

ANALYSIS OF RISK FACTORS FOR THE DEVELOPMENT OF COMPLICATIONS AFTER TRANSPAPILLARY INTERVENTIONS AND OPTIMIZATION OF TREATMENT TACTICS FOR OBTURATORY JAUNDICE

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Abstract: The endoscopic interventions' results were analyzed at the patients with mechanical jaundice on the background of distal block of various geneses. The frequencies of specific complications for these interventions were identified and risk factors of their development were analyzed. Conducted investigations let work out tactic endoscopic algorithm of treatment and diagnostics of mechanic jaundice patients' treatment. On the basis of this algorithm not only patients with mechanical jaundice symptoms, but patients who had intermittent mechanical jaundice in anamnesis were observed. Investigations of these patients should be built on combination of instrumental investigations, objective data of patient's observation and anamnesis.

Key words: cholelithiasis; obstructive jaundice; endoscopic treatment; emergency intervention.

The relevance of the problem. To date, endoscopic interventions have not only significantly improved the quality of diagnostic effectiveness in mechanical jaundice, but are also a minimally invasive (staged or final) alternative to traditional treatment, making it possible to use more rational tactics, especially for patients with severe mechanical jaundice complicated by liver failure [1-4]. However, being a minimally invasive intervention, tranpapillary interventions also require a rational approach, taking into account the likely risk factors for the development of specific complications, in particular bleeding from a papillomavirus wound or suprapapillary fistula, acute provoked endoscopic retrograde pancreatic cholangiography of pancreatitis [5-13]. In this regard, this article provides a generalized analysis of all endoscopic interventions with the identification of specific risk factors for the development of these complications.

Materials and methods of research. Among the main pathologies, the course of which can be complicated by mechanical jaundice, the following diseases are analyzed in the article: acute and chronic calculous cholecystitis, postcholecystectomy syndrome, tumors of the pancreatoduodenal zone, cysts of choledochus and echinococcosis of the liver. The study included 1,219 patients who were in the "Republican Specialized Scientific and Practical Medical Center for Surgery named after academician V.Vakhidov" for the period from 2021 to 2023, who underwent endoscopic retrograde cholangiography (ERCG) with intervention: endoscopic papillosphincterotomy or suprapapillary choledohodenostomy (SPCDS).

The duration of the anamnesis of 59.6% (727 patients) of patients was more than 10 days, in other cases, patients were admitted within 10 days from the onset of mechanical jaundice.

Research results and discussion. Summarizing the results of all endoscopic interventions, it can be noted that in about 2/3 of cases transpapillary manipulations are performed (67.4%), in other situations, for various reasons, it is necessary to resort to an atypical technique – SPCDS. The qualification level of the endoscopist also affects the quality of medical and diagnostic intervention, at the present time, the accumulated experience in our department has allowed to reduce the frequency of ineffective endoscopic diagnosis of bile ducts to 5.7% of cases, while at the first attempt to perform ERCG of the bile ducts it is possible to contrast in 91.9% of cases, and only in 8.1% effective diagnosis is carried out with repeated manipulations after 1-3 days. It should be noted that out of 1,219 patients, 164 (13.5%) underwent additional dissection of the papillotomic or suprapapillary opening for therapeutic purposes. In 27 cases (during the period under review), endoscopic stenting was performed with strictures of the terminal choledochus.

Depending on the type of intervention, the incidence of complications was 12.0% after endoscopic papillosphincterotomy and 19.6% after SPCDS. The risk of bleeding was about 2 times higher when performing SPCDS, while in most cases it was possible to achieve hemostasis by additional coagulation. Of the 103 patients who developed bleeding during the manipulation, only 16 (15.7%) with developed jet hemorrhage, the hemostasis achieved by coagulation left doubts about the long-term, and it was in these situations that 7 patients were urgently operated on due to a recurrence of bleeding within 30 minutes to 6 hours. 3 more patients were operated on due to profuse bleeding and an ineffective attempt at coagulation. After endoscopic papillosphincterotomy with bleeding from a papillotomy wound, 4 (10.5% of 56) patients were operated on, after spcnds – 4 (9.4% of 47). however, if we consider the risk of the need for emergency traditional intervention for bleeding from the dissection zone in the whole group (not only with the established fact of bleeding), then after spcnds (390) the probability of surgery will be 1.1%, and after endoscopic papillosphincterotomy (822) – 0.7%, that is, when performing a typical endoscopic papillosphincterotomy, this probability will be in 1.5 times lower. The incidence of acute pancreatitis was 5.0% and 6.8%, respectively, while ineffective conservative measures and the need for emergency surgery amounted to 17.9% after endoscopic papillosphincterotomy and 22.2% after SPCDS, while, by analogy with bleeding, the risk of surgery for acute pancreatitis in groups as a whole was also 1.7 times higher after SPCDS. Despite the fact that duodenal perforations during papillotomy or suprapapillary fistula imposition were rarely observed, in 1 and 2 cases, respectively, it can be stated that this complication depends not only on the qualification of the endoscopist, but also on the method of dissection, where the risk will be higher when trying to impose an atypical fistula.

