American Journal of Medicine and Medical Sciences 2024, 14(5): 1373-1378
DOI: 10.5923/j.ajmms.20241405.49

Current State of the Problem in Recovery Operations for Ileostomy

Botirov Akramjon, Kodirov Khushnudbek, Otakuziev Ahmadillo, Bozorov Nuriddin, Botirov Jaxongir, Ismoilov Botirali

Andijan State Medical Institute, Andijan, Uzbekistan

Abstract The authors report that the population with intestinal stoma is increasing all over the world, where the structure of diseases is mainly represented by colon cancer - 74.7%, trauma - 11.7%, complications of benign intestinal tumors - 6.5% and inflammatory diseases - 7.1%. However, the elimination of the stoma and the implementation of surgical rehabilitation in this group of patients is overshadowed by the high incidence of anastomotic leakage (AL), reaching up to 20-30% with a fatal outcome of 6-35% and has no tendency to decrease. None of the known methods of forming ileotransverse anastomoses completely satisfies surgeons. In this regard, the authors, analyzing the literature data, conclude that the development and improvement of diagnostic and treatment algorithms and new methods of forming interintestinal anastomoses, which simultaneously model the ileocecal closure apparatus, is far from its final resolution and requires further research in this direction.

Keywords Right hemicolonectomy, Ileostomy, Ileotransverse anastomosis, Anastomotic leak, Intussusception anastomosis

1. Introduction

With intestinal stoma is increasing worldwide due to the continued growth of intestinal diseases [45,51]. In the Russian Federation alone, their number reaches 180 thousand people [40]. According to summary statistics provided by a number of researchers, the structure of diseases that cause the formation of intestinal stoma is represented by colon cancer - 74.7%, trauma - 11.7%, complications of benign intestinal tumors - 6.5% and inflammatory diseases - 7.1% [25,43,62].

According to Akhmetzyanov F.Sh. et al. [4] and Amineva E.M. et al. [3], in these conditions in 50-70% there is a need for emergency surgery, and the resulting complications cause high mortality [43].

Elimination of the stoma and implementation of the recovery stage takes a leading place in the surgical rehabilitation of this group of patients [12,25].

The problem of the high incidence of failure of the formed interintestinal anastomosis remains alarming, reaching up to 20-30% [48] with the development of death in 6-35% of cases [19,53] and has no tendency to decrease [18].

Specialists involved in intestinal surgery know that ostomy patients often suffer from ostomy complications, are disabled, self-isolate from people around them, have a decreased social status and are in a state of neuropsychological stress. This circumstance forces patients to insist on the speedy elimination of the ileostomy and the restorative stage of the operation. However, the implementation of the recovery stage is traditionally considered the most difficult and often poses the risk of developing life-threatening complications and mortality [15,50,58].

Currently, the development and implementation of new methods for forming intestinal anastomoses using double-row and single-row intestinal suture techniques continues everywhere, and their comparative assessment is also carried out. All of them are aimed at improving the results of surgical treatment, where the priority is to eliminate the failure of the sutures of the interintestinal anastomosis, as a life-threatening complication with the development of peritonitis and often leading to death. However, until now, researchers have not come to a consensus on the advantage of a certain method, as well as the suture technique [2,19,52]. At the same time, the frequency of postoperative complications remains high [39], which worsen the surgical rehabilitation of patients with ileostomies, which reduces the quality of life and social adaptation [17,44].

Surgical rehabilitation of patients who have undergone various surgical interventions is one of the priorities of modern surgery. There are a large number of modifications and options for interintestinal anastomoses. According to the means used, manual and mechanical seams are distinguished; according to the number of rows of seams - single-row and multi-row; according to the method of formation - “end to end”, which can be circular and ¾ according to Melnikov,

Received: May 3, 2024; Accepted: May 20, 2024; Published: May 21, 2024
Published online at http://journal.sapub.org/ajmms

"side-to-side", "end-to-side"; in relation to the direction of the intestinal stream - isoperistaltic and antiperistaltic. With intra-abdominal location of ileo-ileoanastomosis, the complication rate reaches 30% with mortality in the range of 0.1-4.0% [61]. The stapler method of forming an anastomosis leads to a reduction in blood flow by more than 40%, while with the manual method this figure does not exceed 10%. The negative aspects also include the increased cost of intervention due to the use of two or more cassettes [60]. It should be noted that a large number of clinical and experimental studies have been devoted to the study of the characteristics and features of anastomoses [30].

