

TREATMENT OF FISTULA IN ANO BY ADVANCEMENT FLAP. IS IT OUTDATED OR STILL MODERN APPROACH? (systematic literature review)

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**[Key words: fistula in ano, perianal fistulas, rectal advancement flap, anocutaneous flap, surgical treatment]**

PREVENTIVE STOMA AFTER LOW ANTERIOR RESECTION OF THE RECTUM: IMPROVING RESULTS OR BEING OVERCAUTIOUS? Polovinkin V.V., Porkhanov V.A., Khmelik S.V., Shcherba S.N., Igolkin A.N.

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*The incidence of clinically significant anastomotic leakage (AL) after low anterior resection (LAR) of the rectum varies from 3 % to 21 %, and the postoperative mortality associated with AL is 6,0-39,3 %. Preventive stoma (PS) formation is the most common method for the anastomosis protection.*

*AIM to assess the impact of PS on the AL rate and severity.*

*PATIENTS AND METHODS: It was prospective non-randomized cohort study. Results of LAR in 247 patients operated on mid- and low rectal cancer between 2003-2011 were analyzed. Of 247 patients 202 had PS and 45 had no PS.*

*RESULTS: AL developed in 34/247 (13,7%) cases. Univariate analysis revealed higher AL rate in patients without PS: 22,2 % (10/45) vs. 11,9 % (24/202),  $p=0,06$ ;  $r=-0,37$ , OR 2,1. Multiple logistic regression analysis demonstrated absence of PS as independent risk factor of AL ( $p=0,03$ ). The probability of AL associated peritonitis in patients without PS is 20 times higher than in patients with PS: 80 % (8/10) vs. 16,7 % (4/24); OR 20;  $p=0,001$ ;  $r=-0,67$ , the probability of lethal outcome is 7,5 times higher: 60 % (6/10) vs. 16,7 % (4/24); OR 7,5;  $p=0,01$ ;  $r=-0,75$ .*

*CONCLUSIONS: Formation of PS after LAR of the rectum reduces the AL rate, AL associated mortality and severity of complications.*

**[Key words: rectal cancer, anastomotic leak, preventive stoma]**

ANALYSIS OF SHORT AND LONG-TERM RESULTS OF RECONSTRUCTIVE-RESTORATIVE PHASE AFTER THE OPERATIONS LIKE HARTMANN

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*AIM. To improve short and long-term results of reconstructive surgery in patients with complicated colorectal cancer.*

*PATIENTS AND METHODS. Results of 63 patients who had Hartmann procedure for complicated colorectal cancer and thereafter undergone reconstructive surgery were analyzed.*

*RESULTS. Restorative surgery was performed at different time interval after the primary surgery. Sphincterometry was done in all patients with the aim to assess the functional integrity of the anal sphincter.*

*CONCLUSION. Suggested optimal period for reconstructive surgery is 1-3 months after the primary surgery.*

**[Key words: colorectal cancer, Hartmann operation, restorative surgery, sphincterometry]**

THE FEASIBILITY OF FAST TRACK PROTOCOL FOR ELDERLY PATIENTS WITH COLORECTAL CANCER

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*Fast track protocol is widely used in major colorectal surgery. It decreases operative stress, shortens hospital stay and reduces complications rate. However feasibility and safety of this approach is still controversial in patients older than 70 years.*

*The AIM of the study was to estimate the safety and effectiveness of fast track protocol in elderly patients with colorectal cancer.*

*MATERIALS AND METHODS. Prospective randomized study included 138 elective colorectal resection for cancer during period from 1.01.10 till 1.06.15. The main criteria for the patients selection were age over 70 years and diagnosis of colorectal cancer. 82 of these patients received perioperative treatment according to fast track protocol, other 56 had conventional perioperative care. Patients underwent following procedures: right hemicolectomy ( $n=7$ ), left hemicolectomy ( $n=12$ ), transverse colectomy ( $n=1$ ), sigmoidectomy ( $n=23$ ), abdomino-perineal excision ( $n=19$ ) and low anterior resection of rectum ( $n=76$ ). Following data were analyzed: duration of operation, intraoperative blood loss, time of first flatus and defecation, complications rates.*

*RESULTS. Mean age was  $77,4 \pm 8$  years. There were no differences in gender, co morbidities, body mass index, types of operations between groups. Duration of operations didn't differ significantly between 2 groups. Intraoperative blood loss was higher in conventional group. The time of first flatus and defecation were better in FT-group. There was no mortality in FT-group vs 1,8 % mortality in conventional group. Complications rate was lower in FT-group: wound infections 3,6 % vs 9 %, anastomotic leakage 4,8 % vs 9 %, ileus 1,2 vs 5,4 %, peritonitis 2,4 % vs 3,6 %, bowel obstruction caused by the adhesions 6 % vs 5,3 %. Reoperation rate was similar 4,8 % vs 3,6 %.*

*CONCLUSION. Fast track protocol in major elective colorectal surgery can be safely applied in elderly patients. The application of fast track protocol in elderly patients improves the restoration of bowel function and reduces the risk of postoperative complication.*

**[Key words: fast track, elderly patients, colorectal cancer]**

THE ANALYSIS OF LONG-TERM FUNCTIONAL OUTCOME OF THE ELECTIVE COLONIC RESECTION FOR DIVERTICULAR DISEASES

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*AIM. To evaluate long-term results of treatment of patients with the complicated diverticular diseases, after elective colonic resection.*

*PATIENTS. The outcome of 53 patient operated on pretreated recurrent diverticulitis were compared to results of treatment of 50 patients with diverticulitis complicated by perforation and treated initially by colostomy formation.*

*RESULTS. In the first group the number of patients with postoperative functional gastrointestinal frustration and infringements in psychic and emotional sphere were higher, than in second group and correlated to presence of them before operation. Assessment of quality of life using MOS-SF 36 demonstrated decrease of score in all scales of the questionnaire in first group, while in second group average score was comparable to healthy individuals.*

