

The Value of Preoperative Colonoscopy Prior to Abdominal Operations: An In-Depth Analysis and Case Illustrations

AmirHossein Latif^{1,2,*}, Fezzeh Elyasinia^{1,2}, HamidReza Soltani², Aidin Yaghoobi Notash^{1,3}, Amir Monshizadeh², AhmadReza Soroush^{1,2} and Abdolhamid Chavoshi Khamneh⁴

¹Department of General Surgery, Dr. Shariati Hospital, Tehran University of Medical Sciences, Tehran, Iran

²Department of Minimally Invasive Surgery, Tehran University of Medical Sciences, Tehran, Iran

³Department of Colorectal Surgery, Tehran University of Medical Sciences, Tehran, Iran

⁴Department of General Surgery, TeMS.C., Islamic Azad University, Tehran, Iran

***Corresponding author:** AmirHossein Latif, Department of General Surgery, Dr. Shariati Hospital Jalal-e-Al-e-Ahmad Expressway, 1411713135, Tehran, Iran

Received: February 27, 2026

Published: May 11, 2026

Abstract

Colonoscopy before surgery acts as a vital tool for uncovering hidden colorectal issues, such as tumors, growths, and inflammatory disorders, which can profoundly affect operative decisions and patient results in those facing abdominal interventions. This detailed analysis compiles data from research on the occurrence of concurrent colorectal abnormalities in individuals scheduled for non-colorectal abdominal operations, including treatments for stomach cancer, throat cancer, aortic enlargements, ovarian masses, weight-loss surgeries, and routine procedures like hernia corrections. Notable results show increased incidences of colorectal tumors in these groups, frequently resulting in adjusted surgical approaches and fewer complications during and after surgery. We highlight the twofold purpose of standard screening colonoscopy in symptom-free groups and the vital importance of preoperative evaluation in candidates lacking recent checks, even for less invasive abdominal work. We also present four representative examples to demonstrate the real-world effects of overlooked colorectal problems. Suggestions promote standard or risk-based preoperative colonoscopy to improve surgical preparation, especially in vulnerable populations.

Keywords: Preoperative colonoscopy; Abdominal surgery; Concurrent colorectal tumors; Standard screening; Weight-loss surgery; Hernia correction; Case illustrations

Introduction

Abdominal operations cover a wide array of procedures, including those addressing stomach, throat, blood vessel, reproductive, obesity-related, and hernia-related conditions. Although the main emphasis is on the specific issue at hand, coexisting colorectal problems can pose major threats, such as unexpected findings during surgery that demand additional removals or after-surgery issues like connection failures worsened by unrecognized colon blood flow problems [1]. The need for colonoscopy prior to surgery arises from its ability to spot silent Colorectal Cancers (CRC), precancerous growths, or chronic gut inflammation, which might require combined treatment or changes to the surgical blueprint [2]. For instance, among patients with stomach adenocarcinoma, the rate of accompanying CRC is between 3% and 5%, calling for careful monitoring [3].

Past data indicates that ignored cancerous growths during or following abdominal procedures, such as gallbladder removal

via keyhole surgery, can lead to poor results, stressing the importance of comprehensive pre-surgery evaluations [4]. Recommendations from organizations like the World Society of Emergency Surgery (WSES) stress the benefits of pre-surgery assessments in optimizing removal and reconnection methods for urgent colorectal cases [5]. This analysis thoroughly examines research supporting preoperative colonoscopy in various abdominal surgery settings and incorporates case examples to show its practical relevance. It also pushes for incorporating principles of routine colonoscopy screening, applying them even to minor abdominal procedures without prior checks, to reduce dangers from hidden issues.

Standard colonoscopy screening is recognized as a key element in preventing CRC, with directives advising it for typical-risk adults from age 45 onward [6]. In surgical scenarios, this extends to pre-operation phases, where missing recent screenings heightens the chance of concurrent discoveries that could shift surgical methods or require phased interventions.

This descriptive review combines with case examples. Sources were gathered from research on preoperative colonoscopy in abdominal surgery situations (e.g., stomach, throat, blood vessel, reproductive, obesity, hernia). Investigations into rates, advantages, or results of preoperative colonoscopy in patients for non-colorectal abdominal surgeries were evaluated. The case examples come from shared clinical information, with identities removed. Ethical aspects involve patient approval for sharing where needed, and all examples are de-identified.

