

EFFECTIVENESS OF NON-INVASIVE SURGERY IN PATIENTS WITH THE COLON BLEEDING

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The authors have observed 37 patients with intestinal bleeding from tumours of the large intestine of varying severity.

The effectiveness of endoscopic hemostasis by laser photocoagulation of vessels and the value of this technique in the prevention of recurrent bleedings was assessed.


In 12 patients the bleeding was stopped by applying the hemostatic therapy. In 25 patients an attempt was made to arrest the intestinal bleeding through the colonoscopy with laser photocoagulation of vessels of the tumour using the high-energy argon plasma installation and the neodymium laser with a wavelength of 1.06 microns.

Non-contact laser argon coagulation of bleeding vessels of the tumour was successfully applied in 14 cases.

This treatment strategy is promising because it allows performing the one-stage surgery with minimal risk to the patient.

Keywords: endoscopic hemostasis, laser photocoagulation, neodymium laser, argon laser photocoagulation.

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Background. According to the literature, the frequency of bleeding from the colon in the general population is 0.03% annually, and in the age group from 20 to 80 it progressively increases by nearly 200 times. The average age in the group of patients with this pathology is between 62 and 75, and mortality is up to 4-5% [3]. Malignant tumors, diverticulitis, and ischemic colitis are the most common causes of colon bleeding. [3,4]. At present colonoscopy is a necessary method of complex endoscopy used to identify the source of bleeding. It performed after gastroduodenoscopy except for the cases when the source of bleeding is located in the upper gastrointestinal tract. In addition, colonoscopy is performed upon detection of tumors and acute ulcers during the gastroduodenoscopy in order to avoid their presence in the colon [4]. According to most authors, the primary kind of endoscopy, colonoscopy should be made: a) in presence of anamnestic indications of localization of the bleeding source in the colon; b) in the early period after surgery on the colon; and c) if you suspect the presence of a malignant neoplasm of the colon [3]. According to the summarized data, modern diagnostic accuracy of colonoscopy for bleeding from the lower gastrointestinal tract is 72-86% [2]. Nowadays, there are the following methods of hemostasis:

I. Injection hemostasis. It consists of direct introduction of the agent into the bleeding area.

II. Thermocoagulation. The coagulators are brought directly to the bleeding area to cause coagulation and thrombosis. Multipolar coagulation is also used, in which an electric discharge passes via multiple electrodes on the tip of the catheter, as well as argon plasma coagulation, which are approximately equally effective.

III. Mechanic hemostasis. It assumes application of endoclips on the bleeding vessel.

IV. Combined methods of therapeutic endoscopy. At present, there is evidence supporting the use of therapeutic endoscopy, which combines injection hemostasis (sclerotherapy, injection of adrenalin) with thermal or mechanical one, especially in the course of treatment of patients with very severe and active ulcer bleeding.

The relapse rate of bleeding is 15-20%. It usually develops within the first 24 hours after surgery, especially in profuse initial bleeding. When managing the patient with recurrent bleeding and determining indications for surgical treatment, there can be doubts. [4]. Thus, expectant management is justified for some patients with recurrent bleeding in successful therapeutic re-endoscopy, but the next relapse is an absolute indication for surgical treatment. In our work we used thermocoagulation by applying laser photocoagulation of tumor vessels using the high-energy argon plasma installation and neodymium laser with a wavelength of 1.06 microns.

Objective: 1) to clarify the capabilities of fibrocolonoscopy in determining and verifying the source of bleeding intensity in the colon, 2) to evaluate the effectiveness of a technique of endoscopic hemostasis by laser photocoagulation of the blood vessels and 3) to determine the value of this method in prevention of bleeding recurrence.

Materials and methods. The study period covers 2011-2014. All patients were divided by the degree of bleeding severity. In this case, we used the classification of Gostischev V.K., Evseev M.A., 2005.

Determination of the degree of hemorrhage severity is very important for solving the tactics of treatment and determining the nature of transfusion therapy.

We followed up 37 patients who had been admitted with symptoms of intestinal bleeding of various degree of severity and 21 patients with anemia. The age of the patients varied from 40 to 88. The average age of the patients was 64 years old. Elderly patients dominated. As to gender, women prevailed in all age groups – 34 (58.6%), and there were 24 men (41.3%).

As to the degree of bleeding severity the patients were distributed as follows: mild degree – 15 (40.5%) patients, moderate – 14 (37.8%) patients, severe – 8 (21.6%) patients.