For malignant lesions of the colon and some severe inflammatory lesions of the ileocecal region, the main method of treatment is right-sided hemicolectomy. At the same time, leading importance is attached to the formation of an optimal small-colic anastomosis, which should be simple in technique, hermetic and physiological [15,41].

Ileotransverse anastomosis (ITA) is one of the most complex types of interintestinal anastomosis. The difficulties that arise when performing ITA between are caused not only by the connection of intestines of different function and diameter, but also by the desire to compensate for the function of the ileocecal angle. More Kaspar Bauginius, who was the first to describe the anatomical formation at the border of the ileum and cecum in 1579, attached great functional significance to it. The valve of Bauhin, being a sphincter and valve, prevents regurgitation of the contents of the large intestine into the small intestine [11,22,28].

A number of studies have clarified that the Bauginian valve plays the role of a mechanical barrier and sphincter, which prevents the return of intestinal contents. Removal of the ileocecal angle with the subsequent formation of ITA leads to a characteristic symptom complex. At the same time, due to its anatomical features, the ileocecal region is the place where various pathological processes and functional disorders are most often localized. In this regard, surgeons are often forced to perform operations that involve removal of the ileocecal region along with the bauhinium valve [29].

It is noted that the failure of the sutures of intussusception anastomoses develops less frequently, due to an increase in the zone of serous juxtaposition, than when forming interintestinal anastomoses using traditional methods [47]. When forming interintestinal anastomoses after right-sided hemicolectomy, careful adaptation of the mucous membranes, wide comparison of the serous membranes and prevention of possible regurgitation are important [13].

According to Popov V.M. [38], X-ray studies have shown that regurgitation, observed due to insufficiency of the bauginian valve or its absence due to resection without formation of the valve, leads to long-term digestive disorders. Thus, inflammatory phenomena may develop in the terminal part of the small intestine, as well as complications such as diarrhea, metabolic disorders, anemia, flatulence, and profuse diarrhea. Significant disturbances in protein, carbohydrate and mineral metabolism may also occur [22].

When forming small-colic anastomoses, in addition to the need to preserve the passage through the anastomosis and its mechanical and biological consistency, it is necessary to simulate the lost valve function of the ileocecal apparatus [8]. The basic elements and principles of operation of this device are now quite well studied [8]. However, in practice, to date, end-to-end and longitudinal lateral small-colic anastomoses that do not have valve properties are most often used. The failure rate of such small-colic anastomoses is 2.6-15.5%, and mortality varies from 2.9% to 13.3%, reaching 50% in peritonitis [1]. The absence of valve properties in the anastomosis leads to the reflux of colonic contents into the small intestine and provokes the development of reflux enteritis, intestinal dysbiosis [33], malabsorption syndrome, and excess colonization of the small intestine [5]. The quality of life of surviving patients in the long-term period remains low [37].

In general, a number of studies have been devoted to small-colic anastomoses with the creation of a valve apparatus function similar to the ileocecal one [8,41]. However, as experience shows, they are not without some disadvantages [1]. The best ligature method for forming an intestinal suture is considered to be a single-row suture. Manual single-row suture, with the correct technique, gives a lower percentage of complications (2.0%) compared to double-row sutures (5.3%) [16]. A widespread option for a double-row suture in surgery is considered to be the Mateshuk -Pirogov and Mateshuk-Lambert method. However, even the second row of sutures does not guarantee a violation of the tightness of the anastomosis, which is observed within 12.7% in planned surgery and 25% in emergency surgery [32]. In this regard, various protection methods are being developed [16].

