng / ml. Level - more than 5 ng / ml - may indicate cancer. Sensitive marker for cancer of the pancreas is 46-90%. The specificity of the marker is limited because of the positive values of the test in a number of non-neoplastic values (hepatitis, cirrhosis, emphysema, terminal ileitis, benign tumors and malignant tumors of other organs). The low specificity of the markers determines their role as a monitoring method for pancreatic cancer patients who have pre-treatment had positive immunochemical tests for CA-19.9 and CEA.

Fibrogastroduodenoscopy is not a direct method of diagnosis of PSC, but it can be a valuable indirect information on the affected organ. If necessary, the method can be supplemented by taking biopsies of duodenal wall, FS during germination tumor allows to verify the accuracy of diagnosis (Fig. 3).

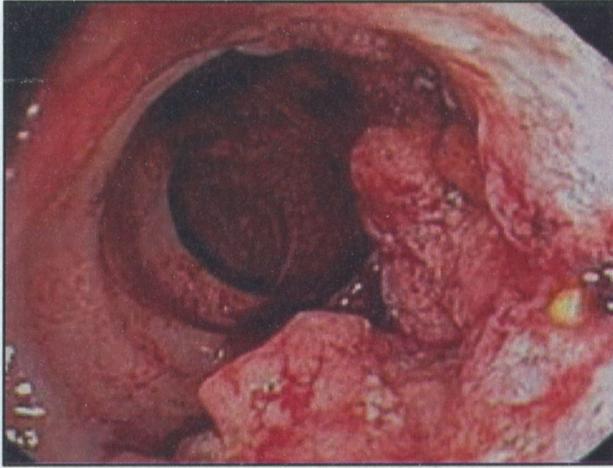


Fig.3. Duodenoscopy. Cancer descending part of duodenum

It is crucial endoscopic examination with contrast pancreatic duct in the case of questionable diagnosis. In this case, a typical manifestation of exocrine cancer is obstruction or stenosis of the main pancreatic duct, its intermittent or dilatation of the terminal.

To date, modern endoscopic techniques are not limited to examination of the pathological focus, methods allow you to perform medical manipulations, to conduct preoperative biliary decompression in the form papillosphincterotomy in tumors LDP and retrograde drainage of the common bile duct cancer its distal or cancer of the head of pancreas, as well as produce a fence pancreatic juice on the content of tumor-associated antigens, as discussed below.

Multislice computer tomoangiography (MSCTA) opened a new stage in the development of modern X-ray systems. MSCTA opportunities in determining the nature and extent of the tumor increased with intravenous contrast, this changes the radiographic density of the tumor (usually upward due to the high vascularization

of exocrine pancreatic cancer compared to most of the pancreas), which facilitates assessment of tumor boundaries, its relationship with the surrounding organs and vessels allows us to differentiate metastases, the spread of tumors to identify TOX in the pancreatic head and uncinate process (Fig. 4-5).

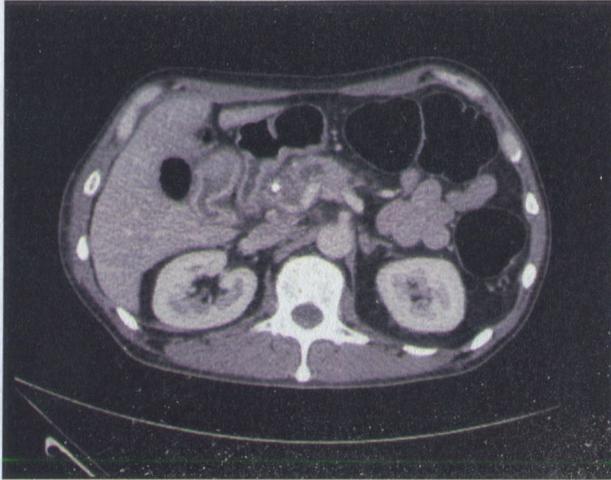


Fig. 4. Space-occupying lesions of the head of pancreas



Fig. 5 MSCTA. Angioarchitectonics VP with aberrant vessels
Sensitivity MSCTA with PAT varies between 90 and 99%.

By intravenous administration of contrast material appears scan possibility of BPDZ as arterial and venous, and parenchymal phases, which allows more accu-

rate differential diagnosis of neoplastic and inflammatory processes in the parenchyma BPDZ and near lying tissues. The method allows to reconstruct the three-dimensional image pancreatico duodenal area contact helps to distinguish tumor from large vessels, including vessels and deformation vascular invasion; also it is possible to identify options and a discharge branching arteries. Under the supervision of MSCTA may also conduct fine-needle biopsy.

MSCTA very useful for estimating indirect signs of cancer and pancreatic cancer TOX: expansion of the main pancreatic duct, the expansion of the extrahepatic, intrahepatic bile ducts and gall bladder, peripancreatic adipose tissue and regional lymph nodes. With the combination of the extended main pancreatic duct with a zone of atrophy of the pancreas, located distal to the stenosis, may be suspected tumor nature Wirsung duct stenosis.

By the relative lack MSCTA include limiting the study in renal failure that occurs often in the background of obstructive jaundice.

Magnetic resonance imaging (MRI). According Y.Imanishi and oavt. (2011), in all cases, when it is possible to avoid a large number of artifacts, MRI allows one to clearly assess the state pas renhimy pancreas and surrounding organs and tissues. Conroy T. et al. (2011) find that more clearly MRI, compared with other methods, to determine the prevalence of tumor tissue parapancreatic.

MR cholangio pancreato graphy (MRPChG) (Fig. 6).

Fig. 7 MRChG with reconstruction. Severe intrahepatic hypertension with dilated main pancreatic duct. "Break" the common bile duct at the level of the lower third of its parts

The sensitivity of the diagnostic method in biliary obstruction, as well as its causes is 84%, specificity - 92%. MRI technique - arteriography and spleno mesenteric porto graphy based on MRI in terms of intravenous contrast material and provides valuable information about the involvement in the pathological process of large vessels in the tumor and vascular anatomy. Given the relatively high information MRPHG in evaluating informative of the local extent of the tumor, it can be considered a "catch-all" method of imaging the second line after the ultrasound examination.

Invasive diagnostic methods of periampullary tumors complicated by mechanical jaundice.

In the available literature, there are a large number of publications devoted to the issue of invasive diagnosis of PAT. In domestic sources of information about the capabilities of endoscopic diagnosis and treatment is limited analysis of the results of application of routine techniques: endoscopic and drainage techniques based on it. In foreign sources of such data are more widely, and they reflect the place of endoscopic, combined interventions in complex diagnostic and treatment activities. ERChPG is performed not everywhere, endoscopic ultrasonography (EUS) - a single institution comprising endoscopic and interventional radiological (IR) intervention - in a few specialized clinics.

Endoscopic ultrasound BPDZ represented by four species: US laparoscopy, Duodenoscopy cholangioscopy and pancreatoscopy.

Maximum approximation of the sensor to the object under study reduces the effect of interference from interposition gassy organs - the stomach, duodenum, colon. Direct contact ultrasonic sensor with the expected structure reduces interference of ultrasonic waves. Thus possibilities ultrasound prostate pancreatic and biliary ducts extrapancreatic connective tissue, connective tissue paravascular more or less large vessels in the tumor and the regional lymph nodes juxtaregionary in-

creased. Endoscopic ultrasound techniques can diagnose pancreatic tumors 1 cm. (Fig. 8).



Fig. 8. Three-dimensional ultrasound image sensor

Endobiliary ultrasound diagnosis is represented by two types: intraductal research during antegrade cholangioscopy (with percutaneous transhepatic-cholangiostomy) and intraductal ultrasonography at transpapillary retrograde introduction of ultrasound probe (Figure 9).

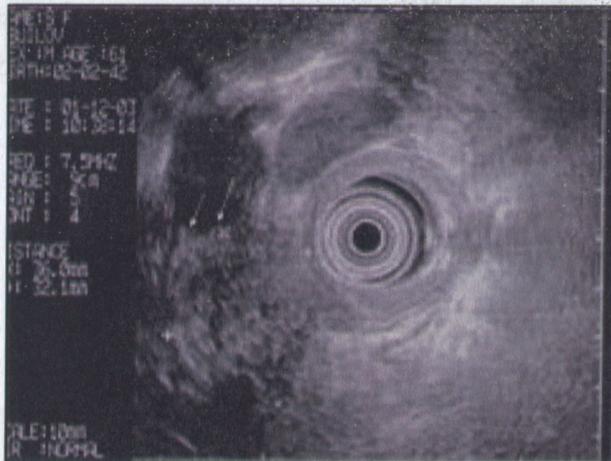


Fig. 9. Endo-ultrasound. In the left upper quadrant mass lesion adjacent to the present-hooked appendage of pancreas

Results of the first study indicate higher precision in diagnosis of PAT, which increases with the ultrasonic diagnosis of tumor invasion of the large vessels at the tumor site.