Case Reports

Following CARE standards, these examples show the clinical effects of preoperative colonoscopy in candidates for abdominal surgery.

Case 1: A 53-year-old female with a background of breast cancer and no family record of colon cancer came forward as a candidate for weight-loss surgery. She underwent preoperative colonoscopy, which identified a tumor in the sigmoid area. This led to cancer assessment and revisions to the surgical plan, preventing possible issues after surgery and providing thorough treatment.

Case 2: A 48-year-old female with a previous full abdominal uterus removal for non-cancerous reasons was sent for repair of an incisional hernia. Colonoscopy before surgery identified cancer in the descending colon. As a result, the operative strategy was altered to focus first on partial colon removal before addressing the hernia, allowing for sequential care and better long-term expectations.

Case 3: A 58-year-old male directed for planned inguinal hernia repair had a smooth procedure without preoperative colonoscopy. Six weeks later, he required hospitalization for intestinal blockage caused by a sizable rectal cancer not spotted beforehand. Urgent action was necessary, illustrating the hazards of skipping screening and the risk of sudden problems in unchecked individuals.

Case 4: A 67-year-old male had a routine inguinal hernia repair without issues or preoperative colonoscopy. Eight months afterward, he showed up with spread colon cancer not identified earlier. This example highlights the chance for quick disease advancement and the essential role of prior colonoscopy, even for simple surgeries, to catch hidden cancers soon.

These examples reveal the range of results from undetected colorectal issues, underscoring the importance of preoperative colonoscopy even in straightforward surgeries without prior screening.

Discussion

Occurrence of Concurrent Colorectal Issues in Non-Colorectal Abdominal Surgery

Various studies indicate a higher frequency of colorectal tumors in individuals planned for abdominal operations not related to the colon or rectum. In groups with stomach cancer (GC), full colonoscopy before surgery reveals concurrent CRC in roughly 3.2%, with greater occurrences in men above 40 [2]. A backward-looking review of 1891 GC patients found 28.4% with accompanying colorectal tumors, supporting regular screening, especially in those with multiple stomach cancers, low blood counts, or tobacco use [7]. Similar groups confirm this, observing no added problems from joint procedures

[3]. The effectiveness of screening full colonoscopy in GC is shown by successful treatments for concurrent CRC without related deaths [8]. Further research stresses colonoscopy's role in spotting coexisting tumors in GC patients, with rates backing systematic checks [9].

For throat cancer requiring stomach repositioning for rebuilding, numerous facilities require preoperative colonoscopy to rule out colon issues that could harm the pathway [10]. Rates and factors for concurrent CRC in throat cancer patients support screening's value [11]. Elevated colon growth rates in throat adenocarcinoma patients reinforce this [12]. Rates and handling of colorectal tumors in surgically managed throat cancer patients strengthen the case for thorough checks [13].

In blood vessel areas, such as aortic enlargements (AAA) or limb artery issues (PAD), screening identifies colorectal tumors in notable amounts, enhancing pre-surgery reviews [14]. Result studies on intensive monitoring colonoscopy after burst AAA highlight grading of blood flow shortages [15]. Tissue exams after aortic surgery show frequent blood flow lesions, particularly in pre-surgery shock situations [16]. Colon blood flow shortages after AAA repair in the minimally invasive period are recorded, stressing pre-surgery checks [17].

Reproductive settings, especially large ovarian masses, might hide underlying CRC, with examples supporting colonoscopy screening to prevent overlooked identifications [18]. Preoperative colonoscopy in ovarian cancer influences surgical planning, with advanced stages more common in screened groups [19]. Standard upper/lower gut scoping has limited but possible worth in forecasting gut involvement [20]. Its role in ovarian cancer staging questions its need, but certain situations gain [21]. Virtual colon imaging for rectal-sigmoid involvement in initial ovarian cancer contributes to combined methods [22].

Candidates for weight-loss surgery gain likewise, with preoperative colonoscopy spotting irregularities in 48%, though many minor [23]. Clinical relevance in obese Asian patients is confirmed [24]. Pre-existing obesity connects to higher growth risks after weight-loss surgery [25]. Comparison studies on colorectal tumor rates in weight-loss candidates versus matched ages show raised risks [26].

