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CLINICAL CASE REPORTS

PENETRATION INTO FREE ABDOMINAL CAVITY DURING TRANSANAL ENDOSCOPIC RECTAL RESECTION FOR ADENOMA

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ABSTRACT

Benign and malignant tumors are the most common diseases of the rectum and tend to grow. Various techniques have been developed for the treatment of rectal tumors: endoscopic electroexcision through a colonoscope, transanal removal of tumors, and transabdominal removal. The use of all these methods made it possible to determine their advantages and indications, as well as limitations and disadvantages. Technical advances in modern oncology resulted in developing a method for transanal tumor removal with a number of advantages: radical surgery, adequacy, and functionality. This technique can be used in benign and malignant rectal tumors. One of its main advantages involves a small number of postoperative complications, while intra-operative complications such as penetration into the free abdominal cavity during transanal endoscopic resection of the rectum are quite rare. It is also important that the method of transanal endoscopic resection of the rectum also has good oncological and functional results (according to various studies). We present a clinical case of penetration into the free abdominal cavity during transanal endoscopic rectal resection for adenoma. This case is also interesting in that the patient also had another complication – postoperative bleeding from the rectum, which required surgical intervention, also with the use of a minimally invasive approach. This clinical observation demonstrates successful suturing of penetrating openings into the abdominal cavity arising during transanal endoscopic removal of rectal tumors with the upper pole located above the pelvic peritoneum and effective minimally invasive tactics in the development of postoperative bleeding.

Keywords:
transanal endoscopic tumor removal, transabdominal removal, organ-preserving treatment, benign rectal tumors, malignant rectal tumors, rectal tumors.

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КЛИНИЧЕСКОЕ НАБЛЮДЕНИЕ

ПРОНИКНОВЕНИЕ В СВОБОДНУЮ БРЮШНУЮ ПОЛОСТЬ ПРИ ТРАНСАНАЛЬНОЙ ЭНДОСКОПИЧЕСКОЙ РЕЗЕКЦИИ ПРЯМОЙ КИШКИ ПО ПОВОДУ АДЕНОМЫ

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РЕЗЮМЕ

Доброкачественные и злокачественные опухоли являются самыми распространенными заболеваниями прямой кишки и имеют тенденцию к росту. Для лечения опухолей прямой кишки разработаны различные методики: эндоскопическая электроэксцизия через колоноскоп, трансанальное удаление опухолей, трансабдоминальное удаление. Применение всех этих методов позволило определить их преимущества и как показания, так и ограничения и недостатки. Технические достижения современной онкологии привели к разработке метода трансанального удаления опухолей, имеющего ряд преимуществ: радикальность оперативного вмешательства, адекватность, функциональность. Область применения данной методики – это доброкачественные, а также малигнизированные опухоли прямой кишки. Одним из основных преимуществ данной технологии является минимальная частота послеоперационных осложнений, а такие интраоперационные осложнения, как проникновение в свободную брюшную полость при трансанальной эндоскопической резекции прямой кишки встречаются достаточно редко. Немаловажным является также то, что метод трансанальной эндоскопической резекции прямой кишки отличается также хорошими онкологическими и функциональными результатами (по данным различных исследований). Представляем клинический случай проникновения в свободную брюшную полость во время трансанальной эндоскопической резекции прямой кишки по поводу аденомы. Этот случай также интересен тем, что у больного было также еще одно осложнение – послеоперационное кровотечение из прямой кишки, которое потребовало оперативного вмешательства, также с применением миниинвазивного доступа.

Данное клиническое наблюдение демонстрирует возможность благополучного ушивания проникающих отверстий в брюшную полость, возникающих при трансанальном эндоскопическом удалении опухолей прямой кишки, верхний полюс которых оказывается расположенным выше тазовой брюшины и эффективной малоинвазивной тактики при развитии послеоперационного кровотечения.

Ключевые слова:
трансанальное эндоскопическое удаление опухоли, трансабдоминальное удаление, органосохраняющий метод лечения, доброкачественные опухоли прямой кишки, малигнизированные опухоли прямой кишки, опухоли прямой кишки.