According to MS Burdyukov (2010), endoscopic ultrasonography, characterized by high diagnostic efficiency should be widely used in a complex of measures aimed at clarifying diagnosis of PAT, which allows efficient to reduce the volume and reduce the duration of examination of patients, improve the quality of diagnosis and optimize the choice of rational treatment strategies.

Endovascular (with the introduction of the sensor into the portal (PV) and the vein mesenterica superior (VMS) sonography accurately detects invasion VMS and explosives that have prognostic significance. To diagnose invasion PV increased intraductal endoscopic ultrasound. However, this technique is invasive and is applicable only intraoperative, at the time the potential resectability.

The most accurate method in diagnosis is the use of ultrasound with targeted biopsy needle (Fig. 10) by aspiration or biopsy tissue sampling. The security of the needle through the abdominal organs is provided at its outer diameter in the range of 22 to 18 G (0,5-1,2 mm).

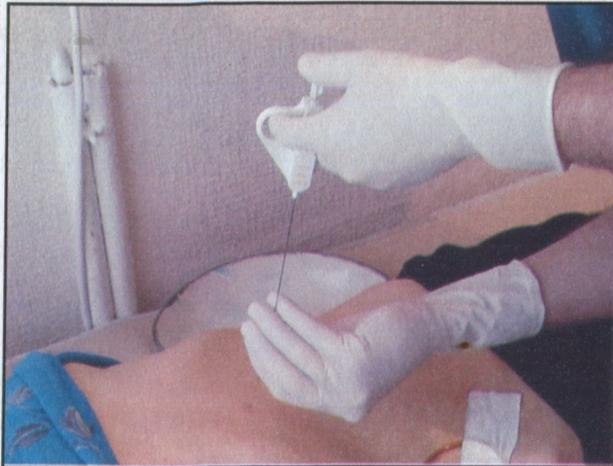


Fig. 10. After the pre-puncture mark done tumor of the pancreas

The disadvantage of a particular type of biopsy is the ability to false-positive or false-negative cytology due to mechanical injury of intra-abdominal hematoma,

injury to the pancreatic duct, as well as the risk of developing metastases implantation during the biopsy channel.

According to the Russian author with an effective tissue biopsy co-constitutes 96.1% and 90.9% of aspiration. On average, the sensitivity of fine needle aspiration biopsy in the diagnosis of PSC is 90.9%, and 96.1% of the tissue. The specificity of biopsy tissue is 100% versus 90.9 for aspiration.

During the instrumental examination is often difficult to distinguish pancreatic cancer from non-epithelial tumors of the stomach, cysts and tumors of the left adrenal gland or retroperitoneal tumors non-organs, and a definitive diagnosis can be established and only during the operation. In this regard, quite often topical question of intraoperative tool BPDZ audit.

Intraoperative ultrasonography (IOUSG) performed by the ultrasonic apparatus equipped with a miniature, waterproof, easily sterilizable sensors. This method eliminates the disadvantages of the method of percutaneous ultrasound scanning, the efficiency of which is limited, on the one hand, the physical barriers (gas in the intestine, bone formation) and the other - the absorption of the acoustic signal in the tissues of the body lying on the path to the target organ. IOUSG allows in many cases to assess the status and nature of changes in BPDZ, and the location and progress of large vessels and traumatic enough without making its mobilization. Very valuable quality IOUSG is possible to obtain directly during surgery more objective information, which in some cases significantly affect the tactics of intervention. This is especially important for the detection of tumor resectability before carrying out its full mobilization and expanded audit. So, B. Sigel and in 1982 showed that only IOUSG allowed to establish tumor invasion into the inferior vena cava in 22% of cases; Similar results have been shown in the works of other authors in later publications. According to MS Plainflosse (2006), the main challenges facing IOUSG are: differentiation of benign and malignant tumors, the high cost of research and equipment.

In the presence of MJ due PAT, and the absence of multiple liver metastases, liver dissociative channels are being successfully implemented methods of direct

contrast biliary tract: percutaneous transhepatic cholangiography (PCTHChG) and endoscopic retrograde cholangiopancreatography (ERChPG).

PCTHChG made of three approaches: front, side and rear (Fig. 11-12).

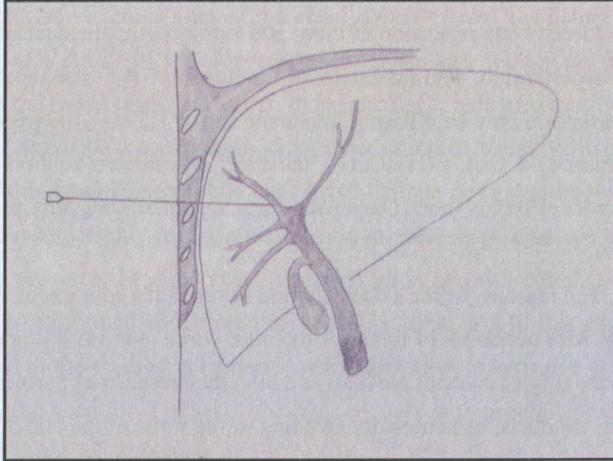


Fig. 11. PCTHChG scheme, puncture of the right lateral hepatic duct



Fig.12. PCTHChG patients with tumors of the nipple and Vater papilla

Preference is given to lateral access (puncture is performed in VIII-IX intercostal space at the mid-axillary line on the right), which enables the execution of subsequent interventions X-ray endobilliary tract without changing the body position of the patient, punctured channels allows the right and left liver lobes, pro-

vides a sufficient length of the puncture channel, thereby preventing bile leakage. Appliances puncture and catheterization of the intrahepatic bile ducts developed in detail, the likelihood of complications is minimized.

Identify the expansion of intra- and extrahepatic bile ducts is a reliable sign of bile hypertension. The expansion of the lumen of the extrahepatic bile ducts with hypertension may be different: moderate (up to 1.5 cm), the expression (2-2.5 cm) or sharp (3-4 cm). PCTHChG - the most informative method of diagnosis of a block-level biliary tree. Diagnostic accuracy in solving this problem is close to 100%.

The reasons for the extremely rare errors in the solution of this problem in patients with occlusion of tumor of the biliary tree: a loose filling of the biliary tree; poor mixing of contrast medium and bile; the presence of purulent masses of detritus in the ducts; inflammatory swelling of the walls of the bile ducts, as well as the presence of arteriovenous fistulas biliary.

In characteristic proximal occlusion boundaries bile ducts at PCTHChG reflects the level of occlusion relative to the vertebrae, me-hundred merger hepatic duct, cystic duct mouth; shape and pro-tension duct stump, the nature of the block (complete or incomplete), the length of the tumor with incomplete channel block. At full block tumor PCTHChG can not judge the level and nature of the distal occlusion boundaries, which in rare cases can be the basis for holding ERChPG.

From a practical point of view is very useful information about the most common forms of worship extrahepatic bile ducts with different localization PAT. For example, in cancer of the proximal bile duct - a complete unit, in some cases extending to equity ducts, with the cylindrical shape of the stump; metastases in the limphatic nodes gate of the liver - a complete block of conical shape without diffusion on equity ducts; cancer of TSCh - most complete block at the level of the body II lumbar vertebra with various forms of worship duct (conical), cylindrical, cancer of Vater papilla - block level III lumbar vertebra-foot stump with a conical shape and indistinct contours. The level of block bile duct cancer of TSCh quite

constant. PCTHChG accuracy in determining the nature (benign or malignant) and nature (primary tumor lesion duct) block extrahepatic bile ducts with PAT is 96%.

ERChPG can be used in cancer of TSCh and Vater papilla, in order to accurately determine the boundaries of the distal stenosis ducts, the nature and character of stenosis ducts. ERCP is preceded transpapillary retrograde drainage and stenting of the extrahepatic bile ducts. In cancer TSCh radiographically determined portion of uneven flow constriction to a greater or lesser extent. With complete occlusion of the distal common bile duct ERChPG can not judge its length and the proximal border. Highly informative method to establish the nature of the tumor changes in this area. In some cases, catheterization and full contrast extrahepatic bile ducts is performed endoscopic papillosphincterotomy. In this case, the diagnostic value of the method is increased. ERPChG most informative when suspected RTOH, the need for it arises if the plan retrograde transpapillary drainage and prosthetics extrahepatic bile ducts.