Radical surgical treatment of cancer of the right half of the colon, as a rule, ends with the formation of a primary ileotransverse anastomosis (ITA) [26]. Removal of the ileocecal section, which in its essence is a valve apparatus of absolute barrier action, regulating the portion of the contents of the small intestine into the large intestine and protecting the small intestine from the reflux of aggressive colonic contents saturated with bacterial flora, leads to serious disorders of the functions of the digestive tract: the development of secondary enteritis, dysbacteriosis, the occurrence of syndromes of excessive colonization of the small intestine and malabsorption [5]. Prevention of these disorders lies in the method of formation of the ITA, which in functional terms should correspond to the ileocecal apparatus.

The accumulation of experience in performing right-sided hemicolonectomy has shown the need to search for options for small-colon anastomoses in connection with the loss of the ileocecal valve. Functional results after this operation largely depend on the type of ileotransverse anastomosis formed [8].

In terms of its structure, the ileocecal region represents a single anatomical formation in which all its components are in strict interrelation [8]. This is an important reflexogenic zone that provides a functional relationship between the

stomach, small and large intestines, as well as the liver and pancreas. In the terminal section of the small intestine, the processes of digestion and absorption of fats, proteins, carbohydrates, most vitamins and a number of macro- and microelements are mainly completed. In the initial part of the colon, absorption of water and electrolytes dissolved in it occurs especially intensively. The microflora of the colon partially synthesizes the vitamins necessary for the body. The function of the ileocecal region is multifaceted; it is one of the regulators of the gastrointestinal tract [8,10].

The variety of methods for anastomosing the small intestine with the large intestine indicates surgeons' dissatisfaction with the results of these operations. Many patients who have had right-sided hemicolectomy (HGE) is accompanied by dyspeptic symptoms, which causes significant inconvenience and reduces the quality of life. Loss of function of the ileocecal region and the right half of the colon leads to various digestive disorders. Therefore, small-colic anastomoses should replenish the functions of the resected bauhinium valve and improve long-term results [9,56].

Currently, the attention of surgeons is attracted by invagination ileotransverse anastomosis, which is reflected in the development of sphincter-preserving approaches to treatment [36,56]. One of the most well-known methods of such an anastomosis is intussusception anastomosis by Ya.D. Vitebsky [14].

The introduction of intussusception anastomoses in various modifications into surgical practice has improved functional results. At the same time, a number of controversial, insufficiently resolved and controversial issues remain, which raises an urgent need to develop new methods that would contribute to the correction of these disorders [20,41].

Single-row method is considered highly functional reservoir -valvular ileotransverse anastomosis (ITA) of the “end to side” type [14]. However, in this case, conditions for decompression of the afferent loops of the intestine are not created; degenerative processes take place in the “proboscis” and disturbances in the propagation of the action potential along the length of the intestine [27].

Proponents of the formation of end-to-end ITAs justify their choice by the reduction in length and the absence of intestinal stumps, which, accordingly, reduces the likelihood of suture failure. However, technical problems also arise. To eliminate the difference in intestinal diameter, a number of surgeons prefer corrugated sutures [23]. At the same time, in the area of the terminal anastomosis, intestinal motility does not change, neuro- and myogenic transmission of impulses through the anastomosis are preserved [54].

Despite the fact that side-to-side ITAs are considered technically simple by most surgeons, they are considered the worst in terms of both reliability and functional quality. However, this type of anastomosis is still widely used in clinical practice. And when removing the end enterostomy, the anastomosis can only be formed as a “side to side” type [21].

In any ligature suture, injury to the intestinal wall occurs, penetration of microflora through ligature channels, intertissue gaps, which can lead to the development of an acute inflammatory reaction, and even biologically active surgical threads impregnated with antibiotics do not guarantee against complications, especially in urgent surgery [21,35].

The use of a mechanical suture led to a 1.5-2 times reduction in the incidence of postoperative complications compared to manual suture. At the same time, a mechanical suture, compared with manual sutures, reduces the risk of developing small intestinal obstruction by 44% [50,59].

Along with the undeniable advantages, a mechanical suture also has significant disadvantages associated with the need to create an additional hole for inserting a stapler, the appearance of a rigid circular ring, prolonged removal of metal staples, crushing of the submucosal and muscular layers, and infection of the thickness of the intestinal wall [2,42].

