

RETROGRADE BILIARY STENTING IN PATIENTS WITH PANCREATOBILIARY DISEASES

I. M. Sayfutdinov, L. E. Slavin, A. F. Galimzianov, R. T. Zimagulov

Interregional Clinical Diagnostic Center, Kazan, Russia

Key words: malignant tumors, pancreatobiliary area, palliative therapy, endoscopic biliary stenting, obstructive jaundice

More than 80% of patients with malignant tumors of pancreatobiliary area, complicated with obstructive jaundice and cholangitis, can't be subjected to radical surgery [2]. These patients need help with guaranteed low mortality, low rate of complications and short hospitalization [6]. Cholecystostomy, retrograde and nasobiliary antegrade drainage of common bile duct (choledoch) are the most common options of bile drainage in patients with biliary hypertension [3, 5, 7]. However, all of these drainage options of the biliary tree lead to a natural loss of bile. In rare cases, there is a use of puncture biliodigestive and biliobiliary anastomoses, compression hepatojejunoanastomoses, being sophisticated and demanding consolidation of the participation of several surgical services [4].

Such minimally invasive radioendobiliary intervention as stenting of the bile duct has been widely recognized in the treatment of patients with obstructive jaundice of malignant genesis over the past 20 years. It implements an internal drainage of bile and can serve as the final method of treatment providing adequate bile drainage in cancer patients [9, 12].

Retrograde stenting of the bile duct may be an independent method of treatment upon benign strictures caused by the pathology of the pancreas and biliary tract, as well as a component of a multi-stage preoperative treatment in patients with gallstone disease [8, 10, 11]. Due to the rapid development and introduction of retrograde endoscopic interventions at the bile ducts into clinical practice, new approaches for the treatment of patients with cicatricial strictures of the bile ducts opened up [1].

Aim of study is to evaluate the results of retrograde stenting of biliary tract upon pathology of pancreatobiliary area.

In 2008–2012, 65 patients (28 men and 37 women) with abnormal pancreatobiliary area aged from 33 to 86 underwent 85 manipulations of retrograde stenting of the bile duct. Obstructive jaundice was present in 44 (67.7%) of 65 patients, the content of total bilirubin ranged from 58 to 570 mmol/L. In 14 (21%) cases the clinical picture of suppurative cholangitis was registered.

Before stenting, we performed ultrasound examination of the abdomen, esophagogastroduodenoscopy, endoscopic ultrasonography, endoscopic retrograde cholangiography, computed tomography of the abdomen, electrocardiography, chest X-ray, blood tests and urine tests, liver function tests, consultation of cardiologist. To perform endoscopic ultrasonography of pancreatobiliary area we used videoehogastroscope GF-UM160 «Olympus».

On the basis of endoscopic ultrasonography and retrograde cholangiography, groups of patients were formed, depending on the cause and the level of the block of the biliary tract (Table 1).

Table 1

Number of patients with pathology of pancreatobiliary area depending on the cause and block level of biliary tract

The cause of block	Block level of bile ducts				Total number of patients
	1	2	3	4	
Benign disease	19 (40.4%)	20 (42.6%)	6 (12.7%)	2 (4.30%)	47 (100%)
Benign stricture of the common bile duct with terminal papillostenosis	16	—	—	—	16
Chronic pancreatitis	—	12	—	—	12
Postmanipulative pancreatitis	—	7	—	—	7
Mirizzi syndrome	—	—	2	—	2
Postoperative scar stricture of choledoch	—	—	3	1	4
Intradiverticular location of	3	—	—	—	3

big duodenal papilla					
Sclerosing cholangitis	—	—	—	1	1
Perforation of choledoch	—	—	1	—	1
Unsolved choledocholithiasis	—	1	—	—	1
Malignant categories	5 (27.8%)	8 (44.4%)	1 (5.60%)	4 (22.2%)	18 (100%)
Cancer of the pancreatic head	—	8	—	—	8
Cancer of big duodenal papilla	5	—	—	—	5
Cancer of hepaticocholedoch	—	—	1	—	1
Klatskin tumor	—	—	—	4	4
TOTAL	24 (36.9%)	28 (43.1%)	7 (10.8%)	6 (9.20%)	65 (100%)

Note: 1 — the level of big duodenal papilla or terminal part of the choledoch; 2 — intrapancreatic part of the common bile duct; 3 — the middle third of the common bile duct; 4 — gate area of the liver/confluence of lobar ducts.

While stenting the biliary tract, endoscopic video system “Olympus V-70” with a therapeutic duodenoscope TJF-V70 with a diameter of 4.2 mm of instrument channel, as well as X-ray digital apparatus stenoscope 6000 CCD (“General Electric”) and plastic biliary stents with a diameter from 2.5 to 3.3 mm were used.

Upon benign pathology of pancreatobiliary area, stenting of the bile duct was performed in 47 (72.3%) of 65 patients. Totally in the group 67 procedures of stenting of the biliary tract were performed, including bilioduodenal (14 interventions) and pancreatoduodenal (6 interventions) prosthesis.