Even for simple tasks like hernia repairs, CRC screening's need is discussed, with no heightened CRC risk warranting routine checks, yet matched studies propose evaluation in unchecked patients [27]. Results from contrast enemas before hernia repair or uterus removal are low, but current colonoscopy provides better detection [28]. Cases of appendix inward folding highlight risks of missed identifications in abdominal reviews [29].

Broad abdominal surgery settings, including concurrent tumors, reinforce screening's worth across reasons [30,31].

Advantages and Precision of Preoperative Colonoscopy

Colonoscopy outperforms CT for tumor placement in CRC, achieving 86.1% accuracy compared to 79.4%, particularly for rectal/sigmoid areas [32]. Pre-surgery staging via virtual scoping matches well with operative outcomes [33]. In blocked situations, post-support scoping allows complete review [34]. For womb lining cancer, standard imaging including colonoscopy rarely changes choices but helps select cases [35]. Detec-

tion precision of advanced imaging for concurrent advanced colorectal tumors in GC adds value [36].

Gut preparation quality is key; options like certain solutions impact ease and effectiveness [37]. Factors for poor preparation are reviewed, including past surgery [38]. Pre-surgery gut prep versus none before back surgery guides similar abdominal situations [39]. Gas use lessens discomfort, boosts growth spotting in screening [40].

In anal passage surgery, preoperative colonoscopy rules out inflammation-linked lesions, improving accuracy [41]. During-surgery scoping adds to incomplete pre-surgery reviews in full clearance scenarios [42].

Options like virtual colon imaging provide similar acceptance but varying precision in staging [22]. Advanced imaging aids staging, not main placement [36].

Hazards and Factors to Consider

Skipping colonoscopy risks missed identifications, as in appendix folding or post-aortic blood flow issues [29,16]. Co-conditions reduce urgent scoping value, but planned settings prove useful [43]. Gender and surgical background affect procedure challenge, as do patient elements in prep [44]. After-removal monitoring includes clearing scoping to confirm fullness [45]. Blood flow disease after AAA surgery points to factors for colon problems [46].

The collected research strongly supports preoperative colonoscopy in chosen abdominal surgery patients to reveal concurrent issues, possibly reshaping care and improving results [2,3,14,19,24]. High-risk groups include GC, AAA, ovarian masses, and weight-loss candidates, where concurrent CRC rates justify screening [7,14,19,24,47]. Difficulties involve gut prep in surgical candidates, eased by enhancements like optimized plans improving quality without unease [37]. For issues like twisting or blockage, prep before surgery shortens stays and issues [48].

Merging standard screening colonoscopy ideas is crucial. Wide-scale screening lowers CRC rates and deaths, yet surgical candidates without prior checks need pre-surgery review to match directives like those from major societies, suggesting colonoscopy every decade from age 45 [6]. This is particularly relevant for simple abdominal operations, like hernia repairs, where data shows no built-in CRC risk rise, but lack of prior screening increases hidden tumor dangers, as shown in our cases 3 and 4 [27]. Ignoring this can cause after-surgery urgencies, spread presentations, higher illness, deaths, and costs, as seen in the examples.

Advantages include changed surgical methods [e.g., same-time removals in GC or ovarian cases], lowered issues like blood flow shortages in vessel surgeries, and better survival via early spotting [8,11,15,19]. Precision edges over options like virtual imaging or advanced scans are clear, though combined methods may add in complex situations, such as staging in throat or ovarian cancers [22,36]. Hazards, including tears or poor prep, are low with right protocols, outweighed by findings across reasons [16].

Our case illustrations emphasize practical outcomes: cases 1 and 2 show pre-surgery spotting's preventive strength in weight-loss and hernia settings, while 3 and 4 highlight omis-

sion dangers in simple surgeries, pushing for broad screening merger for unchecked patients regardless of procedure scale. This matches wider data on concurrent tumors in GC and throat cancers, where routine colonoscopy shifts care in 3-28% of cases [9,13].

Drawbacks include backward biases in many studies; forward trials are essential to confirm cost-value and output [16]. Body makeup measures in weight-loss patients may predict growth risks but are under-studied in pre-surgery settings [25]. Uniform after-surgery protocols cut stays, suggesting similar pre-surgery improvements for gut prep and screening [48].