All this encourages surgeons to conduct research aimed at identifying possible risk factors for anastomotic leakage (AL) and develop measures to prevent this complication. Historically, surgeons used the technique of stoma formation to reduce the likelihood of developing anastomotic leaks, however, at present, there is no clear position on this issue [46,55]. The volume of intraoperative blood loss also turned out to be an independent risk factor for the development of AN [55].

It should be noted that no significant difference in the incidence of leakage between hardware and manual anastomoses was obtained. Despite the optimistic first results, modern compression devices have not become widespread, and the company that manufactured them was closed [24].

In a randomized controlled trial, a significant increase in the incidence of anastomotic leakage was found in the group with end-to-end anastomosis, when compared with side -to-end anastomoses [57]. There are surgeons who, after right-sided hemicolectomy, prefer the formation of a U-shaped (T-shaped) small-colic anastomosis [32,42].

The complexity of the problem lies in the anatomical and physiological characteristics of the anastomosed loops of the small and large intestine [34]. To this day, some surgeons form a small colonic anastomosis after performing PGCE [49]. Others, at the first stage, ileostomy is performed, and at the second stage, PGCE is performed with anastomosis [32,42].

So, the formation of an ileostomy poses a number of vital questions for the patient regarding competent care of the stoma, prevention of complications on its part, rational employment, and new relationships in the family. All this emphasizes not only the medical, but also the social significance of the problem. Intussusception anastomoses are in many ways superior to conventional small-colic anastomoses in their reliability and asepticity [7].

2. Conclusions

Despite the more than 100-year history of ileostomy and a fairly wide range of indications for performing this operation, a number of important aspects of the physiology, structure and function of ileostomy have not been sufficiently studied.

Scientific research by surgeons in this area is, as a rule, devoted to the treatment of patients with a certain nosological form of the disease (diffuse polyposis coli, nonspecific ulcerative colitis, Crohn's disease, etc.). Only a few authors partially address the problem of surgical rehabilitation of non-leostomy patients. At the same time, the arsenal of restorative and RVO aimed at eliminating ileostomy is constantly expanding. Since none of the known methods of forming ITA anastomoses completely satisfies surgeons, which is especially important in patients with ileostomy after urgent bowel diseases.

So, despite the enormous progress in intestinal surgery, the development and improvement of therapeutic and diagnostic algorithms and new methods for the formation of interintestinal anastomoses, which simultaneously model the ileocecal closure apparatus, is far from its final resolution. Resolving these issues is a priority, which was the reason for conducting this study.

REFERENCES

[1] Agaev E.K. Failure of intestinal anastomosis sutures in patients after emergency and urgent resection of the intestine // Surgery. Journal named after N.I. Pirogov. – 2012. -No. 1. -S. 34-37.

[2] Aliev F.Sh., V.F. Aliev, A.Ya. Ilkanich et al. Comparative characteristics of colorectal anastomoses during reconstructive operations // Coloproctology. –2019. –T.18, No. 3(69). -WITH. 78.

[3] Aminova E.M. Surgical rehabilitation of patients with intestinal stoma // Abstract.... diss. Kan. Honey. Sci. -U fa. -2022.

[4] Akhmetzyanov F.Sh., Valiev N.A., Egorov V.I. and others. Tactics of emergency surgical treatment for obstructive intestinal obstruction caused by colorectal cancer // Russian Journal of Gastroenterology, Hepatology, Coloproctology. –2018. –T.28, No. 1. -WITH. 99-106.

[5] Belousova EA Bacterial overgrowth syndrome in the small intestine in the light of the general concept of intestinal dysbiosis: a look at the problem // Farmateka. 2009. No. 2. P. 8-16.

[6] Boyko S.S., Chebykina V.I., Shlepotina N.M. Infections in surgery: the evolution of ideas from the times of NI Pirogov to the present // Bulletin of the Council of Young Scientists and Specialists of the Chelyabinsk Region. – 2016. – T. 2, No. 4 (15). – P. 4-6.

[7] Vitebsky Ya.D. Fundamentals of valvular gastroenterology // Chelyabinsk: Yuzh. - Ural. to n. publishing house, -1994. - 304 s.

[8] Vitebsky Ya.D. Essays on surgery of the ileocecal intestine // M: Medicine, 1973. - 112 p.