Fig. 13. ERPChG received contrast agent from a cliff in the middle third of its CBD. Picture of pancreatic head tumors

Necessary PCTHChG and ERChPG in one patient almost never does arise, since the development of treatment policy requires accurate information on the distribution of tumors in the proximal direction-division by the common hepatic duct,

cystic duct mouth, right and left hepatic ducts. This information is obtained via PCTHChG.

Data on the distribution of the tumor on the pancreas, duodenum, large vessels are prepared by Duodenoscopy radiography of duodenum, ultrasound, CT, MRI, angiography and intraoperative revision.

Angiography. Direct arterial opacification of the celiac trunk, or return spleno porto grafya mesenteric porto grafya - indispensable studies that allow us to determine the state of the hepatic artery, portal vein and its branches. X-ray study vessels with their direct contrast until it can be replaced by an marks densitometric indices in CT or estimate the signal intensity on MRI, although some of the questions in determining the surgical approach, angiography often gives a comprehensive response (Fig. 14-16).

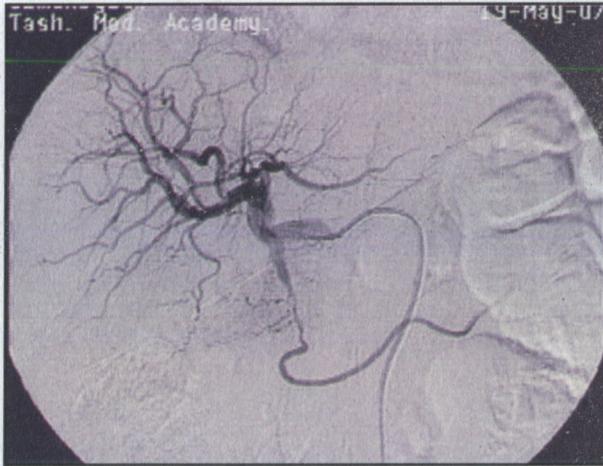


Fig.14. Celiacography patients with tumors of the head of pancreas. In the projection head has a hypervascular focus

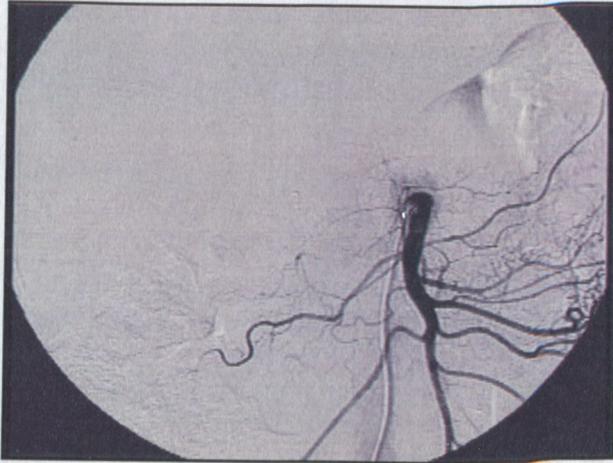


Fig.15. Mesentericography

Thus, angiography - a key method for estimating resectability of tumors. In addition, a planned surgical exploration is very appropriate knowledge of the characteristics of the vascular anatomy of the areas under consideration.

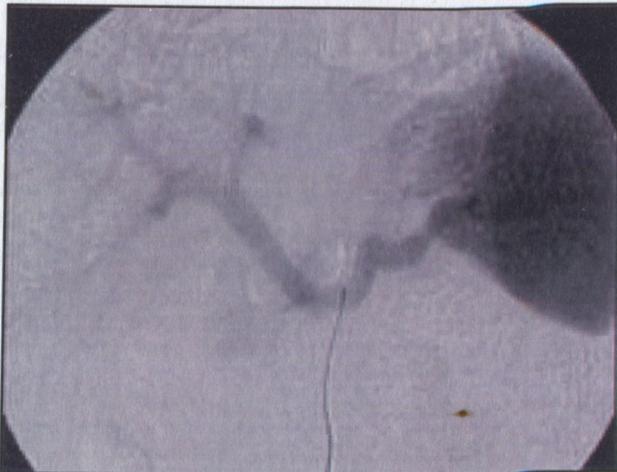


Fig. 16. Return splenoportography

Diagnostic methods, especially in the preparation of patients for operations performed early after transhepatic endobiliary interventions, perhaps a 3 D cholangiography (Fig. 17).

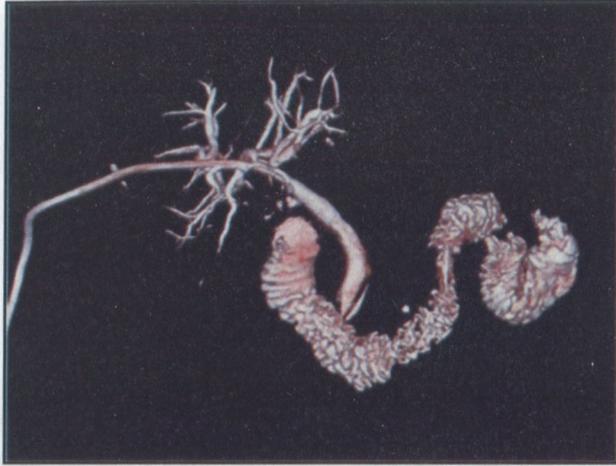


Fig.17. "3 D cholangiography." Stenosis of the terminal part of the common bile duct cancer terminal part of the common bile duct. At current cholangiostomy contrast freely enters the intestine, duodenum stenosis areas not.

Indications for the study is: long wearing cholangiostomy (over 3 months), after the regression of breast and failure patients from operations in the first period after PCTHChS. The technique allows to accurately determine: whether there is a tumor growth in the liver in the dynamics of the gate, compression 12 duodenal ulcer tumor duodenostenosis. The method is carried out by introducing a contrast agent for CT control over the previously installed cholangiostomic tube with a series of images

Diagnostic laparoscopy (DL). This technique allows Dispute, to establish the diagnosis and to choose adequate surgical tactics.

DL is performed under general anesthesia in a position Fowler, after prior imposition carboxyperitoneum in trocar is introduced and implemented with optics examination of the abdominal cavity.

After revision of the abdominal cavity, if necessary, is extracted biopsy for histological verification of the nature of the tumor.

During the DL can visualize enlarged lymph nodes gate liver, omentum, mesentery of the intestine may determine tumor invasion into the gates of the liver,

small bulging with compression gland 12 duodenal ulcer, the presence of ascites. What gives in some cases refuse test laparotomies.

Indications for the DL include: a long-term obstructive jaundice (30 days or more); cholangiostomy long wearing (more than 3 months); suspicion of micrometastases liver and peritoneum; suspicion on the germination of PAO at the gate of the liver.

Absolute contraindications to DL considered: Nye decompensated stage liver failure; heavy physical status; suspicion signs unresectable PAT, as well as general contraindications to laparoscopy.

It is also necessary to note that the non-invasive and invasive diagnostic methods allow to establish the presence of volume BPDZ education, the state of the bile and pancreatic ducts. Conduct differential diagnosis complicates the high incidence of acute and chronic pancreatitis, suppurative cholangitis, which resulted also observed identical changes in BPDZ. And the variety of diagnostic methods and their specificity, sensitivity, the most important thing available is a problem of diagnosis.

Often, the presence of one method and another inaccessibility lead to consequences, when the diagnosis is wrong, and treatment policy is limited at best palliative surgery, and at worst - symptomatic therapy. In connection with the search of adequate diagnostic algorithm at PJSC is one of the priorities of modern oncology and surgery.

Treatment of obstructive jaundice caused of periampullary tumors.

Therapeutic tactics in PAT, complicated MJ should be staged. The first stage, the elimination of breast and restoration of patency of the bile ducts, the second - surgical or chemoradiotherapy.

Only at short MJ and low numbers of bilirubin, a satisfactory state of patients is allowed to operate in full, without prior decompression of the biliary system. Although this issue remains highly debatable.

Indications for bile prevention.

As the first stage of treatment for patients with resectable PAT complicated MJ;

When unresectable tumors and breast, in the absence of metastases intrahepatic, segmental and subsegmental uncoupling bile ducts.

Indications for use of a species depend for bile prevention depend of the level - proximal or distal; the level of tumor obstruction of the biliary tree; the presence of cholangitis; prevalence of neoplastic lesions and the patient's condition, ie. e. the surgeon to remove the tumor after biliary decompression; the projected lifetime of the patient after bile prevention if radical surgery is not planned; threat of complications and the degree of technological performance of a method bile prevention in a particular medical facility.

To date, decompression of the biliary system pre-presented 3 types:

1. antegrade endobiliary intervention - percutaneous transhepatic cholangiostomy;
2. Retrograde endobiliary intervention - endoscopic stenting of the biliary tract;
3. Open surgical and endosurgical biliodigestive anastomoses.