*CONCLUSION. Indications for elective colonic resection for recurrent diverticulitis should be stricter.*

**[Key words: diverticular diseases, diverticulitis, quality of life]**

#### VACUUM THERAPY IN TREATMENT OF THE PILONIDAL DISEASE

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*AIM. To improve results of complex treatment of the pilonidal disease (PD).*

*PATIENTS AND METHODS. 31 patients with the PD were included into study. Of them in 16 patients postoperative wound was left open and vacuum therapy was applied. In 15 patients postoperative wound was left open and managed by ointment dressing. Groups of patients were well matched in terms of age, gender, degree of inflammation and co-morbidity*

*RESULTS. Application of vacuum therapy reduced the time of wound healing to 27,5±3,6 days comparing to 79±6,6 days of wounds managed routinely. The mean decrease of wounds' area at POD14 treated by vacuum therapy and without was 60 % vs. 20 % correspondingly. Reduction of pain intensity according to a visual analog scale in group with vacuum therapy (1,5/2,2 vs. 1,8/2,8) and earlier return to original occupation (31±3,9 vs. 39±5,7) was noted. Wound infection developed only in 3/15 (20 %) patients managed by ointment dressing. There was no recurrence of the disease regardless wound management.*

*CONCLUSION. Management of postoperative wound by vacuum therapy in patients after surgery for PD improved results of treatment.*

**[Keywords: pilonidal disease, surgery, wound, negative pressure therapy]**

#### RESULTS OF OPERATIONS IN COLON SURGERY WITH USAGE OF LAPAROSCOPIC TECHNIQUE AND ROBOTIC ASSISTANCE

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*The analysis of short-term results of 117 laparoscopic and 16 robotic-assistant colon surgeries, performed in NMSC N.I.Pirogov between January 2011 and May 2015 was undertaken. There were 90 resections for colon cancer, 31 for diverticular disease and one for megacolon. Also results of 11 reconstructive operation after Hartmann procedure was investigated. In 74 cases of cancer operation were performed with mesocolonectomy and central vessels ligation. In 16 patients sclerotization of inferior mesenteric artery and paraaortic lymphadenectomy was performed. Morbidity rate was 11,3 % among all patients. The use of robotic technology in colon surgery is not an optimal option due to low cost effectiveness and prolonged operating time comparing to those after routine laparoscopic procedures.*

**[Keywords: colon, laparoscopic surgery, robotic surgery]**

#### STAPLING INTERINTESTINAL ANASTOMOSIS IN COLORECTAL CANCER: SHORT-TERM RESULTS

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*AIM to assess results of stapling anastomosis in colorectal surgery.*

*PATIENTS AND METHODS. The results of surgical treatment of 427 patients with rectal cancer and 458 patients with colon cancer (T1-4N0-2M0-1) were analyzed. A circular stapler was used to perform end-to-end (347 patients) and side-to-end (80 patients) anastomosis. 164 patients underwent stapling colonic anastomosis.*

*RESULTS. Anastomotic leak rate after stapled colorectal anastomosis was 8,7% (n=37) and was lower after side-to-end anastomosis 3,8% (n=3). Anastomotic leakage developed in only 2 (1,2%) patients after colon anastomosis.*

*CONCLUSION. Proper use of stapling devices and proper surgical technique allow to create reliable anastomosis which safety is comparable the manual one.*

**[Key words: colorectal cancer, stapling anastomosis, anastomotic leak]**

#### ULTRASONIC DIAGNOSIS OF ACUTE PARAPROCTITIS AS A RARE COMPLICATIONS OF BRACHYTHERAPY OF PROSTATE CANCER

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**[Key words: acute abscess, prostate cancer, brachytherapy, transrectal ultrasound]**

#### EPIDEMIOLOGY AND PRINCIPLES OF DIAGNOSIS OF INFLAMMATORY COMPLICATIONS OF DIVERTICULAR DISEASE

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**[Key words: diverticular disease, complications, epidemiology, diagnostics]**

#### THE ROLE OF CT ENTEROGRAPHY IN DIAGNOSIS OF CROHN'S DISEASE OF THE SMALL INTESTINE. REVIEW

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**[Key words: Crohn disease, CT enterography]**

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#### THE USE OF ORIGINAL RADIOPAQUE MARKERS IN DIAGNOSIS OF CHRONIC CONSTIPATION

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*AIM. To evaluate the effectiveness of radiological control of original radiopaque markers passage through the gastrointestinal tract in the diagnosis of chronic constipation.*

*MATERIALS AND METHODS. In examination of 28 patients with chronic constipation syndrome method of passage the original radiopaque markers through gastrointestinal tract has been used. The markers were non-adhesive and insoluble compounds based on barium sulfate.*

*RESULTS. The specifics of radiopaque markers passage in different severity of chronic constipation, as well as in abnormal architectonics and disposition of the colon in the abdominal cavity has been studied. We noted the peculiarities of radiopaque markers passage in two*

main patterns of motility disorders: colonic inertia and outlet obstruction. The speed of markers movement, their distribution in the gut, and the timing of the evacuation objectively reflects impaired evacuation function, moreover the method is easy to perform and interpret.

**CONCLUSION.** This method expands the resources of diagnostic methods in chronic constipation and can be considered as an effective tool of functional diagnostics, allowing to make the differentiated approach to selection of the kind of the treatment, and in the case of surgical approach – to choose a range of resection.

**[Key words: chronic constipation, non-adhesive and insoluble compounds based on barium sulfate, passage of radiopaque markers]**

#### COMBINED MINIMALLY INVASIVE TREATMENT OF HEMORRHOIDS

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**THE AIM** of the study was to develop a minimally invasive technique that does not have the disadvantages of traditional surgical treatment, does not have any restrictions in patients with external hemorrhoids as in HAL-RAR method. Technique that is more effective than HAL-RAR and isolated laser destruction methods, in the treatment of patients with chronic hemorrhoids stage II-III.