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RELEVANCE

The focus of modern oncology on organ-preserving methods of treatment and technical developments have contributed to the emergence of a method for transanal removal of rectal tumors using a system for enabling microsurgical manipulations [1–3]. In the world practice, there is already experience in using the method of transanal endoscopic resection of the rectum with the removal of tumors, which revealed its obvious advantages: first, it is the radical nature of the surgical intervention itself (since the method allows you to remove tumors in a single block surrounded by healthy tissues); secondly, it is the adequacy of surgical intervention (that is, minimizing the risks of intra – and postoperative complications); thirdly, it is the functionality of surgical intervention (that is, the preservation or rapid restoration of rectal function after surgery) [4–8]. The main field of application of the method of transanal endoscopic surgery is currently benign, malignized tumors of the rectum, as well as the initial forms of malignant tumors that are located below the pelvic peritoneum. The minimal number of postoperative complications is also a clear advantage of the method of transanal endosurgery of rectal tumors. Data from different authors indicate that bleeding after transanal endoscopic resection of the rectum occurs in 3.7–9.1% of surgical interventions, fistulas and abscesses in the pelvic cavity-up to 1.7–4.1% [9]. Even less common are intraoprational complications such as penetration into the free abdominal cavity during transanal endoscopic resection of the rectum.

In connection with the information given above, our clinical observation is interesting.

Clinical case description

Patient S., born in 1946, was admitted to the Department of Abdominal Oncology No. 2 of the National Medical Research Centre for Oncology of the Ministry of Health of Russia on 10.02.2019 with complaints of an admixture of blood, mucus in the feces, tenesmus. Considers himself ill for 3 months. Examination: FCS from 25.01.2019. from 5 cm to 15–17 cm from the anus along the anterior wall, a creeping flat tumor up to 4 cm wide. Histological analysis No. 85905–909: papillary adenoma. Ultrasound of the abdominal cavity on 17.01.2019 revealed no pathological changes. Objectively: Height – 166 cm, weight – 65 kg, BMI – 23.6. The patient's condition is relatively satisfactory. The skin and visible mucous membranes of the usual color. The peripheral lymph nodes are not enlarged and are not palpable. Heart rate is 78 per minute, blood pressure is 130/80 mmHg. Heart tones are rhythmic. In the lungs, during auscultation, vesicular breathing is heard over the entire surface of the lungs, wheezing is not heard. The tongue is moist, without plaque. The abdomen is soft and painless on palpation. Pounding in the lumbar region is painless on both sides. Peripheral edema is not detected. Finger examination of the rectum: from 5 cm from the anus along the anterior wall of the rectum, a soft formation, the upper edge of the finger is not accessible. The diagnosis was made: villous tumor of the rectum. Clinical and laboratory examination revealed no significant deviations, and preoperative preparation was standard. On 11.02.2019, the patient was taken to the operating room. It was decided to perform a transanal endoscopic resection of the rectum with a full-layer removal of the intestinal wall with a tumor. Stages of surgical intervention: under general anesthesia, in the position of the patient on his stomach with his legs spread apart, after processing the operating field, an operating rectoscope is installed in the rectum (KarlStorz, Germany), which is adapted to the laparoscopic stand, while a special device is used to fix the rectoscope to the operating table. An insufflator for injecting carbon dioxide into the rectum during the intervention and a set of tools for endoscopic manipulations (electrocoagulator, "Harmonic" coagulation scissors, scissors, clamps) were also used. A creeping flat tumor from 5 cm to 15 cm from the anodermal junction along the posterior wall of the rectum with a width of up to 4 cm was visualized (fig. 1). The first stage was the point marking of the rectal wall resection line with a coagulator, retreating from the edge of the tumor by 1 cm. The next step was a full-wall excision of the rectal wall area with a tumor with "Harmonic" coagulation scissors within healthy tissues along the line of marking the intestinal wall with a part

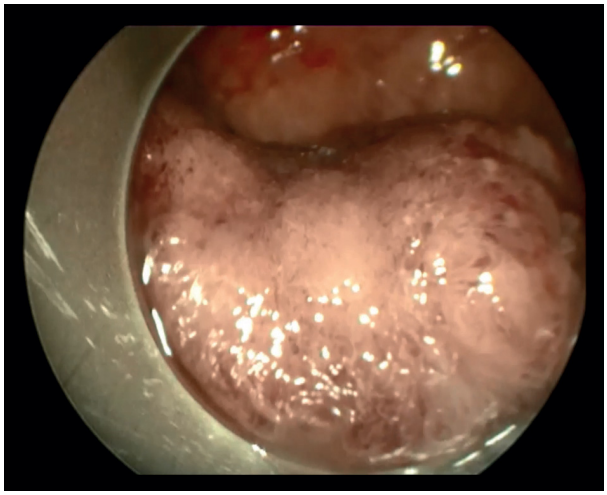

Fig. 1. Type of rectal tumor.