Cost-value reviews favor screening in high-rate groups, with wider use possibly preventing advanced CRC spots [49]. Future paths include creating risk layering models with genetics, co-conditions, demographics, and prior screening to customize preoperative colonoscopy, especially stressing its role in simple operations to close gaps in routine screening follow-up. In brief, the data emphasizes that preoperative colonoscopy, guided by standard screening ideas, is vital not just for major abdominal surgeries but crucially for minor ones in unchecked people, as late identifications can cause severe outcomes.

Conclusion

Preoperative colonoscopy is essential for identifying colorectal issues that complicate abdominal operations, with varied research supporting its use in high-rate scenarios. We suggest directives including risk layering for regular use, stressing even minor operations without prior checks. Forward studies on cost-effectiveness and combined imaging merger are needed to refine methods.

Declaration of interest: None

References

1. Becquemin JP, Majewski M, Fermani N, Marzelle J, Desgrandes P, Allaire E, et al. Colon ischemia following abdominal aortic aneurysm repair in the era of endovascular abdominal aortic repair. *J Vasc Surg*, 2008; 47(2): 258-263. doi: 10.1016/j.jvs.2007.10.001.
2. Yoo HM, Gweon TG, Seo HS, Shim JH, Oh SI, Choi MG, et al. Role of preoperative colonoscopy in patients with gastric cancer: a case control study of the prevalence of coexisting colorectal neoplasms. *Ann Surg Oncol*, 2013; 20(5): 1614-1622. doi: 10.1245/s10434-012-2737-0.
3. Kim HO, Hwang SI, Yoo CH, Kim H. Preoperative colonoscopy for patients with gastric adenocarcinoma. *J Gastroenterol Hepatol*, 2009; 24(11): 1740-1744. doi: 10.1111/j.1440-1746.2009.05922.x.
4. Ojima T, Iwahashi M, Nakamori M, Nakamura M, Katsuda M, Iida T, et al. Is preoperative colonoscopy necessary for patients undergoing gastric cancer surgery? *Ann Surg Oncol*, 2014; 21 Suppl 3: S379-384. doi: 10.1245/s10434-014-3580-2.
5. Willis MA, Toews I, Soltau SL, Kalff JC, Meerpohl JJ, Vilz TO. Preoperative combined mechanical and oral antibiotic bowel preparation for preventing complications in elective colorectal surgery. *Cochrane Database Syst Rev*, 2023; 2(2): CD014909. doi: 10.1002/14651858.CD014909.pub2.
6. Wolf AMD, Fonham ETH, Church TR, Flowers CR, Guerra CE, LaMonte SJ, et al. Colorectal cancer screening for average-risk adults: 2018 guideline update from the American Cancer Society. *CA Cancer J Clin*, 2018; 68(4): 250-281. doi: 10.3322/caac.21457.
7. Suzuki A, Koide N, Takeuchi D, Okumura M, Ishizone S, Suga T, et al. Prevalence of synchronous colorectal neoplasms in surgically treated gastric cancer patients and