Results: The cause of bleeding in all patients was colon tumor. In 12 patients

the bleeding was stopped by application of hemostatic therapy. In other cases, we have performed noninvasive surgery. Preparation of patients is important because colonoscopy is difficult in patients with active bleeding, for with poor preparation of the patient it is not always possible to identify a bleeding source. To improve the diagnostic value of this method (sensitivity is 80% for angiodysplasias) careful preparation of the patient is required, compensation of blood volume, adequate anesthesia, as the excessive use of narcotic analgesics leads to peripheral vasodilation. By using cleansing and siphon enemas, we tried to remove the remnants of feces and blood clots. After thorough emptying the distal intestine in 25 patients, we attempted to stop intestinal bleeding by colonoscopy followed by tumor location and tumor vascular laser photocoagulation using a high-energy argon plasma installation and neodymium laser with a wavelength of 1.06 microns. We did not use the contact electrocoagulation of vessels of the destructing tumor because of the high probability of tumor perforation.

Non-contact laser argon coagulation of bleeding vessels of the tumor was successful in 14 cases, which allowed stabilizing the patient's condition for a long time and gave time for thorough examination and preoperative preparation of the patient for performing radical surgery in 2-3 days.

This technique did not lead to control of bleeding in 11 patients, who required urgent surgical intervention with removal of the tumor bleeding substrate.

While making endoscopic hemostasis, we obtained the following complications: persistent bleeding in 10 cases and in one case there was a bowel wall perforation, which required urgent surgery.

In the group of patients with anemia (22) we carried out blood transfusion and infusion therapy followed by diagnostic and therapeutic colonoscopy. In 17 cases we were able to run a double-lumen probe through the obstruction zone under the control of the endoscope, followed by administration of drugs and fluids for washing off and aspiration of feces, thus improving the patient's condition, to solve the phenomena of acute intestinal obstruction temporarily and prepare the patient for radical surgery in 2-5 days.

Endoscopic recanalization of the colon was performed in 12 cases with the use of high-energy laser devices. A tumor was revealed after the colonoscopy. If the tumor occupied most of the intestinal lumen in visualization, laser photocoagulation of the tumor tissue, coagulating the tumor tissue, was performed.

When a small canal was formed after the destruction of the tumor tissue, we tried to pass the probe through the obstruction area in the proximal part of the intestine. If this manipulation was ineffective, then the examination was ended, and this manipulation was repeated in 24 hours. Upon reaching the effect of passing the double-lumen probe above the tumor obstruction, the intestine was washed off using the medicines. A positive effect was achieved in 10 cases.

When performing these manipulations, we have faced the following complications: perforation of the tumor occurred during tumor laser photocoagulation in one case that required urgent laparotomy; ulcer wall perforation occurred in the intestine diverticulum by the double-lumen probe in the process of photodecomposition in the second case, that also required urgent laparotomy with removal of the tumor and damaged parts of the intestine; and in the third case there was a recurrence of bleeding requiring further argon plasma coagulation.

In 10 cases we were able to run the endoscopic stent through the site of bowel obturation by the tumor. Stenting of the bowel at the site of the tumor obstruction along with resolution of obstruction are also provided by mechanical hemostasis.

The stenting procedure is a complex endoscopic technique possible only in cases where there is no complete tumor intestinal obstruction. In cases of complete obstruction when trying to pass a stent, there may be bleeding and perforation of the bowel wall with development of peritonitis.

In case of effective installation of the stent, it is possible to clear the bowels quickly and efficiently and eliminate acute intestinal obstruction, allowing to perform a radical traditional or laparoscopic surgery in 2-5 days after the stent installation.

Besides, installation of the stent

and elimination of the threat of full germination of the colon lumen with a tumor, allows preventing intestinal obturation and refusing the surgery in case of tumor metastasis in various organs and manifestations of carcinomatosis.

We managed to pass and install the stent in 10 cases. In one case, there was bleeding in the process of the stent installation, when attempts to install the stent (due to difficult visualization and complete obstruction of the lumen of the colon tumor) had led to bowel perforation and fecal peritonitis, which required urgent laparotomy with resection of the bowel with the tumor.

Thus, endoscopic techniques require a highly skilled endoscopist, specialized skills, as well as advanced endoscopic and laser equipment.

Based on the data given, it should be noted that the use of endoscopic techniques helps stop bleeding in 60% of cases. It also allows obtaining management of acute intestinal obstruction in 72% of cases with tumors of the left half of the colon, allowing to make a high-quality preoperative preparation of patients, to reduce the risk of surgery and in most cases, to perform the laparoscopic surgery. Application of this method in complex techniques to stop bleeding increases the efficacy of therapeutic endoscopy and contributes to stabilization of patients, preoperative preparation, and also reduces the number of complications.

In our opinion this treatment strategy is promising, because it allows performing one-stage surgery with minimal risk to the patient and avoiding 2- or 3-stage operations in most cases.

Conclusions.

1. Endoscopic local hemostasis is an effective method, which allows stopping bleeding in the patients with colorectal cancer in 60-70% of cases.


2. The most effective method of endoscopic bleeding control is a combined method of laser photocoagulation with introduction of fibrin glue, as well as stenting.

3. The endoscopic hemostasis allows stabilizing the patient's condition, to conduct an effective preoperative preparation, to conduct one-step surgery, and to reduce postoperative complications by 2 times.

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