**MATERIALS AND METHODS.** We developed a combined method of treatment of the patients with hemorrhoids, that unites artery ligation under the ultrasound control with Doppler effect and submucous subdermal laser destruction of internal and external hemorrhoids. We studied the safety and effectiveness of the developed method. The study included 100 patients with chronic hemorrhoids stage II and III, the patients were treated with the use of combined methodology HAL-laser (study group), the method HAL-RAR (1 control group) and closed hemorrhoidectomy linear stapler (control group 2).

**RESULTS.** The analysis showed that the combined method HAL-laser has higher efficiency than the method HAL-RAR, and thus is as safe and well tolerated in patients. Its not so efficient compare to conventional hemorrhoidectomy because of the risk of a cosmetic defect, but does not increase the risk of recurrence of the disease, reduces the risk of complications and more endurable for the patients, it also allows to reduce the time of disability.

**[Key words: hemorrhoids, HAL, laser destruction]**

#### TWO-LEVEL PLASTIC OF THE PELVIC BOTTOM IN SURGICAL TREATMENT OF RECTOCELE

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**AIM.** Improvement of treatment results in patients with the rectocele using of a two-level plastic of a pelvic bottom.

**METHODS.** The plastic to a rectocele was carried out from the combined transvaginal and transrectal approach and consisted in sacrosplinal-cardinal ligament, the colporrhaphy added transrectal «11 hours» with a mucopexy on height to 5 cm from the dental line.

**RESULTS.** The remote results of treatment were tracked in terms from 12 months till 5 years after operation (a median of 3,5 years). In the studied group the «good» result was noted at 37 (75,5 %) patients, «satisfactory» and «unsatisfactory» – at 11 (22,4 %) and 1 (2,0 %) patients, respectively. Recurrence of a disease was taped at only 1 patient (2 %).

**CONCLUSION.** The two-level pelvic plastic with the combined vaginal and transrectal access is associated with short operating time of 50 min., intraoperative blood loss about 150 ml and low perioperative morbidity.

**[Keywords: rectocele, two-level plastic]**

#### THE ROLE OF ANTIBIOTIC PROPHYLAXIS IN PREVENTION OF INTESTINAL STOMAS CLOSURE

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**AIM.** To evaluate the effectiveness of antibiotic prophylaxis in closure of preventive intestinal stomas.

**MATERIALS AND METHODS.** In a main (I-first) group included 99 patients who did not undergo antibiotic prophylaxis (ABP). In the control (II-second) group were 96 patients who underwent ABP by a single intravenous injection of 1,2 g of amoxicillin / clavulanic acid in 30 minutes before the operation.

**RESULTS.** The overall incidence of complications in the main and control groups was 23 (23,3 %) and 27 (27,9 %), respectively ( $p=0,53$ ). Among them, the surgical site infection (SSI) was the first place in the frequency of complications: in group I in 12 (12,2 %) in group II in 11 (11,4 %) patients ( $p=0,35$ ). Postoperative diarrhea with frequency of stools 5 or more times per day in second place in frequency, but has evolved into two less in the main than in the control group – in 4 (4,0 %), and 8 (8,3 %) patients, respectively ( $p=0,212$ ). Febrile fever was detected more frequently in the first group than in the second – 6 (6,1 %) and 1 (1,0 %) cases, respectively ( $p=0,06$ ). Other complications were the paresis of gastrointestinal tract ( $p=0,76$ ), bleeding from the formed anastomosis area ( $p=0,149$ ), pneumothorax ( $p=0,324$ ), cystitis ( $p=0,309$ ) and lobar pneumonia ( $p=0,309$ ). There were no statistically significant complications associated with one of two groups.

**CONCLUSION.** The results of the study not prove the effectiveness of the ABP in patients undergoing closure preventive intestinal stoma. This does not allow us to recommend its routine use. The question of prophylactic antibiotics should be taken individually, considering all the possible risks.

**[Key words: antibiotic prophylaxis, surgical site infection, the closure of the stoma, loop stoma]**

#### NORMAL VALUES OF ANAL SPHINCTER PRESSURE MEASURED WITH NON-PERFUSION WATER SPHINCTEROMETER

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There are presented normal values of anal pressure at rest and squeezing measured with non-perfusion water sphincterometer S4402 by MSM ProMedico GmbH.

**MATERIALS AND METHODS.** 73 patients with colon adenomas before polypectomy underwent sphincterometry. All patients had no any complaints of fecal incontinence and outlet obstruction (0 points by Wexner incontinence scale and 0 points by outlet obstruction our clinic scale). Male were 28 (38,4 %), average age  $56,2 \pm 10,2$  years, female – 45 (61,6 %), average age  $54,9 \pm 13,7$  years.

**RESULTS.** Male normal values: average rest anal pressure –  $52,1 \pm 19,8$  mm Hg, maximum rest anal pressure –  $60,3 \pm 21,9$  mm Hg., average squeezing anal pressure –  $118,2 \pm 41,5$  mm Hg, maximum squeezing anal pressure –  $174,2 \pm 56,8$  mm Hg. Female normal values: average rest anal pressure –  $37,1 \pm 15,3$  mm Hg. maximum rest anal pressure –  $43,8 \pm 15,5$  mm Hg, average squeezing anal pressure –  $75,1 \pm 29,5$  mm Hg, maximum squeezing anal pressure –  $99,1 \pm 39,7$  mm Hg.

**CONCLUSION.** There were detected normal values of anal pressure at rest and squeezing to use in approximate assessment of anal sphincter function. To perform comprehensive evaluation with this sphincterometer, elaboration of new software is required.