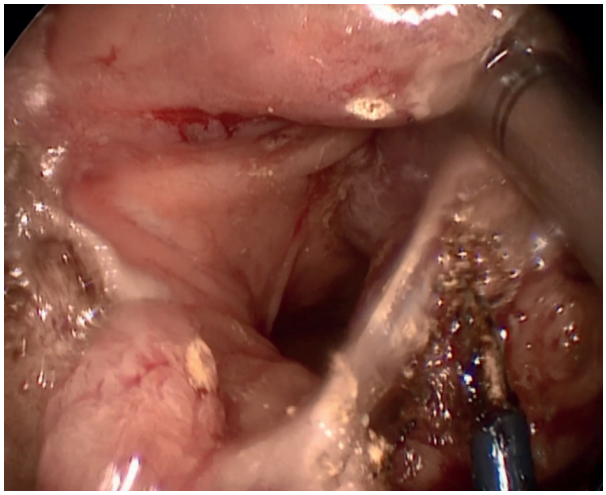

Fig. 2. Removal of the upper part of the rectal tumor.

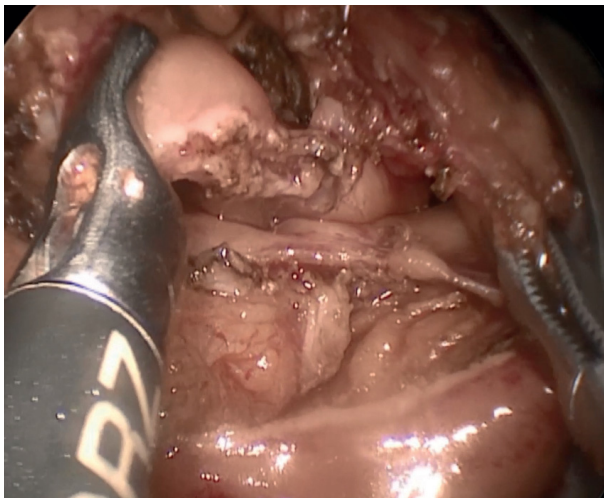

Fig. 3. Penetrating hole in the free abdominal cavity.

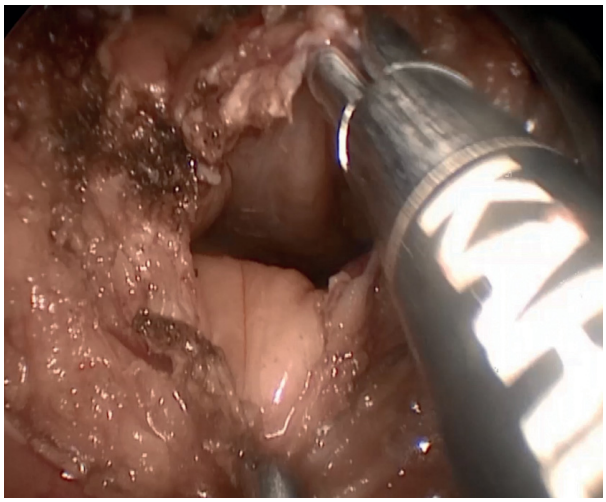

Fig. 4. Through the opening in the rectum, the pelvic peritoneum and rectal serosa are visible.

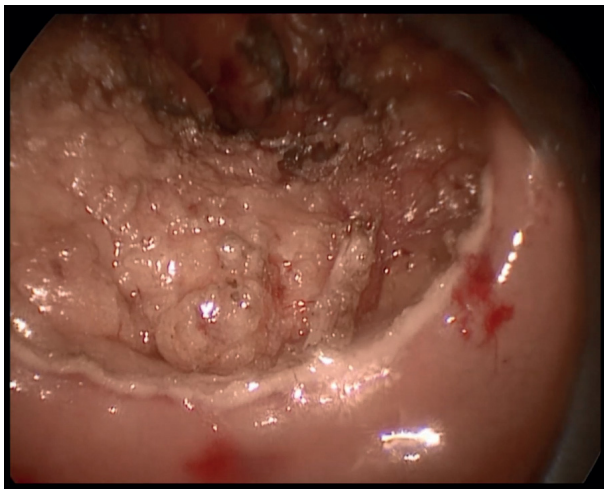

Fig. 5. Rectal wall after wall resection.

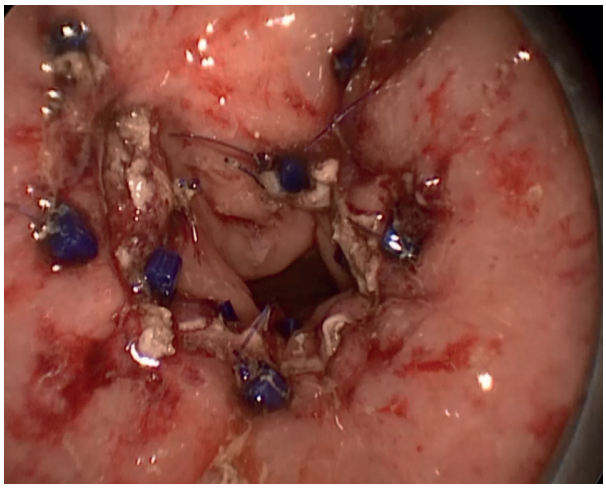

Fig. 6. The defect of the rectal wall is sutured transversely.