- significance of screening colonoscopy. *Dig Endosc*, 2014; 26(3): 396-402. doi: 10.1111/den.12156.
8. Koseki Y, Hikage M, Terashima M, Notsu A, Furukawa K, Fujiya K, et al. The Effectiveness of Screening Total Colonoscopy for Preoperative Patients with Gastric Cancer. *Ann Surg Oncol*, 2024; 31(2): 762-771. doi: 10.1245/s10434-023-14538-5.
 9. Liu XR, Wen ZL, Liu F, Li ZW, Liu XY, Zhang W, et al. Colonoscopy plays an important role in detecting colorectal neoplasms in patients with gastric neoplasms. *World J Gastrointest Oncol*, 2024; 16(1): 133-143. doi: 10.4251/wjgo.v16.i1.133.
 10. Leers JM, Schröder W, Vivaldi C, Gutschow C, Schäfer H, Hölscher AH. Präoperative Koloskopie vor Magenochzug Ist sie eine notwendige Untersuchung vor Ösophagektomie und Rekonstruktion durch Mageninterponat? [Preoperative colonoscopy before esophagectomy and reconstruction with gastric interposition]. *Chirurg*, 2004; 75(12): 1210-1214. doi: 10.1007/s00104-004-0839-3.
 11. Yoshida N, Tamaoki Y, Baba Y, Sakamoto Y, Miyamoto Y, Iwatsuki M, et al. Incidence and risk factors of synchronous colorectal cancer in patients with esophageal cancer: an analysis of 480 consecutive colonoscopies before surgery. *Int J Clin Oncol*, 2016; 21(6): 1079-1084. doi: 10.1007/s10147-016-1015-8.
 12. Bollschweiler E, Schloesser T, Leers J, Vallböhrer D, Schäfer H, Hölscher AH. High prevalence of colonic polyps in white males with esophageal adenocarcinoma. *Dis Colon Rectum*, 2009; 52(2): 299-304. doi: 10.1007/DCR.0b013e318197d06f.
 13. Takeuchi D, Koide N, Komatsu D, Suzuki A, Miyagawa S. Prevalence and management of colorectal neoplasia in surgically treated esophageal cancer patients. *Int J Surg*, 2015; 17: 60-66. doi: 10.1016/j.ijso.2015.02.022.
 14. Yamamoto K, Miyata T, Nagawa H. The high prevalence of colorectal neoplasms in preoperative patients with abdominal aortic aneurysm or peripheral artery disease. *Eur J Vasc Endovasc Surg*, 2007; 33(4): 397-400. doi: 10.1016/j.ejvs.2006.10.020.
 15. Champagne BJ, Darling RC, Daneshmand M, Kreienberg PB, Lee EC, Mehta M, et al. Outcome of aggressive surveillance colonoscopy in ruptured abdominal aortic aneurysm. *J Vasc Surg*, 2004; 39(4): 792-796. doi: 10.1016/j.jvs.2003.12.002.
 16. Welch M, Baguneid MS, McMahon RF, Dodd PD, Fulford PE, Griffiths GD, et al. Histological study of colonic ischaemia after aortic surgery. *Br J Surg*, 1998; 85(8): 1095-1098. doi: 10.1046/j.1365-2168.1998.00791.x.
 17. Moghadamyeghaneh Z, Sgroi MD, Chen SL, Kabutey NK, Stamos MJ, Fujitani RM. Risk factors and outcomes of postoperative ischemic colitis in contemporary open and endovascular abdominal aortic aneurysm repair. *J Vasc Surg*, 2016; 63(4): 866-872. doi: 10.1016/j.jvs.2015.10.064.
 18. Maeda Y, Minagawa N, Shoji H, Kobayashi T, Yamamoto K. Giant ovarian tumor with colorectal cancer: suggestion concerning the need for colonoscopy screening in cases with large ovarian tumor-a report of three cases. *BMC Surg*, 2022; 22(1): 111. doi: 10.1186/s12893-022-01565-4.
 19. Endres H, Daneehl D, Fichtner-Feigl S, Huwer S, Jakob D, Jung L, et al. Preoperative colonoscopy in ovarian cancer: impact on surgical planning and outcomes: results from a retrospective, single-center study. *Arch Gynecol Obstet*, 2025; 312(3): 901-908. doi: 10.1007/s00404-025-08086-4.
 20. Liu G, Yan J, Long S, Liu Z, Gu H, Tu H, et al. Is Routine Gastroscopy/Colonoscopy Reasonable in Patients with Suspected Ovarian Cancer: A Retrospective Study. *Front Oncol*, 2021; 11: 608999. doi: 10.3389/fonc.2021.608999.
 21. Ravizza D, Fiori G, Trovato C, Maisonneuve P, Boccione L, Crosta C. Is colonoscopy a suitable investigation in the preoperative staging of ovarian cancer patients? *Dig Liver Dis*, 2005; 37(1): 57-61. doi: 10.1016/j.dld.2004.07.016.
 22. Kato K, Funatsu H, Suzuka K, Osaki T, Imamura A, Takano H, et al. CT colonography to detect rectosigmoid involvement in patients with primary ovarian cancer. *Eur J Gynaecol Oncol*, 2008; 29(5): 462-467.