**[Key words: sphincterometry, anal sphincter, anorectal manometry]**

#### COLORECTAL CANCER COMPLICATED BY BLEEDING

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*AIM: To estimate the short and long-term results of surgical treatment of colorectal cancer complicated by bleeding.*

*MATERIALS AND METHODS: The results of 240 patients with colorectal cancer complicated by bleeding operated in Smolensk and Smolensk region in the period from 2002 to 2013 were analyzed.*

*RESULTS: In the majority of cases radical treatment was one-stage surgery n=205 (85,4 %).*

*CONCLUSION: Due to the high risk of recurrence of bleeding, patients with this complication of colorectal cancer are candidates for the tumor removing surgery.*

**[Key words: colorectal cancer, intestinal bleeding]**

#### PELVIC ORGAN PROLAPSE (review)

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**[Key words: pelvic, prolapse, cystocele, rectocele, surgery]**

#### DISORDERS OF A MICROBIOCENOSIS OF INTESTINES AT PATIENTS WITH A COLORECTAL CANCER AND WAYS OF THEIR CORRECTION (review)

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*Patients with colorectal cancer in the perioperative period, revealed pronounced changes of microbiocenosis of colon, which is characterized by changes in the quantitative and qualitative composition of microflora. It showed a significant inhibition of anaerobic microbial component mainly bifidobacteria and lactobacilli. As a result, saprophytic microbes multiply with highly resistant to drugs, acquire pathogenic properties. The most prominent representative of such microorganisms is a pathogenic strain of Clostridium difficile, often provokes the development of pseudomembranous colitis. Depending on the degree of dysbiosis held various schemes of conservative therapy, and in severe dysbiotic changes, including pronounced diarrhea associated Clostridium difficile – fecal transplantation.*

**[Keywords: colorectal cancer, colon dysbiosis, antibiotic-associated diarrhea, fecal transplantation]**

#### TRANSANAL TOTAL MESORECTAL EXCISION FOR RECTAL CANCER (review)

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**[Key words: transanal total mesorectal excision, rectal cancer, TA-TME ]**

#### COMPLICATED DIVERTICULAR DISEASE: CONTEMPORARY CONCEPT OF TREATMENT (review)

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*The review represents contemporary trends in treatment of diverticular disease. The basement of optimal decision making for these patients are clear diagnostic criteria, relevant diagnostic methods and comprehensive universal classification. The spectrum of therapies for diverticular disease includes conservative treatment for uncomplicated forms, percutaneous drainage for abscesses, resection for peritonitis. A possibility of primary anastomosis in case of resection for free perforation with or without protective stoma is discussed. Laparoscopic technologies for chronic complications of diverticular disease is a main trend to improve short, late and functional results in elective surgery.*

**[Key words: diverticular disease, inflammatory complications, treatment, surgery]**

#### CAPSULE ENDOSCOPY IN THE DIAGNOSIS OF THE DISEASE OF THE INTESTINE AND COLON (review)

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*Colon capsule endoscopy is a minimally invasive method for diagnosis of inflammatory and neoplastic diseases of the gastrointestinal tract. This study can be used as a screening method for detecting colon cancer, and in patients who either refused a colonoscopy, or it is contraindicated for one reason or another. The diagnostic efficiency of the method by using the second-generation colon capsule significantly increased.*

**[Key words: colon capsule, Colon capsule endoscopy, Crohn's Disease, ulcerative colitis, colorectal cancer, polyps colon, colonoscopy]**

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#### HIGH-FREQUENCY ELECTROTHERMAL MUCOSECTOMY OF THE RECTAL CUFF IN THE ULCERATIVE COLITIS SURGICAL TREATMENT: RESULTS

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*AIM: To advance the rectal cuff mucosectomy method, reducing the risk of residual cuff it is. The aim of biopsy morphological study of rectal tissue were changes tracking dynamics, starting from the mucosectomy moment up to 1.5-2 years after the surgery.*

*METHODS: After colproctectomy and J-pouch forming the rectal cuff turns inside out with mucous layer and high frequency electrothermal mucosectomy performs. Stapling IPAA and protective ileostomy are formed. This method of rectal cuff mucosectomy was performed in 13 patients. All patients under went rectal cuff biopsy for dynamic pathological examination.*

*RESULTS: During dynamic monitoring there were no clinical evidence of cuff it is in this patients.*

*CONCLUSION: The new surgical treatment method of ulcerative colitis, including colproctectomy, stapled IPAA with protective ileostomy and high-frequency electro thermal mucosectomy of the rectal cuff, allows to completely remove the mucous the rectal cuff, that eliminates risk of cuffitis as residual manifestations of ulcerative colitis, both in short- and long-term results. Functional results with out deteriorating.*

**[Key words: ulcerative colitis, high-frequency electro thermal mucosectomy of the rectal cuff, biopsy]**

#### MODERN POSSIBILITIES TO PREVENTION AND TREATMENT OF HEMORRHOIDS IN PRENATAL AND EARLY POSTNATAL PERIOD

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*AIM. To work up the optimal approach to the prevention and treatment of hemorrhoids in pregnant women in antenatal and postpartum women in the immediate postpartum period.*

*MATERIAL AND METHODS. Based on the comparative results of treatment of hemorrhoids using topical and systemic medicinal drugs in 113 pregnant women determined the effectiveness of preventive and therapeutic tactics in respect of haemorrhoidal disease in pregnancy and the early postpartum period. Treatment schemes designed for optimum efficiency and safety of treatment of acute hemorrhoids in this patient's category.*

*RESULTS. The use of investigated schemes for treatment and prevention can significantly reduce the risk of exacerbation of the hemorrhoids and reduce the terms of relief of symptoms in pregnant and postpartum women. The experience of the Detralex (Daflon 500) demonstrates the effectiveness and good tolerability of this product when used in pregnant women for treatment and prevention of postpartum exacerbation of hemorrhoids.*

**[Key words: hemorrhoids, pregnancy, prevention, treatment, Detralex (Daflon 500)]**

#### IMPROVING THE EFFICIENCY OF MINIMALLY INVASIVE TREATMENT OF HEMORRHOIDS USING PHLEBOTONICS

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*The article describes the experience of application of minimally invasive methods of treatment chronic hemorrhoids stages II-III. The analysis of the effectiveness of methods and stand-alone when combining methods on the basis of the treatment and dynamic follow-up of 493 patients.*