Endoprosthetics of bile ducts upon malignant pathology of pancreatobiliary area was performed in 18 (27.7%) of 65 patients.

Stricture of terminal part of the choledoch (16 of 47 patients, 34.0%) and chronic pancreatitis (12 of 47 patients, 25.5% of cases) were regarded as the most common causes of biliary tract obstruction in benign pathology of pancreatobiliary area. Patients with this pathology of pancreatobiliary area underwent the biggest number of re-stenting (10 interventions). Re-stenting of choledoch was performed routinely in 3–4 months after the primary intervention in the absence of jaundice and cholangitis. The indications for re-stenting were signs of preserved biliary

hypertension during retrograde cholangiography. In 3 patients with pseudotumorous pancreatitis endoprosthesis and re-stenting of bile ducts were the only one method of treatment due to prior abdominal surgeries and severe comorbidity.

4 (13.8%) of 29 patients with choledochal stricture and chronic pancreatitis after decreased inflammatory processes were diagnosed to have biliary stent migration into the gut with its natural discharge. In other cases, removal of the stent was performed in 4–6 months upon confirmation of positive dynamics on the results of endoscopic ultrasonography and duodenoscopy. Only in 1 case after removal of the stent in a patient with chronic pancreatitis there was a recurrence of pain with increasing concentrations of total and direct bilirubin, which required re-stenting of common bile duct.

In the complex anatomical and topographical conditions, stenting of the bile duct was performed in 5 patients:

- in 2 patients after gastrectomy Billroth-II (in 1 case — patient with choledocholithiasis for elimination of biliary Hypertension and conduction of atypical “above stent” papillotomy, in 1 case — patient with pseudotumorous pancreatitis complicated by obstructive jaundice);
- 3 patients with intradiverticular location of big duodenal papilla, complicated by lengthy stricture of lower third of the choledoch and preserved mechanical jaundice (2 patients), persistent severe biliary hypertension upon cholecystostome (1 patient).

Endoprosthesis of the biliary tract upon Mirizzi syndrome was performed in 2 patients with the aim of decompression of the biliary tract and the elimination of obstructive jaundice:

- in 1 patient with a chronic form of the disease 2 re-stenting of hepaticocholedoch was performed over 1.5 years with achievement of counter remission; after increasing inflammatory processes in bile ducts operative surgery was held (choledochoduodenostomy);

- in 1 patient with acute Mirizzi syndrome, endoprosthetics of bile ducts promoted healing of cholecystoduodenal fistula before conduction of elective surgery (cholecystectomy, choledolithotomy).

In order to prepare patients for surgery (cholecystectomy), stenting of the bile ducts was performed in 7 patients with stricture of the terminal part of common bile duct. After installation of biliary stents, previously imposed cholecystocholangiostomes were removed.

In the group of patients with malignant pathology of pancreatobiliary area, tumors of the head of the pancreas and Klatskin tumor predominated among the reasons of the biliary tract block. 7 (38.9%) of 18 patients with malignant pathology of pancreatobiliary area, according to the results of clinical, instrumental and laboratory studies, had clinical picture of acute cholangitis. These patients before endoprosthetics of the bile duct underwent nasobiliary drainage, detoxification and antibiotic therapy. Stenting of the bile duct was carried out under endoscopic retrograde access and fluoroscopic guidance (Fig. 1, 2).

Efficacy of retrograde endoprosthetics of bile ducts was achieved in all 14 patients: clinical picture of jaundice disappeared, as well as cholangitis and pain syndrome, normalization of biochemical parameters was achieved.

Complications after 67 endoprosthetics of bile ducts in patients with benign pathology of pancreatobiliary area were recorded in 4 (5.9%) cases, when we diagnosed stent migrations to the choledoch with the development of the clinical picture of jaundice, and in 1 case a patient with the migration of the stent in choledoch had suppurative cholangitis (Table 2). In the group of patients with malignant pathology of pancreatobiliary area complications developed in 1 (11.1%) patients in the form of suppurative cholangitis due to stent obstruction by mucous plug, which was eliminated after the installation of nasobiliary drainage with subsequent readjustment of the common bile duct.

Table 2

Complications occurred during stenting of the bile duct

Complications	Stenting of the bile duct in patients with pathology of pancreatobiliary area		Total
	benign origin	malignant origin	
Suppurative cholangitis	1	1	2
Migration of the stent in choledoch	4	0	4
Total	5	1	6

The nature and severity of complications after stenting of the bile ducts in groups of patients with malignant and benign disease of pancreatobiliary area varied, but were not life-threatening and in all cases were eliminated at the endoscopic stage.

In foreign and home literature stenting of the bile ducts is most frequently mentioned in the context of palliative treatment of biliary obstruction due to malignant pathology. In our work we have expanded the indications for endoprosthesis of the bile ducts due to patients with intradiverticular location of the big duodenal papilla, Mirizzi syndrome, sclerosing cholangitis and in patients with postmanipulative pancreatitis who underwent stenting of the main pancreatic duct (Fig. 3, 4).