Percutaneous transhepatic cholangiostomy. Is performed in the horizontal position of the patient, after a preliminary percutaneous transhepatic cholangiography, under local anesthesia and X-ray control with pre premedication. The most commonly used lateral approach of the 7-8 intercostal space at the anterior axillary line. Puncture of the liver and bile ducts made thin-walled needle Chiba (22G). After that is done bile ducts drainage (Fig. 18).

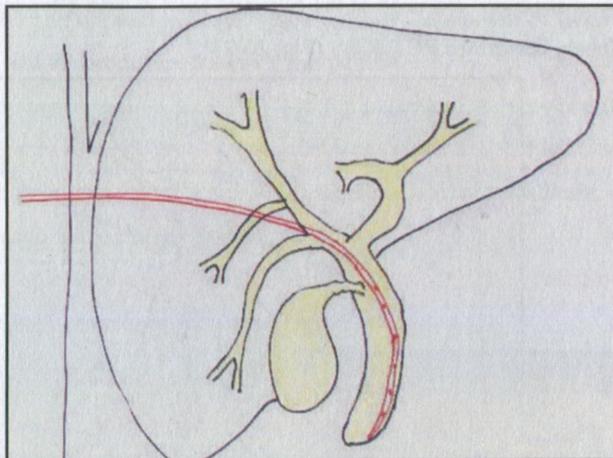


Fig.18. PCTHChS made, external bile duct drainage.

Basic Information obtained by contrasting the duct system, and the degree of impairment is determined by the passage of bile in the form of a narrowing or complete block CBD with the expansion of the bile ducts proximal to the block (Fig 19).

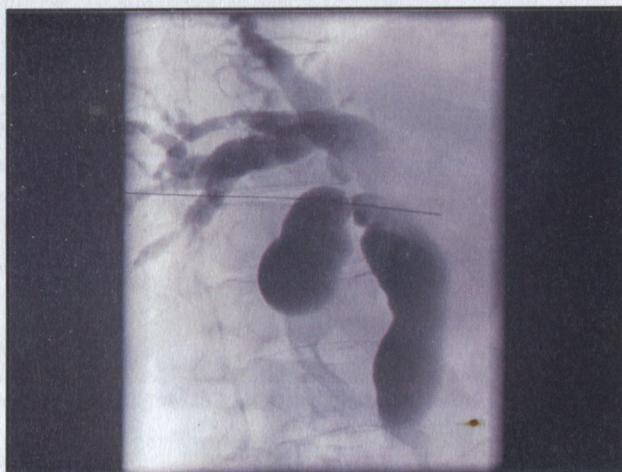


Fig.19. PCTHChG. Block terminal part of the common bile duct.

In this case, the first step is performed PCTHChS - with outer diverting bile, removable drainage, followed by replacement of the tube holangiostomicheskoy on

"internal skeleton" drainage of the bile duct for 4-5 days after sanitation bile ducts previously performed PCTHChS (Fig. 20-21).

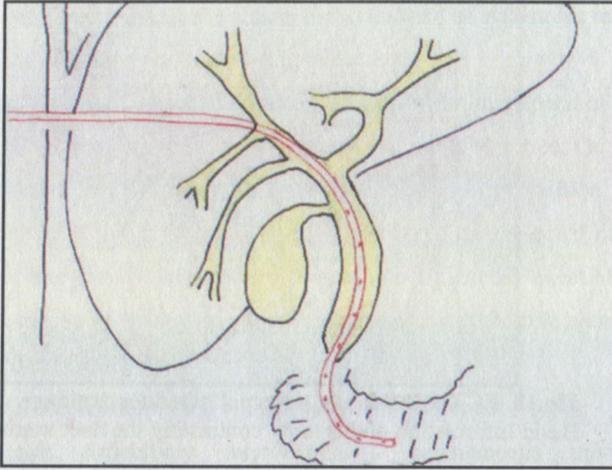


Fig.20. Schematic representation of the inner frame drainage.



Fig.21. The internal skeleton with drainage bile ducts institution cholangiostomic tube into the duodenum.

This method of drainage of the common bile duct decompression of the biliary system provides the liver, the natural passage of bile into the intestine, bile ducts protects against infection and prevents loss of duodenal contents. Furthermore, the sequential administration of increasing diameter allows drainage channel

prepare liver and obturation zone, which reduces the amount of trauma and complications, and the procedure becomes less painful.

In the long-term, in a period of 2 to 3 months may be replaced drainages, in connection with a possible obstruction cholangiostomic tube bile salts, fibrin. Repeated manipulations do not require additional methods of anesthesia, duration 10-15 minutes and make easily tolerated.

Endoscopic stenting of the biliary tract. The technique is based on the use of self-expanding plastic or metal stents (Fig. 22).

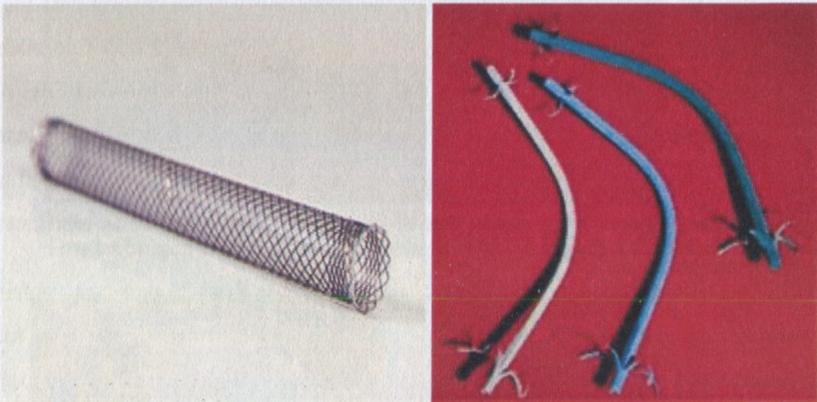


Fig.22. Nitinol (left) and plastic endostent.

This manipulation is done during ERChPG. Biliary stenting is performed in malignant stenosis of the common bile duct, some patients with high operative risk or in patients with inability to perform radical surgery.

Indications for endoscopic stenting include volumetric education bile ducts lower and middle third of the common bile duct, the absence of suppurative cholangitis phenomena and unexpressed jaundice.

Endoscopic stenting of the bile duct is advisable to carry out in centers that have the capability to perform radiological intervention at the lack of success of endoscopic intervention, or, if necessary, supplement the drainage of another method.

The first performed RPChG to clarify the place, the type and extent of stenosis, then runs through a conductor EPST thus facilitates stent. This procedure is op-

tional and in some patients (tumor infiltration of the sphincter, a bleeding disorder) is performed balloon dilatation stenosis overcome conductor, then adjusting the catheter may be sampled for bacteriological examination (bile), cytology (through a wire brush) or by centrifugation diverted bile, rarely conducted sampling of histological material, it is necessary for adequate follow-up chemotherapy or differential diagnosis of benign stenoses, if there is no clinical confidence.

Selection biliary stent length depends on the location and length of the stenosis. Antimigration upper winglet should be located above the upper edge of the stenosis, and the lower level of the duodenum, but without contact with the mucosa (Fig. 23). In addition, the choice of stent length affect the risk of possible migration, anatomical relations and a suitable amount of the outflow of bile. After determining the ideal position of the apex and the base of the prosthesis, installing it in the conductor; first fixed proximal portion of the stent, and then distal under X-ray control and visual inspection of the papillae. The position of assistant conductor controlled.

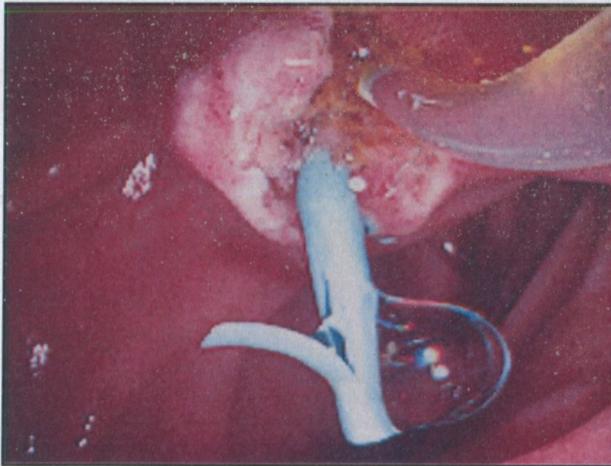


Fig.23. Plastic stent installed in the common bile duct, the lower wing anti-immigration located in the lumen of duodenum

Stent placement is controlled by the X-ray monitor. Careful of, should be taken to avoid excessive ejection of the stent into the lumen without immersing it in the flow, which can cause a torsion of the stent.