*The analysis of the indications for use, clinical effectiveness and disadvantages of minimally invasive techniques. Substantiated the clinical efficacy of venotonics (micronized flavonoid fraction) in the pre- and postoperative treatment in the application of minimally invasive methods of treatment chronic hemorrhoids. Identified the need for a differentiated approach to the definition of indications and choice of a method of minimally invasive surgery depending on the clinical picture of the disease (type, stage, presence of inflammatory changes, bleeding).*

**[Keywords: hemorrhoids, minimally invasive methods, bleeding]**

#### COMBINATION THERAPY OF MESENCHYMAL STROMAL CELLS AND INFLIXIMAB IN UNCOMPLICATED (LUMINAL) CROHN DISEASE

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*AIMS. To investigate the efficacy of combination therapy using bone marrow-derived mesenchymal stromal cells (MSC) and Infliximab (IFX) to achieve «deep remission» in patients with luminal Crohn disease (CD).*

*METHODS. Our study included 72 patients (19-62 y old) (Me=29) with luminal CD. Patients in 1 group (n=21) received standard 5-aminosalicylic acid (5-ASA) and glucocorticosteroids (GCS) therapy in combination with MSC. Patients in 2 group (n=32) were prescribed anti-cytokine therapy IFX. Patients in 3 group (n=19) received MSC and IFX.*

*RESULTS. Clinical, immunobiological and histological results (C-reactive protein-CRP, fecal calprotectin-FCP, Gebs scale) showed more significant decrease of local and systemic inflammation activity in 3 group of patients. During 3-year follow-up we observed the longer duration of remission in patients, received MSC and IFX compared to 1 group of patients (p=0,04) and 2 group of patients (p=0,038).*

*CONCLUSIONS. Combination therapy of bone marrow-derived MSC and IFX provides «deep remission» in patients with luminal CD and has higher prognostic value in duration of CD remission period.*

**[Key words: Crohn's disease, inflammatory bowel disease, infliximab, mesenchymal stromal cells]**

#### ANATOMO-ANGIOGRAPHIC FEATURES OF RECTUM BLOOD SUPPLY AND THEIR CLINICAL SIGNIFICANCE

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*The results of research of anatomy of rectal arteries by an angiography method are presented.*

*AIM. To study "in vivo" specific features of anatomy of rectal arteries in rectum blood supply and to justify the usefulness of endovascular interventions in patients with rectal cancer.*

*MATERIALS AND METHODS. The analysis angiograms of 123 patients of various age and sex is carried out.*

*RESULTS. The superior rectal artery is the main source of rectum blood supply. Middle rectal arteries are an additional source. In vivo bilateral asymmetry with primary development of the left vessel is observed. The inferior rectal arteries are visualized less than in one third part of cases. Rectal artery have a extensive network of anastomoses with other pelvis vessels.*

*CONCLUSIONS. The results justify the anatomical possibility and feasibility of endovascular methods in rectal cancer therapy considering individual features of rectum blood supply.*

**[Keywords: rectal arteries, angiography, rectal cancer, intra-arterial selective oil chemoembolization]**

#### RISK FACTORS OF COMPLICATIONS IN RECONSTRUCTIVE OPERATIONS AFTER HARTMANN PROCEDURE

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*The aim of this work was to analyze early postoperative complications after restoration of bowel continuity in patients which undergone Hartmann procedure for tumor intestinal obstruction and to identify risk factors of complications. 192 patients were included in retrospective study. Early postoperative complications occurred in 18 (9,4%) patients. Univariate analysis showed that COPD increased the risk of complications in 1,7 times (p=0,044), history of septic complications at the previous surgery – in 4,3 times (p=0,011), the third grade of severity of intraperitoneal adhesions in comparison with the 1st grade – in 9,7 times (p=0,001). Multivariable analysis showed that the hazard ratio in patients with complications during the first operation was 4,3 (CI 1,7-23,3, p=0,021), and in patients with the 3d degree of adhesions of 7,5 (CI 1,3 to 15,6, p=0,001).*

**[Key words: colorectal cancer, intestinal obstruction, Hartmann's surgery]**

#### ASSESSMENT OF MALNUTRITION IN ELDERLY AND SENIOR PATIENTS WITH COLORECTAL CANCER

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*AIM to assess the frequency of malnutrition during preoperative period in elderly and senior patients with colorectal cancer.*

*PATIENTS AND METHODS. The results of nutritional status in 38 patients before surgery were analyzed. Anthropometric (BMI, arm circumference, triceps skinfold thickness) and laboratory (blood serum protein, albumin, transferrin and total count of lymphocytes) parameters were used.*

*RESULTS. The average value of parameters were declined only for total count of lymphocytes – 1,5 thousand per  $\mu$ l, SD – 0,5 ( $p < 0,0001$ ). Malnutrition was diagnosed by lymphocytes in 71% (27) and triceps skinfold thickness in 50% (19). BMI showed hypotrophy only in 2 patients. Overall malnutrition was diagnosed in 31 of 38 cases (82%).*

*CONCLUSION. Only complex study of anthropometric and laboratory parameters could prove preoperative malnutrition in elderly and senior patients with colorectal cancer.*

**[Keywords: nutritional status, elderly and senior patients, malnutrition]**

#### DIAGNOSIS AND CONSERVATIVE TREATMENT OF FUNCTIONAL DISORDERS OF DEFECATION

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*90 patients (female 72 (80%), male 18 (20%), mean age  $43,6 \pm 16,5$  y.o.) with functional disorders of defecation (dyssynergic defecation and inadequate propulsion) were included in the study. All the patients conformed the Rome III (2006) criteria for functional constipation.*