Depending on the length of a single-stage endoscopic papillosphincterotomy or SPCDS, the risk of bleeding increases as the diameter of the incision increases. At the same time, for endoscopic papillosphincterotomy with a length of up to 0.8 cm (282 patients, average length 6.5 ± 1.1 mm), the risk of vessel damage and, accordingly, bleeding was 3.1%, with a length of up to 1.2 cm (449 patients, average length 10.7 ± 0.9 mm, $P < 0.05$ to the previous indicator) increased to 5.9%, and with simultaneous endoscopic papillosphincterotomy of more than 1.2 cm (91 patients, average length 13.6 ± 1.1 mm, $P < 0.01$ compared to the previous indicator) increases to 22.6%.

For SPCDS, these indicators were higher – 5.0% (149 patients, average length 6.9 ± 0.9 mm); - 12.3% (191 patients, average length 10.2 ± 1.4 mm, $P < 0.01$ compared to the previous indicator); - 32.4% (50 patients, average length 13.9 ± 1.0 mm, $P < 0.01$ to the previous indicator).

Therefore, regardless of the clinical situation, even a highly qualified endoscopist should adequately assess the volume of endoscopic intervention, while the most rational, if additional expansion is necessary, endoscopic papillosphincterotomy or SPCDS, is a staged intervention, where a portion dissection is

performed at the first stage, and then an expansion is performed in 1-3 days. It should be particularly noted that the length of the dissection also affects the effectiveness of endoscopic hemostasis in the development of bleeding. So if, with a dissection length of up to 1 cm, bleeding is usually moderate, in the form of suction from the edges of the wound, and the absolute hemostatic effect of additional coagulation is effective in 100% of cases, then when performing a simultaneous dissection with a length of 1.0 to 1.5 cm, the bleeding frequency increases to 5.9%, and ineffective endoscopic hemostasis is noted in 5.6% of these patients (in 1 out of 26 patients), respectively, the frequency of emergency interventions for endoscopically provoked bleeding was 0.3% (1 out of 449). Extended dissection is accompanied by the highest risk of bleeding, hemostasis inefficiency (21.4% - 5 out of 22 patients) and emergency intervention for the entire group with a simultaneous dissection of more than 1.5 cm (4.8% - 4 out of 91).

A similar pattern was found in the SPCDS group. If the non-prolonged dissection was not accompanied by complications, then SPCDS with a length of 1.0-1.5 cm was complicated by bleeding in 12.3% of cases (35 out of 282 patients), and ineffective hemostasis was noted in 2 patients (6.3%), respectively, the need for emergency intervention for the entire group was 0.8%. Prolonged simultaneous SPCDS (more than 1.5 cm) caused the highest incidence of bleeding (32.4%), ineffective hemostasis – 18.2% (2 out of 17 patients with bleeding) and the risk of surgery for the entire group – 5.9% (3 out of 50 patients).

Accordingly, the staged endoscopic papillosphincterotomy or SPCDS allows not only to reduce the risk of bleeding, but also the likelihood of ineffective hemostasis and, accordingly, surgical treatment. In our study, an additional extension of endoscopic papillosphincterotomy was required in 81 (9.9%) patients, SPCDS – 84 (21.5%), while stepwise execution made it possible to halve the frequency of bleeding and eliminate the likelihood of emergency intervention due to the ineffectiveness of endoscopic coagulation hemostasis.

The problem of provoked retrograde cholangiography of acute pancreatitis remains in the category of urgent. The main causes of its development are not only combined, and sometimes isolated, contrast of the pancreatic duct, but also direct endoscopic interventions, after which edema develops in the area of endoscopic papillosphincterotomy or SPCDS with possible blocking of the outflow of pancreatic juice and increased intra-flow pressure. It is especially difficult to resolve the issue of carrying out these manipulations in patients admitted with the clinic and confirmed data of acute pancreatitis, due to the risk of endoscopic provocation of the progression of the pathological process in the pancreas.