Wirsung duct stenting was performed in the next 2 days after papillosphincterotomy that allowed stopping pain for 2–3 days and avoiding the development of pancreatic necrosis. Our experience in the pancreatic duct stenting is small (6 patients). Typically, the intervention included a one-time execution of pancreatic and biliduodenal prosthetics. Pancreatic stents were removed within 5–6 days after their installation.

In patients with a high risk of acute postmanipulative pancreatitis, when stricture of the terminal part of the common bile duct and papillostenosis combined, papillosphincterotomy completed choledochal endoprosthesis. It was possible to reduce the incidence of transient amylasemia and clinical picture of acute pancreatitis in those patients from 18 to 3%.

Conclusion. Endoscopic retrograde biliary stenting is a safe and effective treatment option for patients with both benign and malignant pancreatobiliary diseases, it is characterized by low rate of specific complications (5.8%) and had reduced the risk of acute pancreatitis in patients with papillostenosis and stricture of the common bile duct terminal part down to 3%.

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Retrograde biliary stenting in patients with pancreatobiliary diseases

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Interregional Clinical Diagnostic Center, Kazan, Russia

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Aim is to evaluate the results of retrograde biliary stenting in patients with pancreatobiliary diseases.

Methods. In 2008–2012, 85 retrograde biliary stenting procedures were performed in 65 patients (28 men and 37 women) with pancreatobiliary diseases aged from 33 to 86 years. Obstructive jaundice was diagnosed in 44 of 65 patients (in 67% of cases), ascending cholangitis — in 14 (21%) patients. Endoscopic biliary stenting was performed in 47 patients with benign pancreatobiliary diseases (chronic and post-surgical pancreatitis, benign common bile duct stricture, Mirizzi syndrome, intradiverticular papilla, common bile duct bile stones) and in 18 patients with malignancies (cancers of pancreas head, bile ducts and papillary cancer). Plastic biliary stents with a diameter 2.5–3.3 mm were used for stenting.

Results. Endoscopic biliary stenting gives a possibility to resolve the clinical manifestations of obstructive jaundice and cholangitis, to eliminate pain, to prevent the development of pancreatitis, to prepare patients for surgery. Serious complications of biliary stenting (stent migration in common bile duct, acute cholangitis) were observed in 5 of 85 procedures (5.9% of cases), and all of them were resolved after repeated endoscopic intervention.

Conclusion. Endoscopic retrograde biliary stenting is a safe and effective treatment option for patients with both benign and malignant pancreatobiliary diseases, it is characterized by low rate of specific complications (5.8%) and had reduced the risk of acute pancreatitis in patients with papillostenosis and stricture of the common bile duct terminal part down to 3%.

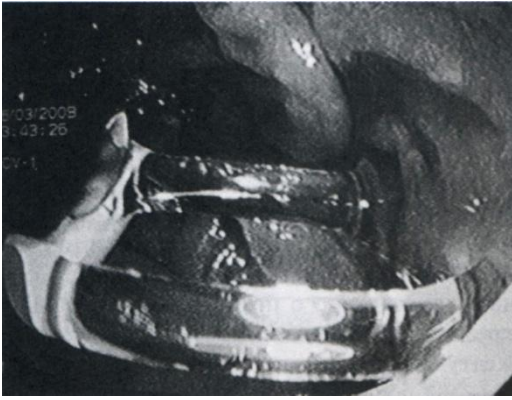


Fig. 1. Endoprosthetics of common bile duct of tumor of the pancreatic head.

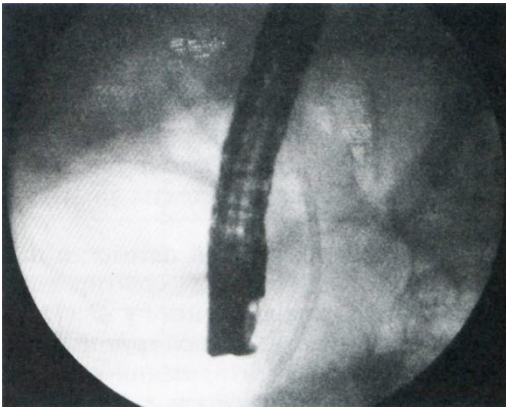


Fig. 2. Position of the common bile duct stent during fluoroscopy.



Fig. 3. Stenting of Wirsung duct upon postmanipulative pancreatitis.

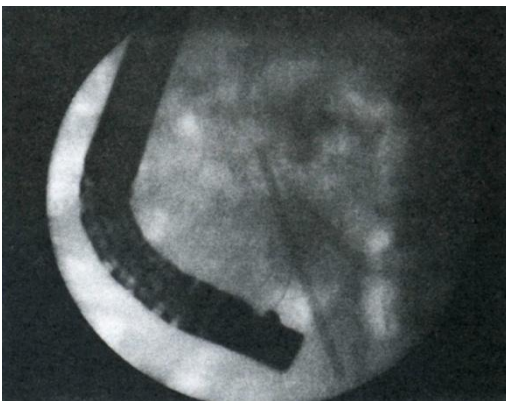


Fig. 4. Position of Wirsung duct stent under fluoroscopy.