



IMPROVING THE METHOD OF ENDOSCOPIC REMOVAL OF SUPERFICIAL POLYPOID AND NON-POLYPOID FORMATIONS OF THE GASTROINTESTINAL TRACT

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Abstract:

The article presents a developed method for endoscopic removal of polypoid neoplasms of the gastrointestinal mucosa. The technical aspects of the developed method of endoscopic removal of superficial polypoid and non-polypoid neoplasms of the gastrointestinal tract are the formation of a roller under the formation by injection of the proposed combined gel substance to ensure a local hemostatic effect, improve control over the intervention area, as well as the use of high-energy laser exposure to increase the radicality of removal regardless of the localization, shape and size of the formation.

Keywords: polypoid neoplasms, gastrointestinal tract, endoscopic interventions, bleeding, perforation, relapse.

The analysis of modern literature data convincingly indicates that the problem of surgical treatment of patients with polyps of both the upper and lower floors of the gastrointestinal tract (GIT) remains relevant, and the issues of choosing alternative surgical tactics and a rational method of surgical intervention are still far from a final solution [1]. Advances such as narrowband imaging (NBI), chromoendoscopy, endoscopic mucosal resection, endoscopic submucosal dissection (ESD) are tools that can improve the treatment of benign and early malignant polyps, and mini-invasive technologies need to be more widely implemented [2].

Major advances in biomedical optics have increased the ability to detect polyps. The same advances that have increased the detection rate have also made it possible to determine the histology of polyps in vivo. As the accuracy of the in vivo assessment increases, the need for resection of non-tumor polyps and pathological confirmation of low-risk adenomas may eventually decrease [3]. The clinical significance of small and miniature polyps continues to be discussed, however, both retrospective and prospective studies confirm the low prevalence of pathology in colorectal polyps less than 10 mm in size [4]. Moreover, studies show that these polyps grow slightly or slowly, and some of them may regress over time. Although the overall risk of colonoscopy is low, polypectomy remains the single greatest risk factor, which stimulates interest in methods to avoid polypectomy of non-cancerous polyps, thereby increasing safety without reducing the effectiveness of cancer prevention [5].

Proper diagnosis and reduction of the risk of these interventions are of key importance in the endoscopic treatment of GIT surface formations [6]. The removal of such formations is associated with a considerable risk of complications and should be performed by specially trained endoscopists [7]. Among the main complications that develop both during the intervention and in the early period, bleeding and perforation are distinguished [8]. The frequency of early postmanipulation bleeding ranges from 0% to 6.3%, perforations 0-6% [9]. Performing an intervention in the colorectal area is technically more difficult than in the upper GIT sections, which is reflected in a higher probability of complications and recurrence of polyps [10]. The recurrence rate of polyps can reach 32.1% [11, 12]. Even after complete resection by endoscopic resection or dissection, recurrences occur in 2.4-12.2% of patients due to incomplete removal [13, 14]. Local recurrence after polyp resection occurs in 3% of cases with single block removal and in 20% with fragmentary resections [15]. There is still insufficient research to assess the advantages and disadvantages of various methods of removing polyps [16]. The issue of improving the effectiveness of endoscopic treatment of polypoid formations requires further study [17, 18]. This applies both to the correct choice of endoscopic methods and methods of removing formations [19, 20, 21].

Taking into account the above, our clinic has developed a method of endoscopic treatment of GIT polyps, aimed at eliminating the disadvantages of the closest analogues in terms of preventing recurrence of

the polyp, reducing the risk of bleeding and other postoperative complications.

The task is solved by the fact that the method of endoscopic removal of polyps of the gastrointestinal tract is performed as follows (Fig. 1, 2):

- The patient is placed on his left side.
- After local anesthesia of the oral cavity with a 10% Lidocaine solution, a mouthpiece is installed and intravenous potentiation with a 10% Propofol solution is performed.
- Next, depending on the location of the formation, a gastroscope or colonoscope is inserted and an examination of the area of interest is performed, the polyp is identified.
- A sterile gel is prepared, for which 1.0 g of a powdered HEMOBEN composition containing Na-carboxymethylcellulose, oxidized viscose, oxidized cellulose, calcium chloride in the ratio, wt. % respectively: 46,5, 10,5, 19,0, 24,0, (next, Hemobene) is mixed with 20 ml of 0.1% methylene blue solution with constant stirring for 1 minute.
- Immediately after mixing (to avoid thickening), the resulting gel is injected into the submucosal layer in the area of the base of the polyp by means of an endoscopic needle injector at the rate of 1.0 ml of gel per area with a diameter of 10 mm with the formation of a roller in the

mucous membrane, which extends 5-7 mm beyond the base of the polyp.

- Then the polyp is excised along with the surrounding healthy mucosal tissue to the submucosal layer, retreating from the base of the polyp leg by 2-3 mm, using a Gbox (GIGAA) diode laser with a wavelength of 1470 nm, power up to 10 W in pulsed mode with a frequency of 2-5 Hz and a spot area of up to 2 mm.
- After excision of the polyp with a base for closing the edges of the defect in the mucous membrane, 0.5 ml of Chemoben gel (obtained by mixing 1.0 g of Chemoben powder composition and 20 ml of 0.1% methylene blue solution) is re-injected into the submucosal layer along the defect on both sides.
- Final revision of the intervention area and the end of endoscopic manipulation.