In our studies, when performing retrograde cholangiography, the pancreatic duct was contrasted in 357 (29.3%) cases out of 1219 who underwent endoscopic papillosphincterotomy or spcds. at the same time, out of 822 endoscopic papillosphincterotomy of the wirsung duct was visualized in 284 (34.5%) cases, whereas in spcds in 72 out of 390 (18.5%) cases. the difference in the incidence of acute pancreatitis with isolated contrast of the bile ducts and their combined visualization with the pancreatic duct was not large, both with endoscopic papillosphincterotomy (25 out of 538 - 4.7% - without wirsung contrast and 16 out of 284 - 5.7% - with contrast) and with SPCDS (21 out of 318 – 6.5% - without wirsung contrast and 6 out of 72 – 8.2% - with contrast). Of more fundamental importance is the factor of already developed pancreatitis before attempting ERCG.

In the analyzed groups, the frequency of endoscopic interventions against the background of acute pancreatitis was 7.7% (63 patients) with endoscopic papillosphincterotomy and 5.7% (22 patients) with SPCDS.

A small number of observations is due to the fact that in our clinic we consider the presence of acute pancreatitis as a relative contraindication to ERCG, exceptions may be concretions wedged into the mouth of the large duodenal nipple or other causes of distal block verified by ultrasound, in which the ineffectiveness of conservative therapy and the progression of biliary hypertension and biliary pancreatitis are noted. The blood diastasis indices in patients with acute pancreatitis before endoscopic surgery were

244.6±74.1 U/L. The rate of progression of acute pancreatitis after retrograde cholangiography and endoscopic papillosphincterotomy was 9 (14.0%), whereas in the absence of acute pancreatitis, these manipulations provoked its development in 33 (4.3%) patients. Performing retrograde cholangiography and SPCDS provoked the development of acute pancreatitis in 6.0%, while their performance against the background of this complication in 20.0% of patients caused its progression. Emergency intervention for acute pancreatitis was performed in 3 (4.7%) patients after ERCP and endoscopic papillosphincterotomy against this complication, and 4 (0.6%) patients without initial pancreatitis. In the SPCDS group, 1 (6.7%) and 4 (1.2%) were operated on, respectively.

The risk of developing acute pancreatitis provoked by endoscopic intervention is 5.0% after endoscopic papillosphincterotomy and 6.8% after SPCDS, while forced performance of these manipulations against the background of developed biliary pancreatitis provokes its progression 3.3 times more often (14.0-20.0%) than with interventions against the background of isolated pathology of the bile ducts (4.3-6.0%), in turn, the ineffectiveness of conservative measures for the relief of postendoscopic pancreatogenic complications in 0.9-1.5% of cases require emergency surgical treatment.

The conducted studies have allowed us to develop a tactical endoscopic therapeutic and diagnostic algorithm for the management of patients with mechanical jaundice, which is based on not only patients admitted to the clinic of mechanical jaundice, but also patients who have a history of intermittent jaundice, whose examination should be based on a set of instrumental studies, objective examination data and anamnesis. It should be especially noted that the minimally invasive nature of endoscopic manipulations does not exclude the possibility of developing specific complications, and therefore it is necessary to strictly follow the developed principles of performing therapeutic and diagnostic endoscopic intervention, especially in situations where there are doubts about their necessity.

Conclusions. Being a minimally invasive intervention, endoscopic manipulations require a rational approach, taking into account the likely risk factors for the development of specific complications, so the risk of bleeding from a papillo- or suprapapillotomotomy wound is potentially higher when performing SPCDS – 9.4% than with endoscopic papillosphincterotomy – 6.8%, in turn, the development of acute pancreatitis is noted in 5.0% and 6.8% of cases.

Simultaneous execution of an extended endoscopic papillosphincterotomy or SPCDS for therapeutic and diagnostic purposes causes an increase in the risk of bleeding from a papillo- or suprapapillotomotomy wound, since portion intervention is accompanied by a low frequency of this complication (3.1-5.0%) with an absolute guarantee of endoscopic hemostasis, whereas with a simultaneous dissection length from 0.8 to 1.2 cm ($P<0.05$) the risk increases by 1.9 times when performing endoscopic papillosphincterotomy and 2.5 times with SPCDS, and when attempting a dissection with a length of more than 1.2 cm ($P<0.01$), the risk increases by another 3.8 and 2.6 times, while in general the need for traditional intervention to stop bleeding is 1.1% with SPCDS and 0.7% with endoscopic papillosphincterotomy.

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