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Multiple Polyps and Colorectal Cancer

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Rezumat

Polipii multipli și cancerul colo-rectal

Introducere: Degenerarea malignă ca posibilitate evolutivă a polipilor rectocolonici face ca diagnosticarea și sancționarea terapeutică a acestora să reprezinte un act profilactic pentru prevenirea cancerului colo-rectal (CCR).
Material și metodă: Studiul a fost efectuat pe o perioadă de 3 ani (2008-2011), perioada în care au fost efectuate în cadrul clinicii 1368 de colonoscopii. Scopul studiului a fost reprezentat de identificarea pacienților purtători de polipi multipli recto-colonici și stabilirea factorilor de risc în a dezvolta un CCR a acestor pacienți precum și atitudinea terapeutică adecvată.
Rezultate: Prezența polipilor multipli a fost constatată la peste 40% dintre pacienții identificați în cadrul studiului ca fiind purtători de polipi recto-colonici. Modificările displazice constatate în urma examenului histopatologic au avut o incidență crescută în cazul pacienților cu polipi multipli, mergând de la low-grade-dysplasia până la CCR incipient.
Concluzii: Modificările displazice și focarele carcinomatoase au fost identificate cu precădere în cazul pacienților cu polipi multipli. Au beneficiat de tratament endoscopic doar leziunile benigne sau cele cu carcinom in situ, prezența carcinoamelor slab diferențiate sau invazive în submucoasă fiind tratate prin chirurgie convențională. Pacienții diagnosticați cu polipi recto-colonici necesită un protocol atent de monitorizare post-terapeutică pentru identificarea unei eventuale recurențe polipoase.

Cuvinte cheie: polip rectocolonic, cancer colo-rectal, polipectomie

Abstract

Introduction: Malignant degeneration as a possible course of evolution of colorectal polyps renders their diagnosis and therapeutic management a prophylactic act in the prevention of colorectal cancer (CRC).
Material and Method: The study was conducted over a period of 3 years (2008-2011), during which 1,368 colonoscopies were performed in our service. The aim of the study was to identify patients presenting multiple colorectal polyps and to determine their risk factors for developing CRC, as well as to establish the appropriate therapeutic conduct.
Results: Presence of multiple polyps was recorded in over 40% of the patients identified with colorectal polyps of any kind. Dysplastic modifications observed during the histopathology exam presented a high incidence in the case of patients with multiple polyps, ranging from low-grade-dysplasia to incipient CRC.
Conclusions: Dysplastic modifications and carcinomatous foci were identified mostly among patients with multiple polyps. Only benign lesions or in situ carcinomas benefited from endoscopic treatment, poorly differentiated carcinomas or those invading the submucosa being treated by conventional surgery. Patients diagnosed with colorectal polyps require a rigorous post-therapy follow-up protocol, able to identify any eventual polyposis recurrence.

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Key words: colorectal polyp, colorectal cancer, polypectomy

Introduction

The polyp-cancer affiliation is one well-known and documented, being almost unanimously recognised as such. From this point of view, the identification of colorectal polyps and their management becomes not only a therapeutic act, but also a measure of prophylaxis in the prevention of colorectal cancer (CRC). Adenomatous polyps are the main "culprits" of malignant transformation, but, as has been noted, not all follow this pathway. There are a series of risk factors for malignant transformation, represented by the histologic type (villous adenomas present the highest risk of malignancy), polyp dimensions (the risk significantly increases over 1.5 cm), sessile type more prone than pedunculated type, patient age over 50 years, presence of severe dysplasia or squamous metaplasia, and, last but not least, number (multiple and diffuse polyposis have very high risk of malignancy) (1). Presence of over 100 polyps denotes diffuse polyposis, and any value under is considered multiple polyposis (2). In the case of multiple polyps the risk of malignant degeneration increases significantly, every polyp having an independent evolution and therefore being individually able to develop CRC. The average period of time necessary for malignant transformation of an adenomatous polyp is commonly accepted to be approximately 9 years (1).