This technique allows for stenting of malignant obstructive stenosis in 90% of cases (Fig. 24).

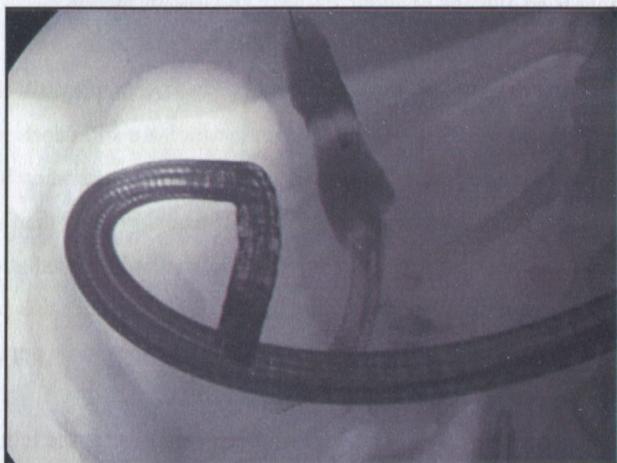


Fig.24. Nitinol endostent set to CBD.

This technique is unsuccessful in patients with gastric resection Billroth-II history, invasion of duodenum tumor infiltration; combination of stenosis at different levels, especially high strictures of the bile ducts. If the stent can not navigate through the stricture, even if it reaches suprastenoses blackout bile, and it causes a high risk of cholangitis. In such cases, you should take a retry stenting or percutaneous drainage and run, if both impossible - operation.

Complications. Early complications (about 15%) associated with EPST: pancreatitis, perforation, bleeding or more rare: related carrying conductor or stent: perforations, hepatobiliary or retropancreatic traumatic injuries, cholangitis: inaccurate stent failures with side holes; offset or early migration; Early stone obstruction, putty, tumor, acute cholecystitis: during germination tumor cystic duct; may be due to ERCP with tight filling of the gallbladder

Late complications: traumatic injuries stent duodenum, Stent obstruction of biliary sludge, usually after 3-4.5 months. This complication is the main limitation of the use of plastic stents for palliation of malignant jaundice. Clinically evident recurrent stent obstruction jaundice and / or cholangitis. Require replacement of

the prosthesis after endoscopic extraction obturated commonly used loop extractor or forceps Soehendra.

Mortality is an average of about 2% after endoscopic stenting.

Surgical and endosurgical formation biliodigestive derivations

In the arsenal of methods to bile prevention these techniques still shoot a certain place, as have a number of positive features, which are still deprived of the first two groups of methods to bile prevention. Pro-duration operation biliodigestive anastomosis (BDA), a surgical method is significantly higher than any of extrahepatic biliary endoprosthesis is according to the method of installation. Technically correctly formed biliodigestive fistula has areflux properties that provides prevention of cholangitis. Finally, a full laparotomy provides more opportunities for the diagnosis and assessment of tumor spread BPDZ.

The most frequently used in practice now anastomoses for the relief of obstructive jaundice in tumor lesions of this area: cholecysto jejuuno anastomoses with interintestinal anastomosis choledoho duodeno anastomoses, choledoho jejuuno- or hepatico jejuuno anastomoses with interintestinal fistula.

Approximately 20% of patients with breast PAT, which is scheduled to forming BDA, at the same time shows the formation of the bypass gastro jejuuno anastomoses, since a high percentage of tumor stenosis of duodenum. For this reason, the formation of the additional BDA often superimposed anastomosis between the jejunum and stomach.

Hepatico jejuuno anastomoses with preventive gastro jejuuno anastomoses mobilized on the Roux loop of jejunum is the most extensive in Punishment in tumor lesions BPDZ.

In the anastomosis with the jejunum is preferable to use the common hepatic duct, crossed directly over the confluence of the cystic duct. This, of course, perform cholecystectomy. Distance from ligament Treysa to interintestinal anastomosis must be at least 20 cm. Length mobilized loop of jejunum involved in hepatic jejuuno- and gastro jejuuno anastomoses should be no shorter than 70 cm. Interintes-

tinal fistula can be formed "end-to-side" or "side to side" double-row suture. (Fig. 25-26).

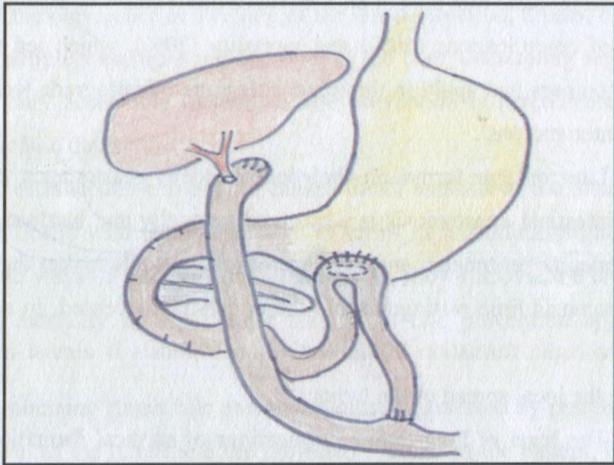


Fig.25. Hepaticojejunostomy disable jejunal Roux

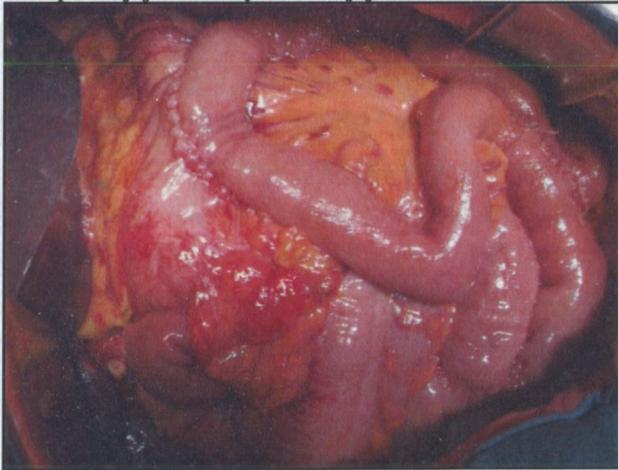


Fig.26. Hepatico jejunostomoses by Roux, gastrojejunostomy with the Brown fistula.

The use of an isolated jejunal loop to form biliodigestive and gastrojejunal anastomosis, cross-cut jejunum before implantation into it the common hepatic duct to the formation of the anastomosis "end-to-side," additional isolation hepatico jejunostomoses - all this in addition to the above, reduces the risk of

reflux cholangitis in the late to minimize postoperative

Formation hepatico jejuno anastomosis in tumor stenosis proximal part of the extrahepatic bile duct at an altitude of des-Toohey is associated with a higher rate of complications (50%) and mortality (20%), which led to abandon these anastomoses and apply in this case, antegrade or retrograde techniques endobiliary interventions .

Laparoscopic formation choledoho duodeno anastomosis, choletsisto entero- and intestinal anastomosis is performed manually and hardware seam. Anesthesia, pneumoperitoneum and minilaparotomy - all this makes the formation of this anastomosis little distinguishable the commonly accepted. In addition, when the laparoscopic formation biliodigestive anastomosis is almost impossible to estimate the local spread of the tumor.

The level of long-term complications of surgical formation of BDA (especially hepatico jejuno anastomosis) is minimal. Formation hepatico jejuno anastomosis on mobilized by Roux jejunal loop virtually eliminates recurrence of jaundice and cholangitis in the late period. Said anastomosis is preferred among patients with unresectable PAT, complicated by mechanical jaundice, with a projected lifetime of pain-tion for more than 6 months.

In summary, the following conclusions that the choice of a particular method or manner of biliary decompression PAT complicated MJ depends on:

The level of obstruction of the biliary tract - obstruction proximal-tion of extrahepatic bile ducts choice biliary decompression limited – bile prevention can be accomplished by percutaneous transhepatic drainage of the bile ducts. Optimal should recognize its outer option.

Endoprosthesis may in rare cases only in the localization of tumor obstruction of the common hepatic duct, no signs of suppurative cholangitis, severe hyperbilirubinemy.

Surgical bypass BDA formation is associated with the release of ducts proximal to the level of stenosis, which dramatically increases the risk of complications - bleeding, formation of biliary fistula, hepatic failure, so also can not be the

optimal method to bile prevention at the proximal level of tumor obstruction.

Thus, when the tumor stenosis proximal part of out-of-hepatic bile duct regardless of the prevalence of swelling of the left-duct, unless, of course, do not have multiple metastases in both lobes of the liver, uncoupling segmental bile ducts, the only acceptable method to bile prevention is percutaneous drainage transhepatic bile ducts.