 23. Vanek VW, Catania M, Triveri K, Woodruff RW Jr. Retrospective review of the preoperative biliary and gastrointestinal evaluation for gastric bypass surgery. *Surg Obes Relat Dis*, 2006; 2(1): 17-22. doi: 10.1016/j.soard.2005.10.004.
 24. Ohta M, Endo Y, Shiroshita H, Kawasaki T, Masuda T, Hirashita T, et al. Clinical significance of colonoscopy before laparoscopic bariatric/metabolic surgery in Japanese patients. *Surg Today*, 2024; 54(1): 80-85. doi: 10.1007/s00595-023-02706-9.
 25. Peleg N, Sapoznikov S, Levi Z, Dotan I, Shamah S. Incidence of Colorectal Adenomas After Bariatric Surgery: Pre-operative Super Morbid Obesity Is Independently Associated with Increased Risk. *Obes Surg*, 2021; 31(10): 4220-4226. doi: 10.1007/s11695-021-05567-8.
 26. Toydemir T, Özgen G, Çalikoğlu İ, Ersoy Ö, Yerdel MA. A Comparative Study Evaluating the Incidence of Colorectal Neoplasia(s) in Candidates for Bariatric Surgery by Screening Colonoscopy, 40-49 Versus 50-65 Years Old: a Preliminary Study. *Obes Surg*, 2019; 29(8): 2430-2435. doi: 10.1007/s11695-019-03819-2.
 27. Gerson LB, Triadafilopoulos G. Is colorectal cancer screening necessary in the preoperative assessment of inguinal herniorrhaphy? A case-control study. *Am J Gastroenterol*, 2001; 96(6): 1914-1917. doi: 10.1111/j.1572-0241.2001.03786.x.
 28. Cohen AM. Preoperative evaluation of patients with primary colorectal cancer. *Cancer*, 1992; 70(5 Suppl): 1328-1332. doi: 10.1002/1097-0142(19920901)70:3+<1328::aid-cncr2820701520>3.0.co;2-i.
 29. Ozuner G, Davidson P, Church J. Intussusception of the vermiform appendix: preoperative colonoscopic diagnosis of two cases and review of the literature. *Int J Colorectal Dis*, 2000; 15(3): 185-187. doi: 10.1007/s003840000225.
 30. Saito S, Hosoya Y, Togashi K, Kurashina K, Haruta H, Hyodo M, et al. Prevalence of synchronous colorectal neoplasms detected by colonoscopy in patients with gastric cancer. *Surg Today*, 2008; 38(1): 20-25. doi: 10.1007/s00595-007-3567-8.
 31. Kawai K, Sunami E, Tanaka J, Tanaka T, Kiyomatsu T, Nozawa H, et al. Synchronous colorectal malignancy and abdominal aortic aneurysm treated with endovascular aneurysm repair followed by laparoscopic colectomy. *Int Surg*, 2015; 100(4): 600-603. doi: 10.9738/INTSURGD-14-00111.1.
 32. Elnaggar M, Pratheepan P, Paramagurunathan B, Colemeadow J, Hussein B, Bashkirova V, et al. The Accuracy of Different Modalities Used for Preoperative Primary Tumour Localisation in Operated Colorectal Cancer Patients. *Cureus*, 2023; 15(3): e36737. doi: 10.7759/cureus.36737.
 33. Stagnitti A, Barchetti F, Barchetti G, Pasqualitto E, Sartori A, Glorioso M, et al. Preoperative staging of colorectal cancer using virtual colonoscopy: correlation with surgical results. *Eur Rev Med Pharmacol Sci*, 2015; 19(9): 1645-1651.
 34. Maida M, Grieme AD, Wu Y, Vitello A, Bonomo F, Maida CD, et al. Clinical updates in bowel preparation for colonoscopy. *Best Pract Res Clin Gastroenterol*, 2026; 80: 102046. doi: 10.1016/j.bpg.2025.102046.
 35. Sayin NC, Varol FG, Yüce MA, Kaplan P, Ahmet N, Süt N, et al. Do routine preoperative imaging techniques facilitate the operation in endometrial cancer? *Arch Gynecol Obstet*, 2009; 280(2): 211-215. doi: 10.1007/s00404-008-0893-z.
 36. Choi BW, Kim HW, Won KS, Song BI, Cho KB, Bae SU. Diagnostic accuracy of 18F-FDG PET/CT for detecting synchronous advanced colorectal neoplasia in patients with gastric cancer. *Medicine (Baltimore)*, 2016; 95(36): e4741. doi: 10.1097/MD.0000000000004741.
 37. Beran A, Aboursheid T, Ali AH, Albunni H, Mohamed MF, Vargas A, et al. Risk Factors for Inadequate Bowel Preparation in Colonoscopy: A Comprehensive Systematic Review and Meta-Analysis. *Am J Gastroenterol*, 2024; 119(12): 2389-2397. doi: 10.14309/ajg.0000000000003073.
 38. Aday U. Impact of prior different abdominal or pelvic surgery on cecal intubation time: a prospective observational study. *Acta Gastroenterol Belg*, 2020; 83(4): 541-548.