[9] Vorobyov G.I., Shelygin Yu.A., Frolov S.A., Shakhmatov D.G. Laparoscopic operations with manual assistance in coloproctology // Endoscopic surgery. - 2009. - T. 15. - No. 5. - P. 51-56.

[10] Ganichkin A. Colon cancer //M.-L.: Medicine, 1970.

[11] Ganichkin A.M. Intussusception anastomosis of the small intestine with the large intestine: Dis. Ph.D. honey. Sciences // Dnepropetr. honey and n-t. Dnepropetrovsk -1950.

[12] Gibert B.K., Matveev N.A., Borodin N.A. and others. The importance of the anatomy of the stomal and excluded sections of the colon after obstructive resection during reconstructive operations // Bulletin of Surgery. 2018. T.177, No. 2, p.34-38.

[13] Gilevich Yu.S., Onopriev V.I. Anastomoses in abdominal surgery //Stavropol book. publishing house, 1978. 376 p.

[14] Goncharov A.L., Malgina N.V., Razbirin D.V. Formation of end-to-side ileotransverse anastomosis using circular and linear staplers //Mat. VII Int. Conf. "RSHKH", Moscow 2013. - P. 182.

[15] Gorbunova A.S., Kuzmichev D.V., Mamedli 3.3. etc. Surgical aspects of intestinal formation stoma in oncology. Literature review //Pelvic surgery and oncology. -2023; 13(2): 54-9.

[16] Gorsky V.A., Volenko A.V., Titkov B.E., Agapov M.A. The use of plastic properties of an adhesive substance during intestinal operations // Materials of the IX All-Russian Conference of General Surgeons with International. participation. Yaroslavl, 2016. - pp. 197-198.

[17] Grigorova A.N., Vladimirova O.V., Minaev S.V. and others. The role of morphofunctional interactions of cellular structures of connective tissue in the pathogenesis of pathological scar formation in children // Forcipe. – 2020. – T. 3, No. S2. – pp. 45-48.

[18] Groshilin V.S., Martynov D.V., Naboka Yu.L. and others. Correction of dysbiotic disorders in diversion proctitis: possibilities of intraluminal sanitation and prevention of complications after reconstructive operations // Russian Journal of Gastroenterology, Hepatology, Coloproctology. – 2019. – T. 29, No. 6. – P. 36-48.

[19] Darwin V.V., Krasnov E.A., Dobalyuk A.V. and others. Anastomotic leakage during operations for cancer of the sigmoid and rectum: incidence, ways to improve results // Coloproctology. – 2018. – No. 2S (64). – P. 39.

[20] Dibina T.V., Koshel A.P. Ultrasound diagnosis of pathology of the ileocecal region // Conference materials. Ultrasound and functional diagnostics. -2015. No. 4S. P.52a.

[21] Dibirov M.D., Isaev A.I., Dzhadzhiev A.B. Minimally invasive nickelide -titanium anastomoses for widespread peritonitis // Mat. IX All-Russian. Conf. general surgeons with international participation. Yaroslavl, 2016. - P.230-232.

[22] Dyskin EL. On the morphological characteristics of the ileocecal section of the human gastrointestinal tract // Vestn. surgery named after Grekova. 1956. -T.77, No. 8. - P. 61-75.

[23] Zhebrovsky V.V., Ivanov A.G., Chemodanov E.V. Treatment of patients with acute intestinal tumor origin // Current problems of modern surgery: proceedings of the international surgical congress. - M., 2001. - P. 118.

[24] Zhurkovsky V.I. Comparison of graft formation methods to restore intestinal continuity after total mesorectumectomy // abstract. Diss....cand. honey n auk, 2019. M., 2019. 24 p.

[25] Ilkanich A.Ya., Darwin V.V., Krasnov E.A. and others. The

choice of restorative intervention in patients with colonic stomas // Coloproctology. – 2016. – No. 1 (55). – P. 110.

[26] Kaminskaya Yu.A., Mizgirev D.V. Right hemicolectomy with and without unloading colostomy - comparative results // Bulletin of the Northern State Medical University. 2014. No. 1. P. 26-27.