When extrahepatic cholestasis, caused tumor stenosis of the distal bile duct, can be identically with Oddi-efficiency, in terms of immediate results, apply all methods and ways of biliary decompression. As shown above, the level of morbidity and mortality in a particular method to bile prevention approximately equal.

In the planning stages bile prevention must be assessed by possibility of surgical removal of the tumor and the projected lifetime of the patient, if the tumor is removed. If the tumor is resectable, preference should be given to minimally invasive techniques bile prevention. Percutaneous transhepatic or endoscopic transpapillary drainage biliary system will lead to relief of obstructive jaundice without negative consequences that are inevitable in the surgical bile prevention: cicatricial adhesions process in BPDZ; higher probability of late complications of abdominal wall associated with double laparotomy; complications of anesthesia.

If according to a preliminary examination revealed a tumor diffusion excluding probability of surgical treatment, such as a large pancreatic cancer invasion of the root of the mesentery of the small intestine, and yet not revealed clear signs of generalization of the disease in the form of distant metastases, ascites, the surgical formation bypasses seems very appropriate. In this situation, the choice of intervention bile prevention affect not only the prevalence of the tumor, but also the projected lifetime of the patient: the higher it is, the fewer late complications should have chosen method to bile prevention. Most functionally advantageous in terms of more than 6 months, of course, is surgically formed on hepatico jejuno anastomosis mobilized by Roux jejunal loop as shown above.

If the patient about jaundice caused by unresectable cancer of BPDZ, percu-

taneous transhepatic produced or endoscopic transpapillary drainage of the bile ducts, it is competent to consider the possibility of joint replacement stenotic ducts. Endoprosthesis would be justified if the projected lifetime of the patient is less than 6 months, ie. E. With the generalization of the tumor BPDZ. Endoprosthesis in this case will improve the quality of life of the patient.

A significant role in the choice of plays bile prevention localization of the tumor and its histogenetic affiliation. So ductal adenocarcinoma of the pancreas and its rare microscopic forms have the most pronounced aggressive biological properties - invasion, perineural growth, metastasis. It is not difficult to predict the short-termism of the disease in the presence of distant metastases of such tumors, which necessitates the use of minimally invasive relief of obstructive jaundice. The latter is justified only if liver metastases do not divide the segmental bile ducts. By contrast, some forms of cancer of the endocrine pancreas or duodenum, even in the presence of liver metastases unit not exclude the possibility of surgical removal of the primary tumor as well as metastasis in it. In this case, minimally invasive techniques relief of jaundice will be eligible as a preparatory stage for elective surgery.

Unfortunately, in real life the choice of method bile prevention very limited capabilities of a particular medical institution both in terms of instrumentation, and the level of training of medical personnel.

Surgical treatment of periampullary tumor resectability and evaluation criteria

Modern assessment of the ability to remove PAT (NCCN, 2013) accounts for these radiological methods and, above all, CT and MRI features according to which:

Resectability:

- No distant metastasis
- No radiographic evidence of distortion circuits VMS / PV
- There is a clear body fat around the disaster, CHA, AMS

Border resectability:

- No distant metastasis
- Invasion of the PV / VMS distortion circuits / narrowing or occlusion of the lumen at the possibility of resection and suitable for "reliable" re-design of the segments of veins proximal and distal tumors
- Gastro-duodenal artery involved in the tumor up to the CHA with a contact or involvement case CHA into short segments, but without dissemination of disaster
- Contact with the tumor is not more than half (180 degrees) of the circumference of the AMS

Unresectable disease:

- Distant metastases or lymph node metastases outside the resection
- futlyarnoy involvement AMS (more than 180 degrees of the circle)
- Contact any length with emergencies, the inferior vena cava
- Occlusion PV / VMS without technical possibilities of its reconstruction
- Invasion of the involvement of the aorta or case

At the present stage only surgical treatment allows Nadia-yatsya on long-term survival. Experience of surgical treatment PAT allows large clinics with regret that the overall 5-year survival is most often does not exceed 5-10%.

The most common surgery for cancer of the pancreatic head - standard gastro pancreatico duodenal resection (GPDR), known worldwide as the operation Whipple. Author (A. Whipple) was the first to pancreatoduodenectomy in 1934 in patients with tumors FS. With the development of this type of operation pancreatology has been added and today, surgical treatment is represented by the following main types of radical surgery:

1. Standard gastro pancreatico duodenal resection (subtotal pancreatico duodenectomy Whipple operation);
2. pancreatectomy (total pancreatico duodenectomy);
3. The distal (left-sided) pancreatectomy;
4. Extended gastro pancreato duodenal resection (extended subtotal or total pancreatico duodenectomy, regional subtotal or total pancreatico duodenectomy).

In addition, a series of operations: pylorus retentive PDR duodenum retentive resection of the pancreatic head (operation Beger), economical (wedge) pancreatico duodenal resection, duodenectomy, transduodenal papillectomy. All of them are made for functional reasons, their oncologic adequacy extremely doubtful, are classified as relatively rare operations.

Standard DAG performed on the PAT, the operation, which became property of many surgical and oncology clinics, which involves removing the head of the pancreas, gastric antrum with a small gland and the right half of the greater omentum, cholecystectomy with resection of the common bile duct at the level of hepaticocholedoche, removing duodenum (Fig. 27).

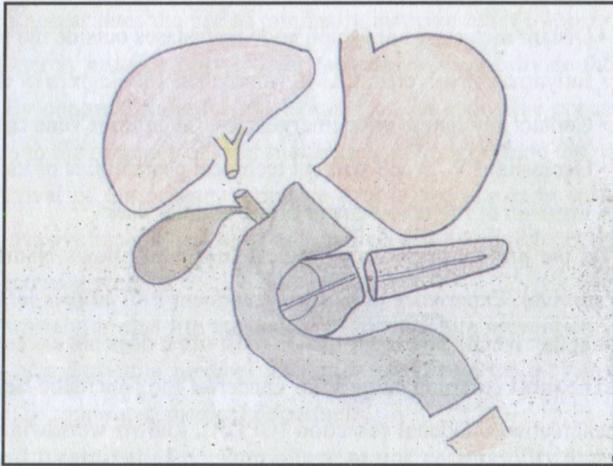


Fig.27. Gastro pancreato duoedanal resection

Besides mandatory step is dissection, lymph nodes are removed following regional groups: №1 - pyloric, №2 - around the common bile duct, №3 - the upper edge of the pancreatic head, №4 - on the bottom edge of the head of the pancreas, №5 - front pancreatoduodenal, №6 - rear pancreatoduodenal, №7 - proximal mesenteric lymph nodes.

Regarding the reconstruction phase, which involves the formation of the anastomosis the residual pancreas jejunum (or stomach) choledohodigestive anastomosis (s jejunum) and gastro jejuno anastomosis (Fig. 28-31).

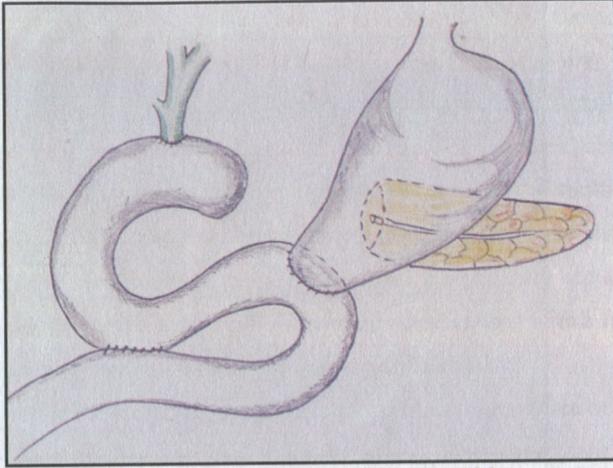


Fig.28. Schematic representation of the imposition pancreatico gastro anastomosis.

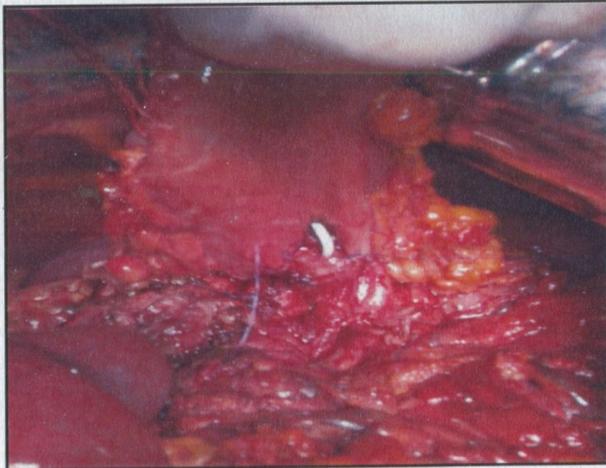


Fig.29. Gastro pancreato duodenal resection: the imposition pancreatico gastro anastomosis.