39. Olsen U, Brox JI, Bjørk IT. Preoperative bowel preparation versus no preparation before spinal surgery: A randomised clinical trial. *Int J Orthop Trauma Nurs*, 2016; 23: 3-13. doi: 10.1016/j.ijotn.2016.02.001.
40. Uraoka T, Kato J, Kuriyama M, Hori K, Ishikawa S, Harada K, et al. CO₂ insufflation for potentially difficult colonoscopies: efficacy when used by less experienced colonoscopists. *World J Gastroenterol*, 2009; 15(41): 5186-5192. doi: 10.3748/wjg.15.5186.
41. Xu S, Zhang L, Li Z, Wang K, Liu F, Cao B. Enhancing surgical precision: unveiling the impact of preoperative colonoscopy in anal fistula patients. *BMC Gastroenterol*, 2023; 23(1): 442. doi: 10.1186/s12876-023-03066-x.
42. Saclarides TJ, Wolff BG, Pemberton JH, Devine RM, Nivatvongs S, Dozois RR. Clean sweep of the colon. The use of intraoperative colonoscopy. *Dis Colon Rectum*, 1989; 32(10): 864-866. doi: 10.1007/BF02554557.
43. Cremonese C, Esch A, Gagniere C, Fugazza A, Mesli F, Levy M, et al. Patients' comorbidities reduce the clinical value of emergency colonoscopy: results of a retrospective cohort study. *Endosc Int Open*, 2017; 5(11): E1119-E1127. doi: 10.1055/s-0043-118001.
44. Paulson EC, Wirtalla C, Armstrong K, Mahmoud NN. Gender influences treatment and survival in colorectal cancer surgery. *Dis Colon Rectum*, 2009; 52(12): 1982-1991. doi: 10.1007/DCR.0b013e3181beb42a.
45. Kahi CJ, Boland CR, Dominitz JA, Giardiello FM, Johnson DA, Kaltenbach T, et al. United States Multi-Society Task Force on Colorectal Cancer. Colonoscopy Surveillance After Colorectal Cancer Resection: Recommendations of the US Multi-Society Task Force on Colorectal Cancer. *Gastroenterology*, 2016; 150(3): 758-768.e11. doi: 10.1053/j.gastro.2016.01.001.
46. Bast TJ, van der Biezen JJ, Scherpenisse J, Eikelboom BC. Ischaemic disease of the colon and rectum after surgery for abdominal aortic aneurysm: a prospective study of the incidence and risk factors. *Eur J Vasc Surg*, 1990; 4(3): 253-257. doi: 10.1016/s0950-821x(05)80203-8.
47. Koseki Y, Hikage M, Terashima M, Notsu A, Furukawa K, Fujiya K, et al. ASO Author Reflections: Significance of Colorectal Cancer Screening Through Preoperative Total Colonoscopy for Gastric Cancer. *Ann Surg Oncol*, 2024; 31(2): 810-811. doi: 10.1245/s10434-023-14641-7.
48. Schudrowitz N, Shahan CP, Moss T, Scarborough JE. Bowel Preparation Before Nonelective Sigmoidectomy for Sigmoid Volvulus: Highly Beneficial but Vastly Underused. *J Am Coll Surg*, 2023; 236(4): 649-655. doi: 10.1097/XCS.0000000000000593.
49. Sonnenberg A, Delcò F, Inadomi JM. Cost-effectiveness of colonoscopy in screening for colorectal cancer. *Ann Intern Med*, 2000; 133(8): 573-584. doi: 10.7326/0003-4819-133-8-200010170-00007.