To implement the described method, a domestic hemostatic agent made of a composite polymer material from cotton cellulose derivatives "HEMOBEN" was used, developed at the State Institution "Republican Specialized Scientific and Practical Medical Center for Surgery named after academician V.Vakhidov", for which the patent "Bioabsorbable surgical hemostatic agent" of the Republic of Uzbekistan was obtained (IAP 05906 dated 04/24/2015).



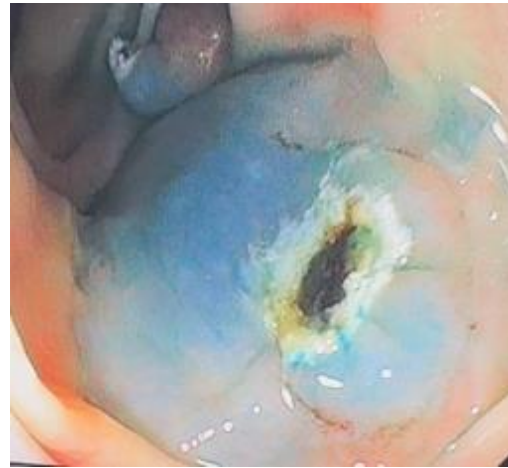
The beginning of the injection of the gel composition



Polyp lifting after injection



The beginning of excision



Mucosa in the area of remote formation

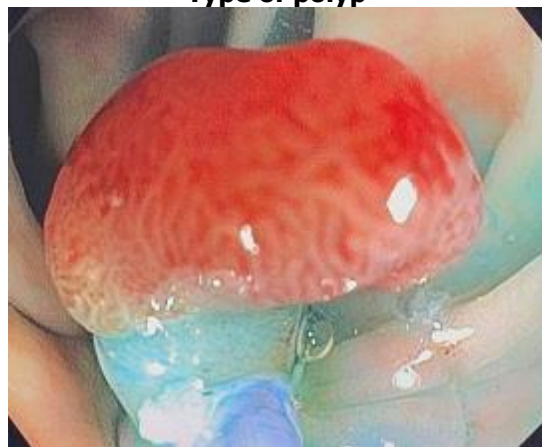
Fig. 1. The stages of performing the removal of the sigmoid colon polyp



Type of polyp



Injections into the base of the gel polyp



Remote formation



Mucosa in the area of remote formation

Fig. 2. Stages of performing removal of the sigmoid colon polyp

Thus, the developed method of endoscopic removal of superficial polypoid and non-polypoid neoplasms of the gastrointestinal tract is characterized

by simplicity of execution, while the distinctive technical aspects of the technique are the formation of a roller under the formation by injection of the proposed combined gel substance to ensure a local hemostatic



effect, improve control over the intervention area, as well as the use of high-energy laser exposure to increase the radicality of removal independently it depends on the location, shape and size of the formation.

The proposed method of excision can be used regardless of the localization of superficial neoplasms of the mucous membrane of the gastrointestinal tract, their size, shape and features of the morphostructure of the neoplastic process.

It should be noted that in the absence of high-energy laser equipment, the use of injection under the mucous membrane in the area of removal of superficial neoplasms of the proposed composition of the gel composition can also be used with standard methods of cold or thermal excision to reduce the risk of hemorrhagic complications during and in the immediate period after the intervention.

CONCLUSION. For practical endoscopy, a method of endoscopic removal of superficial polypoid and non-polypoid neoplasms of the gastrointestinal tract has been proposed.

The distinctive features of the method are the following technical features: a gel obtained by mixing 1 g of a powdered Chemobene composition and 20 ml of a 0.1% methylene blue solution with constant stirring for 1 min is injected into the submucosal layer in the area of the base of the polyp with an endoscopic needle injector, 1.0 ml of this gel is injected around the polyp to an area with a diameter of 10 mm, forming a roller in the mucous membrane extending 5-7 mm beyond the base of the polyp, excision of the polyp with the base is performed together with the surrounding healthy tissue of the mucous membrane to the submucosal layer, retreating from the base of the polyp leg by 2-3 mm, with a diode laser of the Gbox (GIGAA) system with a wavelength of 1470 nm, power up to 10 W in pulsed mode with with a frequency of 2-5 Hz and a spot area of up to 2 mm, after excision of the polyp with a base for closing the edges of the defect in the mucous membrane, 0.5 ml of gel obtained by mixing 1 g of the specified powdered composition and 20 ml of 0.1% methylene blue solution immediately before administration is re-injected into the submucosal layer along the defect on both sides.

Advantages of the method:

- complete and stable hemostasis is achieved;
- the risk of damage to the musculoerosus layer of the stomach is prevented, thereby reducing the risk of organ perforation;

- radical removal of the polyp is achieved regardless of the shape of its leg;
- a high-energy laser is used, which has a lower penetrating power compared to electrocoagulation, as well as an Infrared laser with radiation in the range of 980-1.06 microns. Therefore, it has more gentle properties.

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