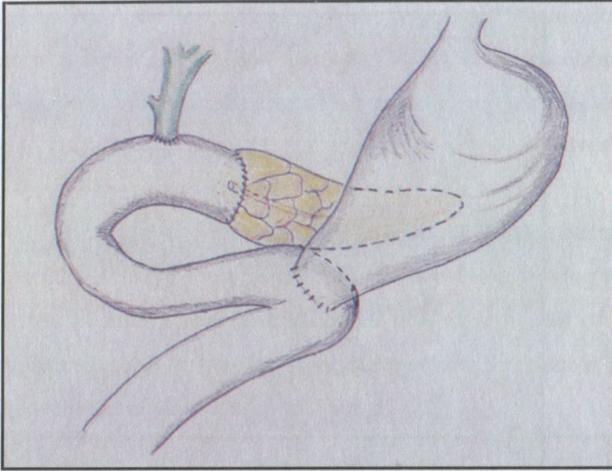


Fig.30. Schematic representation of the imposition pancreatico gastro anastomosis.

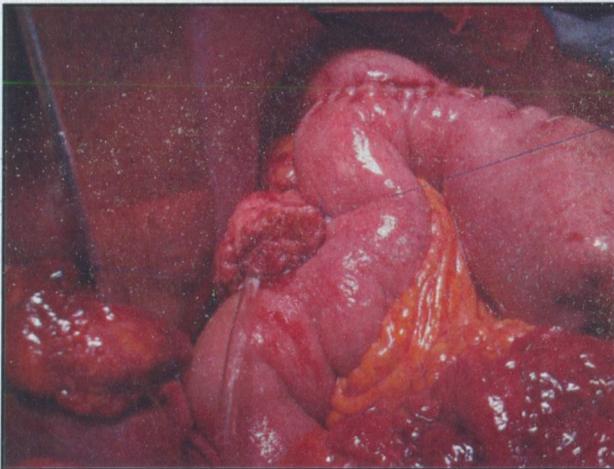


Fig.31. Gastro pancreato duodenal resection: the imposition pancreatico gastro anastomosis

Appliances perform all steps of the standard GPDR has now reached a certain limit and is well represented in the literature. Mobilization deleted complex reconstructive phase of the operation, a set of measures of surgical and conservative nature, aimed at preventing complications from the stump of the pancreas

and pancreatic and intestinal anastomosis, - all this makes now the postoperative period with a minimum number of fatal complications, although they exist.

GPDR- surgery, combined with the risk of postoperative complications, especially the failure of pancreatodigestive anastomosis - pancreatic fistula (PF), which is the "Achilles heel" of the operation. Development of multiple technological methods and introduction into clinical practice of various pharmacological methods for their prevention have not led to a significant reduction in the number of postoperative complications, which are diagnosed with a frequency of 32.5 to 100% in-hospital mortality from 3.0 to 25.7%.

To improve the treatment of PF, the International Committee of the pancreatic (2005) proposed the term tactics and treatment of its occurrence. According to this classification, FS refers to a condition characterized by impaired tightness between prostate and surrounding tissue, gut juice and entering into the environment (through the drain and outwards), with any number of discharge through a drain on the 3rd day after the operation with the level of amylase, more than 2.5 times the level of amylase in the blood. The number of discharge does not matter.

According to the clinical manifestations of PD are divided into three types: Type A – more most frequently called "transient fistula" fistula without clinical manifestations. The patient is fed through the mouth and feels fine, antibiotics or somatostatin analogues is not required.

Fistula Type B - This level requires a change of fistula treatment. More most frequently the patient requires partial or total parenteral nutrition if drainage is inadequate and should be determined on CT accumulation of fluid, a further drainage. This stage is accompanied by pain, fever, leukocytosis. Often prescribed antibiotics and somatostatin analogues. Typically, this level of inconsistency leads to an increase in bed-days or rehospitalization. This stage can proceed with inadequate treatment in a more severe form.

Fistula type C - the most severe form, the patient's condition can be difficult, it requires total parenteral nutrition is often required intensive care, are ap-

pointed by the intravenous antibiotics and somatostatin analogues. Perhaps the development of sepsis and multiple organ failure. In this case there relaparotomii.

The main reason is the development of PF is a violation of tightness between the gland and intestine, and therefore, an essential element of the prevention of complications from pancreatic stump and provide favorable conditions for the healing of the anastomosis, its tightness is adequate decompression duct system stump cancer in the early postoperative period. Which provides temporary outdoor, outdoor-indoor or internal drainage of pancreatic stump. Decompression time ductal system is particularly indicated in patients with non-adapted and shareware adapted stump pancreas, small and medium diameter of the main pancreatic duct stump, as well as technical difficulties forming pancreato entero anastomosis.

Reasons for the need for temporary drainage of pancreatic ductal system stump, is to ensure free flow of secretions from the stump, Intraductal maintaining pressure on the secretory level, prosthetic function of elimination pancreatic anastomosis and isolation from his pancreatic secretion for a period of anastomotic healing.

To do this, in order to prevent insolvency pancreatico jejuno anastomosis can be performed DAG with external drainage of the main pancreatic duct (application for the invention of Intellectual Property Agency of Uzbekistan: №IAP 20140342 from 21.08.14 city). The technique is as follows: after removing gastro pancreato duodenal complex reconstructive phase begins with the preparation of the jejunum to impose gepatikoeyuno- and pancreatico jejuno anastomosis. For this purpose, some distance of 5 cm from the residual jejunum opposite omentum edge formed by the hole diameter of 2-3 mm, more above this 4-5 cm hole formed hole diameter of 5 to 8 mm in diameter equal hepaticocholedoche. After which the plant PVC drain pipe with a diameter of 2 to 4 mm, having at its base side holes through the right hepatic duct, hepaticocholedochus, proximal and distal jejunum hole in the main pancreatic duct. The diameter of the drain

pipe must match the diameter of the main pancreatic duct. After installation of drainage overlap seams between the rear wall of the pancreatic duct and the wall of the jejunal loop sutures after interrupted sutures overlap between the main pancreatic duct and the jejunum of the type "flow-slimy" using precision techniques. Once formed pancreatico jejuno anastomosis Hepatico jejunostomy performed according to standard procedures. (Fig. 32-36).

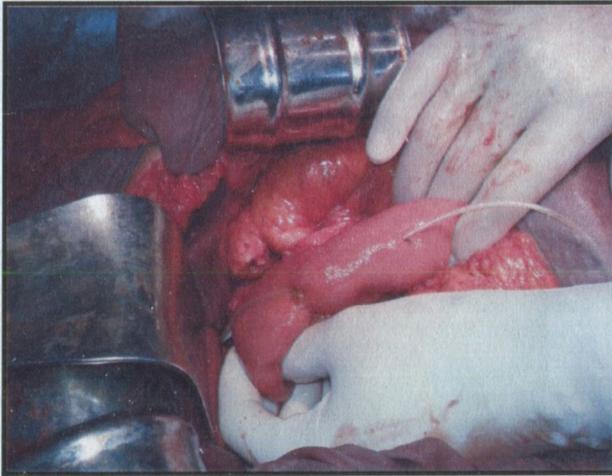


Fig. 32. Drainage carried out through the proximal and distal jejunum hole

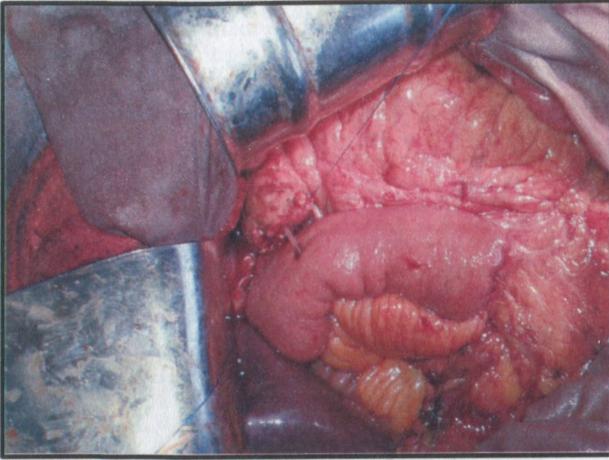


Fig.33. Lateral drainage holes are located in the lumen of the main duct pancreatitis-agency, formed hepatico jejunostomy

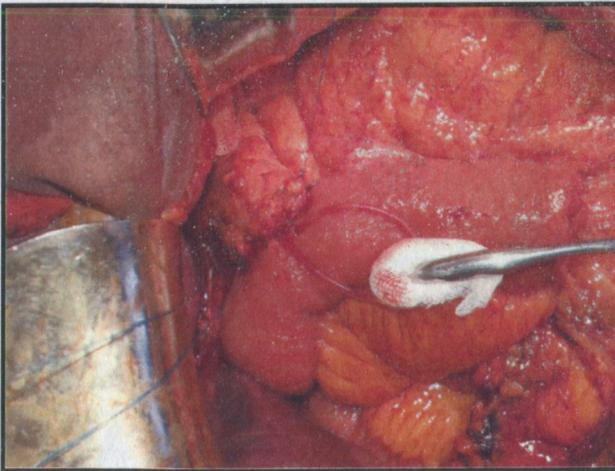


Fig. 34. Superimposed rear lip pancreatico digestive anastomosis and the joints between the main pancreatic duct of the type "duct-mucous" Drainage is displayed on the side wall of the abdomen for visual control discharge to drainage and sanitation drainage system. Additionally drained obstructive space area pancreatico jejunostomy anastomosis zone and tail of the pancreas.