of the adjacent mesorectal tissue. For the convenience of excision of the intestinal wall, a clamp was used to capture the intestinal wall with a tumor, and then we lifted it. Excision of the bowel wall is produced in the proximal direction (fig. 2) when removing the upper part of the tumor was that it is located above the pelvic peritoneum, a hole with a diameter of 4 cm, penetrating into the free abdominal cavity (fig. 3, 4). Given the development of this complication, it is possible to have the following solution: low resection of the rectum or closure of the defect of the rectal wall. In the literature, the issues of applying a preventive colostomy in the case of suturing a defect in the intestinal wall are discussed. We decided to suture the defect of the rectal wall. We sutured the rectal wall (fig. 5) in the transverse direction with a continuous suture (Polisorb, Monocryl 2/0), while the edges of the thread were fixed with special clips (Lapra) (fig. 6). Based on the data on the absence of tension and sufficient tightness of the suture line, we did not apply a preventive intestinal stoma. The total duration of the surgical intervention was 135 minutes. Intraoperative blood loss was minimal – 20 ml. Postoperative morphological study No. 9384–87/19: tubular-papillary adenoma of the rectum, no tumor resection lines. The postoperative period in this patient was also complicated by intestinal bleeding in the amount of about 300 ml on the 2nd day after the operation. An emergency operation was decided, and an operating rectoscope with a laparoscopic stand was also used. During the operation, blood and clots were removed from the rectum, and the rectal suture line was visualized. There were no signs of ongoing bleeding. In the future, the postoperative period proceeded smoothly. The patient underwent antibiotic therapy for 3 days, a slagless diet – for 6 days. The stool was on the 4th day. The patient was discharged on day 8 after repeated surgery. No relapse of the tumor has occurred during the follow-up to the present time.

DISCUSSION

Such intraoprational complications as penetration into the free abdominal cavity during transanal endoscopic resection of the rectum are rare, so in our clinical practice it occurred in one of 46 transanal endoscopic interventions on the rectum. Postoperative intestinal bleeding with such interventions is also rare. According to the literature, the overall rate of complications in transanal endoscopic rectal resection for benign and malignant tumors ranges from 6% to 31%. In this case, intraoperative complications (penetration into the free abdominal cavity and bleeding) may require laparotomy. The frequency of penetration into the free abdominal cavity is observed up to 9%, the frequency of bleeding – 1%–13% [10, 11]. Al-Najami et al. [12] report that in their study, 5 out of 12 patients (42%) with penetration into the free abdominal cavity required conversion to open surgery (Hartmann operation, low anterior rectal resection, transperitoneal suturing of the bowel defect), the remaining patients (58%) managed to suture the bowel defect transanally. The literature even describes one observation of the development of sepsis in pneumoperitoneum after transanal endoscopic resection of the rectum [13]. However, when penetrating into the free abdominal cavity, laparotomy is not always required, local suturing is possible. Thus, in a study by Ganai S. et al. [14] in 9 out of 144 patients with transanal endoscopic resection, penetration into the free abdominal cavity occurred, and in all cases it was possible to locally suture the defect and avoid anterior resection of the rectum. However, penetration into the free abdominal cavity significantly increases the duration of the patient's stay in the hospital [12, 15]. We have not seen any descriptions in the literature of a combination of penetration into the abdominal cavity and bleeding. Our patient collected two complications: both penetration into the free abdominal cavity, and intestinal bleeding. At the same time, despite various tactical approaches to solving this problem, up to performing rectal resection, it is possible to maintain a minimally invasive approach to surgical intervention, even with the development of complications.

CONCLUSIONS

The described clinical observation demonstrates the possibility of successful suturing of penetrating

holes in the abdominal cavity that occur during transanal endoscopic removal of rectal tumors, the upper pole of which is located above the pelvic peritoneum, as well as the possibility of not applying a preventive intestinal stoma with reliable suturing of a defect in the rectal wall. Our clinical observation also demonstrates the possibility of repeated transanal surgical interventions in the event of urgent postoperative complications, such as intestinal bleeding.

Authors contribution:
Gevorkyan Yu.A. – concept and design of the study.
Soldatkina N.V. – scientific editing, writing of the text.
Kolesnikov V.E. – the design of bibliographies, preparation of illustrations.
Kharagezov D.A. – the design of bibliographies, preparation of illustrations.
Dashkov A.V. – data collection, analysis and interpretation.
Poluektov S.I. – the preparation of this article.
Samoylenko N.S. – the preparation of this article, technical editing.

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