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Colonoscopy in diagnostics and therapy of colorectal carcinoma

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Colorectal carcinoma (CRC) is a very frequent disease with long oncogenesis and easily recognizable precursor lesions. Early diagnostics is related to good survival. Colonoscopy is an endoscopic method, which has been in use since 1963 and thanks to biopsies and polypectomies, it has enabled better understanding of the nature of CRC. Electroresection of benign adenoma prevents the occurrence of CRC by interruption of the polyp-cancer sequence and is related to some minor complications after the intervention, which are caused by prolonged duration of the examination, while the percentage of bleedings and perforations, as major complications, is very small. Polyps, with less than 10 mm in size, bear risk of CRC less than 1%, while in polyps larger than 20 mm, this percentage rises up to 50%. Polyps are more often in the left half of the colon. A Spanish study, which included 2200 patients, showed that about 50% of polyps are situated in the right colon independently from the polyps in the left half of the colon. Japanese authors determined that about 2/3 of flat polyps larger than 10 mm in the right colon, had invasive component, which gives a tremendous significance to total colonoscopy with polypectomy. Colonoscopy is a golden standard for colon diseases' diagnostics and an experienced endoscopy doctor performs a total colonoscopy in 90% of cases. The fact that 5.4% of patients, diagnosed with colorectal carcinoma, had colonoscopic examination within the period of 3 to 5 years prior to diagnosis, is worrying and it is considered that, apart from the inadequate preparation of the colon for examination, the quality of the colonoscopic examination is partly responsible for this score. Success of colonoscopy depends on gender, obesity, colon preparation, prior surgeries in pelvis minor, complicated diverticulitis and earlier peritonitis. Indications for colonoscopy are classified into diagnostic and therapeutic. As every invasive method, colonoscopy has contraindications, which may be relative and absolute. Absolute contraindications include acute peritonitis, suspected intestinal perforation, acute diverticulitis, fulminant colitis, toxic megacolon, suspected intestinal obstruction and non-cooperating patient, while, relative contraindications are recent acute myocardial infarction, serious disruption of heart rhythm, later stages of pregnancy, recent colon surgery and inadequate patient's preparation for examination. Colon perforation is the most dramatic colonoscopy complication with incidence from 0.04 to 0.9% for diagnostic and from 0.06 to 0.7% for therapeutic procedures. It occurs due to instrument tip pressure, creation of the loop during the examination, after biopsy, after polypectomy or colon structure dilatation. Perforations during the diagnostic colonoscopy are more often in sigmoid colon and after therapeutic procedures in the right colon. Although age is not an independent risk factor for perforation, some studies show that female gender is. Bleeding is the most often complication of colonoscopy with the incidence from 0.02 to 0.03% for diagnostic and from 0.31 to 2.7% for therapeutic procedures and it may occur within 2 weeks after the electroresection of a polyp and it may be massive. The greatest number of bleedings after the polypectomy stop spontaneously and do not require any intervention. Patients who do not tolerate colonoscopy require additional sedation or additional technical maneuvers in order to introduce the tube into the caecum, which leads to some problems after the examination.

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Diagnostic imaging of colorectal carcinoma

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A wide spectrum of nowadays available radiological and imaging methods in the diagnostic evaluation of patients with colorectal cancer enabled not only the improvement of primary colorectal malignancy detection, precise staging, regional involvement and metastatic spread assessment, but also the post-therapeutical estimation and follow-up. Having in mind that the exact diagnostic assessment of colorectal carcinoma by use of different imaging modalities still raises a lots of contradictories, in this report we have tried to present the possibilities of newer imaging techniques in the diagnostic evaluation of the patients with colorectal cancer.



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From morphology to molecular classification of colorectal cancer

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Colorectal cancer (CRC) is one of the most prevalent human cancers in the world. While newer surgical techniques and radio-chemotherapy regimens have improved survival over the past decades, still, almost 50% of patients develop recurrent disease and metastases and die within 5 years from diagnosis. Over the past 20 years it has become clear that CRC evolves through multiple pathways. Three main pathways occur in CRC including chromosomal instability (CIN), microsatellite instability (MSI) and epigenomic status (CpG Island Methylator Phenotype- CIMP status). According Jass these pathways may be defined as MSI-high (MSIH), MSI-low (MSIL), and microsatellite stable (MSS) and as CIMP-high, CIMP-low and CIMP negative. All of these „molecular subtypes“ of CRC have morphological counterparts which are presented in this review. Studying molecular correlates is important in cancer research because it can provide clues to pathogenesis, propose the existence of a new molecular subtype and suggest surrogate markers in clinical or research settings. Molecular events are also a useful classifier, in particular, for predicting response to targeted therapies against those molecules.