Material and Method

We conducted a retrospective study over a period of 3 years (2008-2011), during which a number of 1,368 colonoscopies were performed in the Digestive Endoscopy Department of the Bucharest Institute of Oncology Surgical Clinic, out of which 1,146 diagnostic and 222 with therapeutic aim. The patients included in the study were those identified with colorectal polyps, excluding those with diffuse polyposis, colorectal inflammatory disease or any other pathologies. Indication for colonoscopy in these patients was based on clinical elements, colorectal neoplasia personal history (follow-ups), and presence of colorectal polyps in the past. The symptoms presented by these patients included: bowel movement disorders, diarrhoea, bloating. The most important clinical sign was, however, inferior digestive haemorrhage, frequently intermittent and in small quantities. The inferior digestive haemorrhage proved to be the most frequent "alarm sign" determining the patient to consult a physician, having ignored the non-specific symptoms presented usually for a long period of time prior to the address. As a result of the colonoscopies performed, 244 patients with colorectal polyps were identified. Part of these had come in for postoperative follow-up after an operated CRC or after a previously performed polypectomy. Unfortunately not all patients with history of CRC or treated colorectal polyps present for follow-up, some addressing different health units than those where the initial intervention was performed, thus making overall monitoring difficult if not impossible. We analysed data regarding gender distribution, patients' age, number of polyps identified per patient, polyp localization, endoscopic appearance, dimension, histopathology exam, presence of dysplasia or malignant degeneration, synchronous and metachronous lesions, treatment. The purpose of this study was to identify patients with multiple polyps, their prevalence within the study group, to determine their risk factors for developing CRC and to establish the correct therapeutic and follow-up conduct in these cases.

Results

Out of the total patients identified with colorectal polyps, a number of 143 (58.6%) were male and 101 (41.4%) female. 172 patients were determined to present sessile polyps, representing 70.9% of the total patients diagnosed, and 71 patients presented pedunculated polyps, representing the remaining 29.1%. The most frequent localizations for sessile polyps were the descending and sigmoid colon, with a cumulated number of 107 cases (62.2%), followed by the rectum level (19.8%), transverse colon (11%), ascending colon and caecum (7%). Pedunculated polyps were most frequently identified at the levels of the descending and sigmoid colon as well, with a total of 49 patients (68%), followed by the transverse colon (19.6%), rectum (11%) and caecum-ascending colon region (1.4%). From a size point of view, most sessile polyps examined were under 1 cm (131 patients, representing 76.2%), 25 patients had sessile polyps as large as 1-2 cm (14.5%) and 16 patients presented sessile polyps of over 2 cm (9.3%). The sizes of the pedunculated polyps identified were between 1-2 cm in 35 patients (48.6%), over 2 cm in 29 de patients (40.3%) and under 1 cm in 8 patients (11.1%). From a multiplicity perspective we have observed the presence of multiple polyps in 77 (44.8%) of the 172 patients with sessile polyps. A number of 60 patients (34.8%) presented 2-5 sessile polyps and 17 patients (9.9%) were identified with over 5 sessile polyps. In the case of pedunculated polyps, multiple polyps were encountered in 29 patients, representing 40.3%. Out of these, 25 patients had 2-5 pedunculated polyps (34.7%) and 4 patients (5.5%) presented over 5 pedunculated polyps. The remaining patients recruited in the study presented single polyps. It is to be remarked that almost half the patients diagnosed with colorectal polyps presented multiple instances, and if one is to consider also the fact that some polyps can be "missed" during the investigation, this percentage could be in fact even greater. Also remarkable is the fact that in the case of multiple polyps patients (*Fig. 1, 2*) the majority presented 2-5 polyps, and only a small number had over 5 (9.9%) in the case of sessile polyps and 5.5% in the case of pedunculated polyps. As a result of the study conducted, in 23 cases (9.43%) the presence of adenomatous polyps synchronous with colorectal cancer was determined, 19 of these with tubular adenomatous histologic aspect and 4 with tubular-villous aspect. Also, in 36 cases (14.7%) colorectal polyps