*High-resolution anorectal manometry (HRAM) procedures (London protocol) were performed using Solar GI system (MMS, The Netherlands) with 8-channel water-perfusion catheters. All the patients underwent a course of biofeedback therapy for obstructive defecation (Urostim, Laborie, Canada). The course consisted of 10 daily 30-minutes long sessions. Treatment efficacy was evaluated after the completion of biofeedback therapy according to the control HRAM.*

*CONCLUSIONS. Biofeedback is the method of choice for treatment of patients with obstructive defecation syndrome with pelvic floor dyssynergia and spasm of m.puborectalis. At the same time biofeedback therapy is ineffective in patients with type III of manometry pattern and in patients with an inadequate propulsion.*

**[Keywords: High-resolution manometry, obstructive defecation syndrome, functional disorders of defecation, dyssynergic defecation, inadequate propulsion, manometry pattern, biofeedback therapy]**

#### METHODS OF RECONSTRUCTION OF THE INTESTINE CONTINUITY

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*One hundred seven patients had reconstructive surgery after previous Hartmann procedure performed at emergency presentation. Between 2000-2014 there were 46,19% operation performed from of midline laparotomy, 39,08% from local access, and 14,72% using laparoscopy assisted method. Between 2013-14 open approach was used in 16,66% of cases, in 14,63% form local access and 69,04% of the patients were operated using laparoscopy assisted method. LAS operations - at. The choice of restoring the intestinal continuity after Hartmann procedure is under development, as the trend towards mini-invasive surgery exists.*

**[Key words: colostomy, methods of recovery operations]**

#### ISCHEMICCOLITIS (case report)

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*Ischemic bowel disease results from an acute or chronic decline of the blood supply to the bowel and may have various clinical presentations, such as intestinal angina, ischemic colitis (IC) or intestinal infarction. Elderly patients with systemic atherosclerosis who are symptomatic for the disease, congestive heart failure and recent aortic or cardiopulmonary bypass surgery are particularly at risk. The clinical evolution and outcome of this disease are difficult to predict because of its polymorphic aspects and the general lack of statistical data. In this paper, we present two cases of patients who were monitored in our clinic. For these patients, we encountered with pivotal changes in the clinical pattern. These evolutions is particularly rare in common clinical practice, and cases are exemplary because it raises discussions about the nature of the condition and therapeutic decisions that should be made at every stage of the disease.*

**[Key words: ischemic colitis]**

#### SUCCESSFUL MULTIVISCERAL RESECTION OF THE SIGMOID COLON CANCER IN A ELDERLY PATIENT (CASE REPORT)

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**[Key words: colorectal cancer, multivisceral resection, geriatrics]**

#### COMPLETE HEALING OF POSTIRRADIATION RECTOVAGINAL FISTULA WITH AUTOLOGOUS FAT GRAFTING (CASE REPORT)

Teryushkova Z.I., Vasilyev V.S., Kazachkov E.L., Vasilyev S.A., Karpov I.A., Shishmentsev N.B., Vasilyev Y.S., Vasilyev I.S., Dimov G.P., Markina T.N.

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University Hospital of South Ural State Medical University

**(Key words: late adverse effects of radiotherapy, postirradiation rectovaginal fistula, autologous fat grafting, adipose-derived stromal cells)**

#### EARLY RECTAL CANCER: THE STATE OF THE PROBLEM (review)

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**[Key words: early rectal cancer, local excision, transanal endoscopic microsurgery, classification]**

#### ANEMIA OF INFLAMMATORY BOWEL DISEASE (review)

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**[Key words: IBD, anemia, ulcerative colitis, Chron's diseases]**

#### NEOSTIGMINE FOR TREATMENT AND PROPHYLACTIC OF POSTOPERATIVE ILEUS (A meta-analysis and systematic review)

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**[Key words: ileus, colonic pseudo-obstruction, neostigmine]**

#### CERTOLIZUMAB PEGOL IN CHOHN'S DISEASE (review)

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**[Key words: Crohn's disease, Certolizumab pegol]**

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#### VALIDATION OF THE RUSSIAN TRANSLATION OF THE LOW ANTERIOR RESECTION SYNDROME SCORE

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**BACKGROUND.** The main reason of impaired quality of life in patients undergoing low anterior resection for rectal cancer is Low Anterior Resection Syndrome (LARS). A symptom-based scoring system for bowel dysfunction after low anterior resection for rectal cancer has been developed in 2012 and validated in many European countries. The aim of our study was to adapt the LARS score to the Russian language, and assess its psychometric properties.

**METHODS.** The LARS questionnaire was translated into Russian using a standard procedure of double-back translation according to WHO and EORTC recommendations. At the first stage the LARS questionnaire and the EORTC QLQ-C30 questionnaire were completed at the same time by 80 patients who underwent anterior/low anterior resection at the State Scientific Center of Coloproctology, Moscow, Russia. At the next stage 40 patients were interviewed with the LARS questionnaire by phone.

**RESULTS.** Fifty-three patients (44,2 %) had no LARS, 25 (20,8 %) had minor LARS, and 42 (35 %) had major LARS. The LARS score showed significant correlations with all the assumptive domains of EORTC QLQ-C30 questionnaire ( $p < 0,05$ ). According to the results of univariate analysis preoperative chemo-radiotherapy ( $p = 0,009$ ), splenic flexure mobilization ( $p = 0,0003$ ) and total mesorectal excision ( $p = 0,02$ ) increased LARS score. However, only splenic flexure mobilization in the binomial logistic regression model was the only independent factor, leading to major LARS ( $p = 0,002$ ).

**CONCLUSIONS.** The Russian version of the LARS score shows acceptable psychometric properties and can be considered as a valuable and specific instrument to assess bowel function in rectal cancer patients, both for research purposes and in clinical practice.