[27] Karyakin A.M., Ivanov M.A., Aliev S.A. End-to-end anastomosis as a method of choice for right-sided hemicolectomy // Bulletin of surgery. - 1998. - No. 1. - P.36-38.

[28] Kimbarovsky M.A. A new method of anastomosis of the small intestine with the large intestine // Surgery. 1950. - No. 9. - P.26-28.

[29] Kuchmasov S.V. Experimental and clinical assessment of intussusception of small intestinal anastomosis " end to end " // Author's abstract. Diss....cand. honey n auk. -2002.

[30] Lantsov I.S., Moskalev A.I., Sushkov O.I. Elimination of double-barreled ileostomy (literature review). FSBI " GNTsK im. A.N. Ryzhikh » Ministry of Health of Russia, Moscow // Coloproctology. -2018. -No. 2 (64). –P.102-109.

[31] Martynov V.L., Semenov A.G., Avdeev A.S. and others. Creation of an areflux small-colic anastomosis // Materials of the scientific and practical conference of Russian doctors with international participation, dedicated to the 60th anniversary of the Department of General Surgery of Tver State Medical University / Tver, 2015. P.62.

[32] Martynov V.L., Semenov A.G., Avdeev A.S. and others. Creation of an areflux small-colic anastomosis // Materials of the scientific and practical conference of Russian doctors with international participation, dedicated to the 60th anniversary of the Department of General Surgery of Tver State Medical University / Tver, 2015. P.62.

[33] Merdenova L.A., Khetagurova L.G., Kasokhov T.B. Intestinal dysbiosis //Vladikavkaz Medical and Biological Bulletin. -2012. -T. XIV.-№22. -WITH. 151-160.

[34] Mikhailova V.M., Ignatiev V.G., Semenov D.N., Kholtosunov I.A. The problem of treating acute intestinal ischemia // Scientific and practical journal Coloproctology No. 1 (51) (appendix). Moscow -2015. -P.103.

[35] Mokhov E.M., Shkurenko S.I., Monakhova E.V. and others. Study of the antimicrobial properties of new types of biologically active surgical suture materials IN VITRO // Materials of the scientific and practical conference of Russian doctors with international participation. - Believe it, 2015 p.124.

[36] Nishanov M.F., Botirov Zh.A., Botirov A.K., Abdullazhanov B.R., Bozorov N.E., Egamov S.Sh., Khozhimetov D.Sh. Intussusception method Bell anastomosis // Ministry of Innovation RUz. Rasmiy ahborotnoma 2021; 3, p.8 IAP 2021 0039.

[37] Nishanov F.N., Batirov A.K., Abdulazhanov B.R. etc. Long-term results of intussusception ileotransversoanastomosis // Bulletin of surgery named after. I.I. Grekova. - 2011. - T. 170. - No. 1. - P. 58-60.

[38] Popov V.M., Makhov G.A. Reconstruction of ileocecal anastomosis // Vestn. surgery named after Grekova. 1965. - T.94, No. 4. - P.92-94.

[39] Selitrenikov V.S., Risman B.V. Epidemiology of postoperative infectious complications in a surgical clinic // News of the Russian Military Medical Academy. –2019. -T. 2, no. S1. – pp. 148-154.

[40] Sertakova O.V., Reshetov D.N., Dudin M.N., Golubeva M.Yu. Prevalence of cancer in various population groups in Russia and the world // Bulletin of the All-Russian Society of Specialists in Medical and Social Expertise, Rehabilitation and Rehabilitation Industry. – 2019. – No. 1. – P. 33-46.

[41] Spirev V.V. Development and application of compression small-colic anastomoses in colon surgery // Author's abstract. dis....doc. honey. Sci. -T Yumen, 2009 – 219 p.

[42] Starokon P.M., Maksimov I.B., Asanov O.N. and others // Materials of the IX All-Russia. conference of general surgeons with int. participation. Yaroslavl, 2016 P.192-195.

[43] Timerbulatov V.M., Timerbulatov M.V. Classification of surgical complications //Surgery. –2018. –No. 9. –S. 61-65.

[44] Timerbulatov M.V., Ibatullin A.A., Gainutdinov F.M. and others. Modification of the method of closing the stomal wound after reconstructive operations // Coloproctology. –2019. -T. 18, No. 3. –S. 98-99.