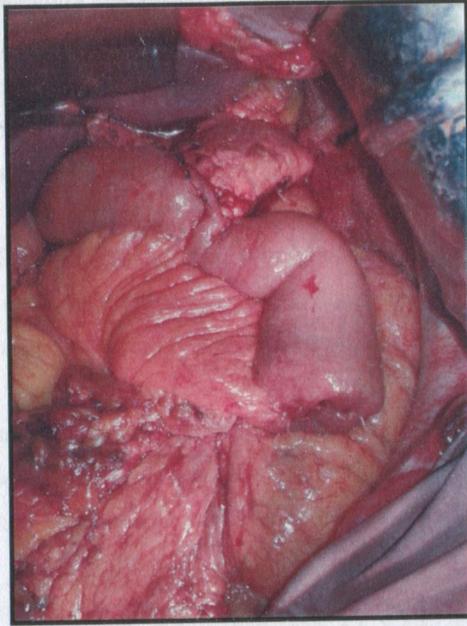


Fig. 35. The final form of the formed anastomoses

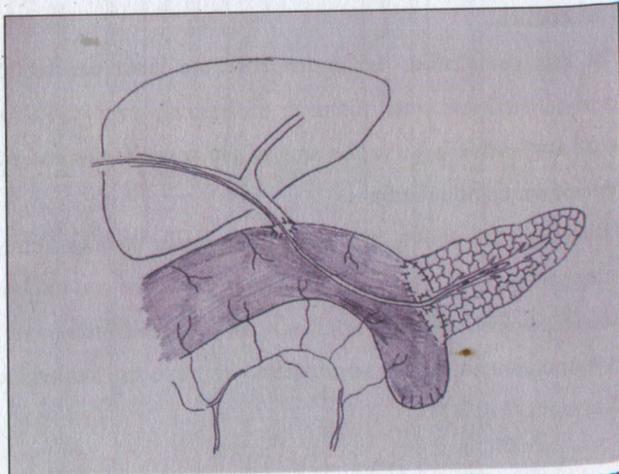


Fig. 36. Outside the main pancreatic duct drainage with gastropancreatoduodenal resection

Development of the technical aspects and improved postoperative management can significantly reduce postoperative mortality in the performance of this intervention, but the "cornerstone" of the operation remains pancreatodigestive anastomosis, the share of failure which accounts for the highest percentage of postoperative complications. In particular, the problem of restoring the continuity of the digestive tract after the GPDR, and the main point - the formation of anastomoses pancreaticodigestive remains highly relevant and far from being resolved, due to the development of many complications, including one of the most formidable and sometimes fatal - insolvency pancreaticodigestive anastomoses.

One of the key overlay pancreaticodigestive anastomosis is the use of high-precision technology. Thus, when comparing the anastomosis with mucosal and muscular layers can improve anastomotic leaks and prevent the eruption of sutures.

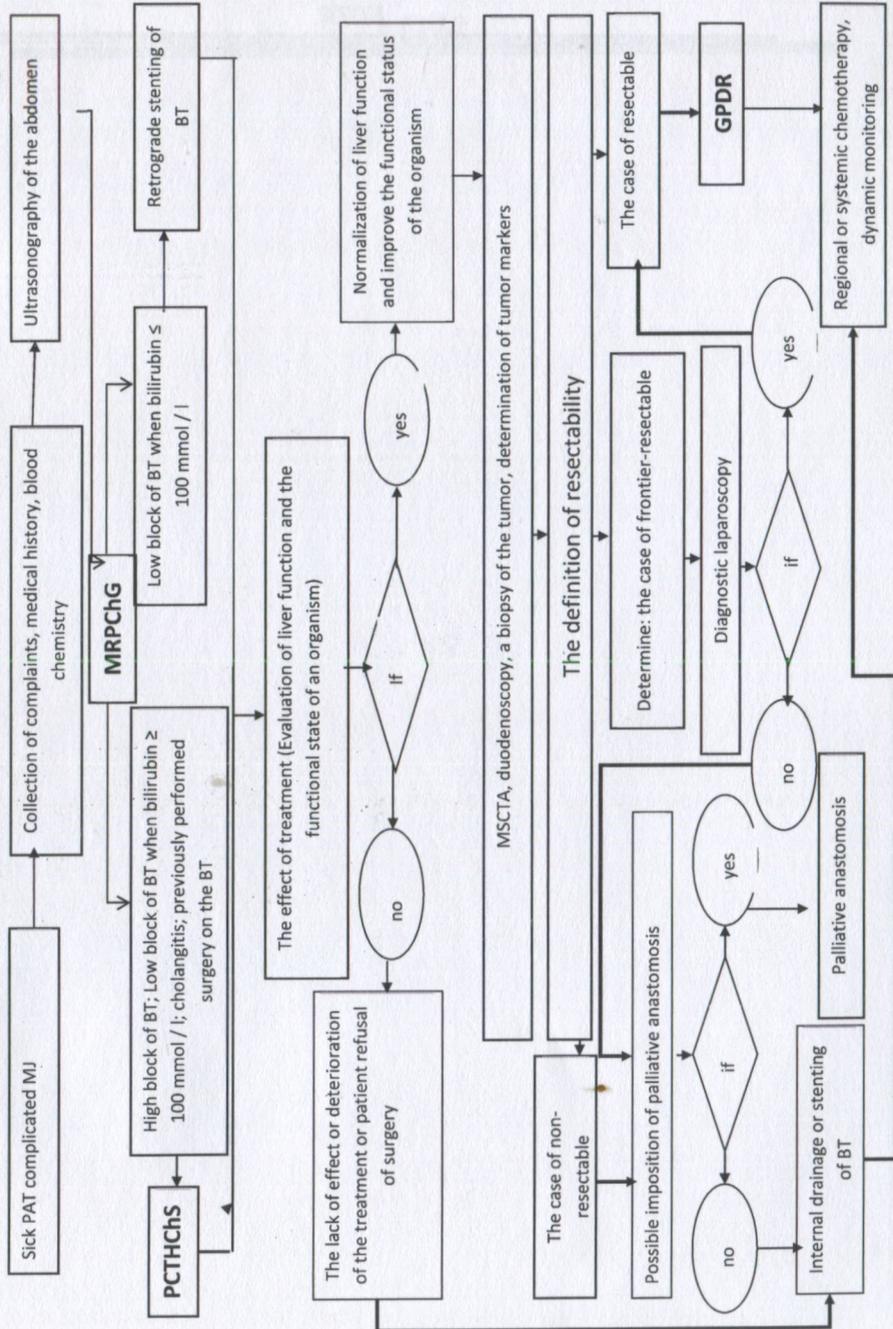
It should be noted that the factors predisposing to insolvency, are fatty infiltration of the pancreas, "juicy" soft pancreas with no signs of fibrosis, non-expanded duct of the pancreas, a massive intraoperative blood loss and multivisceral resection.

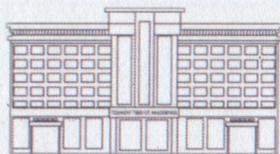
In this connection, the drainage of the main pancreatic duct, especially when unadapted and small diameter of the main pancreatic duct prevent the ingress of aggressive juice in the area of the anastomosis and prevents the development of pancreatic fistula.

Based on the above, it is possible to apply the algorithm of diagnosis and treatment of patients with PSC, MF complicated for you to establish a diagnosis, to choose adequate surgical approach, as described method of preventing insolvency pancreaticodigestive anastomosis improve the immediate results of surgical treatment (Fig. 37).

Algorithm of diagnostics and treatment patients of periampullary tumors, complicated mechanical jaundice

Fig. 37





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