**[Key words: rectal cancer, low anterior resection, quality of life, low anterior resection syndrome, LARS score]**

#### THE TRANSANAL REINFORCEMENT OF LOW COLORECTAL ANASTOMOSIS: FIRST EXPERIENCE AND PERSPECTIVES

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**AIM.** It was to evaluation the effect of using of transanal reinforcement of low colorectal anastomosis to the frequency of anastomotic leakage.

**MATERIALS AND METHODS.** The study included six patients who underwent a low anterior resection for rectal cancer and the transanal reinforcement anastomosis. Preventive stomas not formed.

**RESULTS.** The study contains an analysis of the immediate results of patients treatment. The leakage of the anastomosis was developed in 3 of 6 patients. This required break down of the anastomosis in one and the formation of diverting stoma in two patients.

**CONCLUSION.** The first experience of the transanal reinforcement for low colorectal anastomosis is unsuccessful because of leakage appeared in every second patient. More careful selection of patients for this method is required.

**[Keywords: low anterior resection, anastomotic leakage, transanal reinforcement of anastomosis]**

#### SURGICAL TREATMENT OF THE COMBINED NON-NEOPLASTIC PATHOLOGY OF THE ANAL CHANNEL AND RECTUM

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**PURPOSE.** To evaluate the results of surgical treatment of hemorrhoids in combination with other pathologies of the rectum and anal canal.

**MATERIALS AND METHODS.** 331 patients are operated in clinic concerning non-neoplastic surgical pathology of the anal channel (AC) and the rectum (R) from 2012 to 2015. The probed group (PG) was 159 (48,0±2,7 %) patients who underwent combined surgical treatment of hemorrhoids and other pathology AC and R. Control group (CG) was 172 (52,0±2,7 %) patients who underwent hemorrhoidectomy.

**RESULTS.** The average duration of surgery in PG was 28±5 min, in CG – 19±3 minutes ( $p > 0,05$ ).

The amounts of long-term postoperative complications in the PG was 4,4±1,6 %, in the CG – 2,3±1,1 % ( $p > 0,05$ ). The average duration of hospitalization in the PG was 5,1±1,0 days, in CG – 3,2±1,0 days ( $p > 0,05$ ), the duration of rehabilitation in the PG was 20,3±3,2 days, in CG – 15,1±2,0 days ( $p > 0,05$ ).

**CONCLUSION.** Existence of the pathology of AC and R in combination with hemorrhoids is the indication to the combined surgical treatment. The increation in the duration of surgery, postoperative complications, duration of hospitalization and rehabilitation in the PG compared with the CG are not statistically significant. Simultaneous surgical treatment of hemorrhoids and other pathologies AC and R relieves the patient from having to perform repeated surgery and its possible complications.

**[Key words: combined non-neoplastic surgical pathology, anal canal, rectum, simultaneous surgical treatment]**

#### TRANSANAL DOPPLER-CONTROLLED DEARTERIALIZATION WITH MUCOPEXY FOR A MINIMALLY INVASIVE TREATMENT OF HAEMORRHOIDAL DISEASE

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**Transanal Doppler-controlled dearterialization with mucopexy – a new direction in minimally invasive treatment Haemorrhoidal disease grade II and IV. The number of patients showing relief of Haemorrhoidal symptoms at 52-month follow-up was high. Bleeding was resolved in 92.9 % of the patients. The recurrence of prolapse at 52 months was low, with no re-prolapse being recorded in 89,6 % of the patients.**

Doppler-guided Haemorrhoidal artery ligation with transanal rectal mucopexy, not only has several perioperative advantages – minimally invasive surgery, low major complications – but also offers prolonged relief for all hemorrhoidal symptoms. Technology is an effective form of treatment for hemorrhoidal disease.

**[Key words: hemorrhoids, transanal Doppler-guided Haemorrhoidal artery ligation, transanal rectal mucopexy]**

#### T-CELL IMMUNE PHENOTYPING FOR DIFFERENTIAL DIAGNOSIS OF CROHN'S DISEASE ASSOCIATED ANORECTAL FISTULA: A PILOT STUDY

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Our aim was to develop a system of parameters that could enable differentiation between idiopathic and Crohn's disease (CD) associated fistula without intestinal lesions. 28 healthy individuals, 9 patients with idiopathic fistula and 12 patients with Crohn's fistula participated in our study. We evaluated different peripheral blood T-cell populations by means of flow cytometry. CD62LlowCD45RA+ effector T-cells were increased in the idiopathic fistula cases ( $p < 0,05$ ) and decreased in Crohn's fistula cases ( $p < 0,01$ ) compared with the control group. On the contrary, naive CD62LhighCD45RA+ T-cells were higher in the idiopathic fistula group and lower in Crohn's fistula cases ( $p < 0,01$ ). No difference between CD4+CD69+, CD4+CD161high and CD4+CD161low T-cell levels was shown between healthy controls and Crohn's fistula cases, however, CD4+CD161high and CD4+CD161low T-cell levels were lower ( $p < 0,01$  and  $p < 0,05$ , respectively) and CD4+CD69+ T-cell levels were higher ( $p < 0,01$ ) in the group of idiopathic fistulas compared with the control. Moreover, Crohn's fistulas showed the decrease of CD8+CD25+ T-cell level ( $p < 0,01$ ) and the increase of CD8+CD161high T-cell absolute count ( $p < 0,05$ ) compared with idiopathic0 fistula cases. Thus peripheral T-cell immune phenotyping seems to be promising for early identification of CD that manifests as an isolated anorectal fistula.

**[Key words: anorectal fistula, Crohn's disease, biomarkers, MAIT-cells, Th17, iNKT, naive T-cells, effector T-cells, CD25+ T-cells, CD69+ T-cells]**

#### APPLICATION OF NEGATIVE PRESSURE IN THE LOCAL TOPICAL TREATMENT OF OPEN SURGICAL WOUNDS IN PATIENTS WITH PYLONIDAL DISEASE

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AIM to improve results of treatment of patients pylonidal disease.