[45] Fedorov E.V., Savushkin A.V., Khachaturova E.A. and others. Forum of Anesthesiologists and Reanimatologists of Russia (FARR–2019) – M., 2019. – 318 p.

[46] Tsarkov P.V., Tulina I.A., Tsugulya P.B. and others. Choosing a method for forming a preventive intestinal stoma after rectal resection: protocol of a prospective multicenter randomized clinical trial // Russian Journal of Gastroenterology, Hepatology, Coloproctology. -2017; 27(2): 102-110.

[47] Tsatsanidi K.N. Modification of invaginative esophageal-intestinal and esophageal-gastric anastomosis after gastrectomy and resection of the cardia // Abstract. dis....cand. honey. Sci. Scientific research institute clinical. and experiment. surgery. M., 1965. - 15 p.

[48] Shelygin Yu. A. Clinical recommendations. Coloproctology / ed. Yu. A. Shelygina. – M.: GEOTAR-Media, 2017. – 528 p.

[49] Shelygin Yu.A. Coloproctology // Clinical recommendations. M.: GEOTAR-Media, 2015. pp. 491-518.

[50] Shelygin Yu.A., Nagudov M.A., Ponomarenko A.A. and others. Meta-analysis of methods for treating colorectal anastomotic leakage // Surgery. Journal named after N.I. Pirogov. – 2018. – No. 8-2. – P. 30-41.

[51] Yuldash.ev G.Yu., Ruzmetov B.A., Masharipov P. Surgical tactics for colon cancer complicated by obstructive intestinal obstruction // Electronic journal Coloproctology and endoscopic surgery in Uzbekistan. 2022, Issue No. 1. (July). -WITH. 73-74.

[52] Amara. Sh., Adamson RT, Lew I. Clinical response at Day 3 of therapy and economic outcomes in hospitalized patients with acute bacterial skin and skin structure infection // Curr. Med. Res. Opinion. – 2013. – Vol. 29, No. 7. – P. 869-877.

[53] Bona S., Molteni M., Rosati R. Et al. Introducing an enhanced recovery after surgery program in colorectal surgery: A single center experience //World J. Gastroenterol. – 2014. – No. 20 (46). – P. 17578-87.

[54] Cancer Research UK. Bowel cancer statistics; 2011. Available from: http://info.cancerresearchuk.org/cancerstats/keyfacts/bowel-cancer/.

[55] Cong ZJ at all. Diverting stoma with anterior resection for rectal cancer: Does it reduce overall anastomotic leakage and leaks requiring laparotomy? // International J. of Clinical and Experimental Medicine. 2015. N8 (8). P. 1345–1355.

[56] Fazeli MS, Keramati MR Rectal cancer: a review. //Medical journal of the Islamic Republic of Iran. 2015. T. 29. 171 p.

[57] Floodeen H., Lindgren R., Matthiessen P. When are defunctioning stomas in rectal cancer surgery really reversed? Results from a population–based single center experience // Scand. J. Surg. – 2013. – Vol. 102, No. 4. – P. 246-250.

[58] Giuliani G., Formisano G., Milone M. Robotic preliminary experience, colorectal //Dis. 2020.

[59] Globocan 2012: Estimated Cancer Incidence, Mortality and Prevalence Worldwide in 2012, WHO., IARC, http://globocan.iarc.fr., 02.02.2014.

[60] Kimura M., Kuwabara Y., Taniwaki S. et al. Improving the side-to-side stapled anastomosis: comparison of staplers for robust crotch formation //Surg. Obes. Relat. Dis. – 2018. – v. 14. – No. 1. – p. 16-21.

[61] Luglio G., Terracciano F., Giglio MC et al. Ileostomy reversal with handsewn techniques. Short-term outcomes in a teaching hospital // Int. J. Color. Dis. – 2017. –v. 32. –No. 1. – p. 113-118.

[62] Vonk-Klassen SM, HM de Vocht, MEM den Ouden et al. Ostomy -related problems and their impact on the quality of life of colorectal cancer ostomates : a systematic review // Qual. Life Res. – 2016. –Vol. 25. – P. 125-133.