**PATIENTS AND METHODS.** Thirty two patients with pylonidal disease had a wide excision with postoperative wounds left open. The patients were allocated into 2 groups: in the main group a local negative pressure was used for management of postoperative wounds, while in the control group ointment dressings was used only. Groups were well matched by age, stage of the process and the area of the surgical wound.

**RESULTS.** The use of local negative pressure in the topical treatment of open surgical wounds allowed to reach complete recovery in the main group on  $32 \pm 5$  POD, while in the control group it lasted  $41 \pm 7$  days. No recurrences of the disease in both group were detected.

**CONCLUSION.** Application of the negative pressure in the local topical treatment of open surgical wounds after excision of pylonidal disease accelerates wound healing, helps to avoid the development of suppuration and provide an earlier recovery.

**[Key words: pylonidal disease, negative pressure, wound healing]**

#### THE EXPERIENCE OF LIGATION OF INTERSPHINCTERICFISTULA TRACT IN THE TREATMENT OF PATIENTS WITH TRANS- AND SUPRASPHINCTERIC ANAL FISTULAE

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AIM. Ligation of intersphinctericfistula tract (LIFT) is a new sphincter-preserving technique avoiding development of anal incontinence. The aim of the study is evaluation of effectiveness of this procedure.

**METHOD.** From Jan 2013 to Dec 2015 40 patients with anal fistulae, exciting more than 30 % of anal sphincter was included in the study. Male: 28 (70 %), Female: 12 (30 %). 29 (72,5 %) cases were middle transsphincteric, 16 (22,5 %) – deep transsphincteric and 2 (5 %) was suprasphincteric.

**RESULTS.** The median follow up was 16 months ((3-36) months). The healing rate was (72,5 %). Recurrences developed in 5 (17,3 %) patients with middle transsphincteric fistulae, 5 (55,6 %) – with deep transsphincteric fistulae, and 1 (50 %) with suprasphincteric fistulae. 4 patients developed an intersphincteric abscess. After excision of this fistulae healing occurred in all four cases. A second operation did not affect the function of anal continence. At follow-up there was no change in continence evaluated by Wexner score and anorectal manometry.

**CONCLUSION.** LIFT has a high success rate in middle transsphinteric anal fistulae. Recurrence is related to deep portion fistulae or suprasphinteric fistula tract.

**[Key words: LIFT, sphincter-preserving technique, transsphinteric anal fistulae]**

#### SPHINCTEROMETRY GRADATION OF ANAL SPHINCTER INSUFFICIENCY

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**PURPOSE.** To determinate manometric parameters for different degrees of anal sphincter insufficiency (ASI) by the non-perfusion water sphincterometry with measurement device WPM Solar (MMS, The Netherlands).

**METHODS.** The study included 228 patients with complaints of incontinence of various components of the intestinal contents. Among them were 94 (41,2 %) men, mean age  $47,3 \pm 16,8$  year, 134 (58,8 %) women, mean age  $49,1 \pm 15,9$  year. The patients were divided according to the clinical classification of anal sphincter insufficiency (ASI) developed by Russian State Research Center of Coloproctology. Grade I was present in 112 (49,1 %) patients complaining of gas incontinence. Grade II – in 80 (35,1 %) patients with gas and liquid incontinence. Grade III – in 36 (15,8 %) patients with all components incontinence. The Cleveland Clinic (Wexner) fecal incontinence score applied to all patients as the subjective assessment of the severity ASI. For an objective assessment of the anal sphincter insufficiency used sphincterometry.

**RESULT.** This study has allowed to build a reliable reference intervals manometric and score (Wexner scale) parameters for all grades ASI, separately for men and women. First grade ASI (male/female): mean resting pressure –  $32,8-42,0 / 36,3-40,0$  mm Hg, max. squeeze pressure –  $115,0-120,0 / 97,4-109,0$  mm Hg, mean squeeze pressure –  $89,5-105,0 / 68,8-87,0$  mm Hg, squeeze gradient –  $\geq 79,5 / 73,6$  mm Hg, score –  $\leq 4,2 / \leq 6,3$ . Second grade ASI (male/female): mean resting pressure –  $25,3-32,7 / 26,9-36,2$  mm Hg, max. squeeze pressure –  $74,9-114,9 / 61,9-97,3$  mm Hg, mean squeeze pressure –  $53,0-89,4 / 46,0-68,7$  mm Hg, squeeze gradient  $49,9-77,0 / 35,9-58,0$  mm Hg, score –  $4,3-10,1 / 6,4-10,7$ . Third grade ASI (male/female): mean resting pressure –  $\leq 25,2 / \leq 26,8$  mm Hg, max. squeeze pressure –  $\leq 74,8 / \leq 61,8$  mm Hg, mean squeeze pressure –  $\leq 52,9 / 45,9$  mm Hg, squeeze gradient  $\leq 49,8 / 35,8$  mm Hg, score –  $\geq 10,2 / \geq 10,8$ .

**[Keywords: sphincterometry, continence mechanism, anal sphincter insufficiency, anorectal manometry]**

#### COMPUTED TOMOGRAPHY DIAGNOSTICS OF INFLAMMATORY COMPLICATIONS OF COLON DIVERTICULITIS (review)



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**[Key words: clinical diagnosis, diagnostic accuracy, diverticulitis, contrast enema, computed tomography]**

PERITONEAL COLORECTAL CARCINOMATOSIS. APPROACHES TO TREATMENT (REVIEW)

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**[Keywords: colorectalcarcinomatosis, colorectalcancer, cytoreductive surgery, intraperitoneal chemotherapy]**

MECHANICAL AND MANUAL ANASTOMOSES IN COLORECTAL SURGERY (review)

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**[Key word: Mechanical, manual anastomoses of the colon, rectum]**

LAPAROSCOPIC TOTAL MESORECTAL EXCISION (review)

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**[Key words: rectal cancer, total mesorectal excision, quality of TME specimen, “complete” TME, transanal TME]**