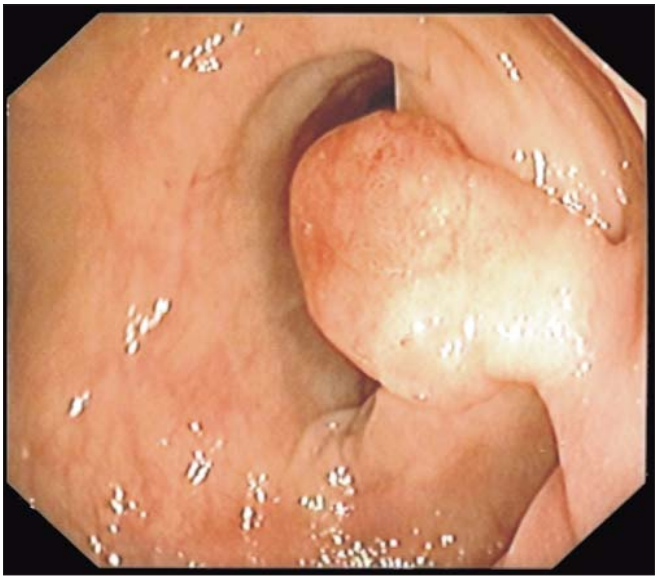

Figure 1. *multiple colonic polyps – adenomatous polyp*

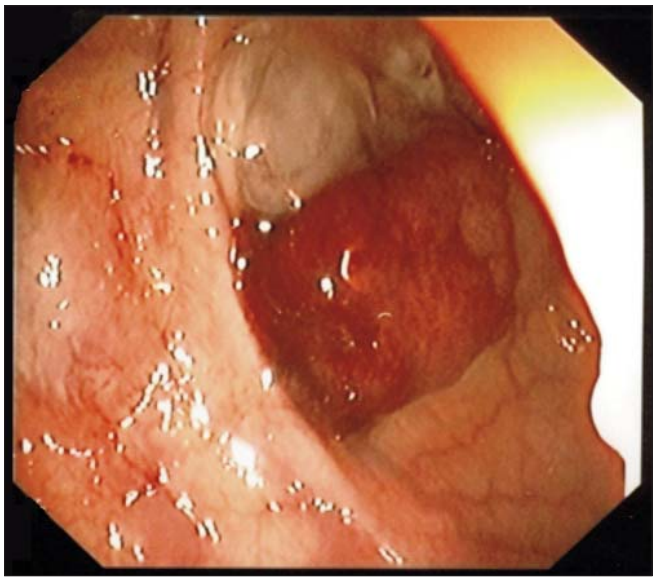

Figure 2. *multiple polyps – villous polyp*

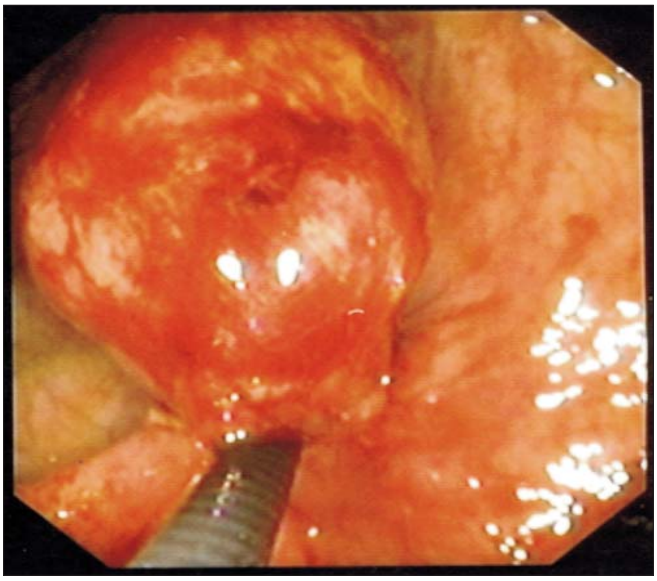

Figure 3. *multiple colonic polyps – endoscopic polypectomy*

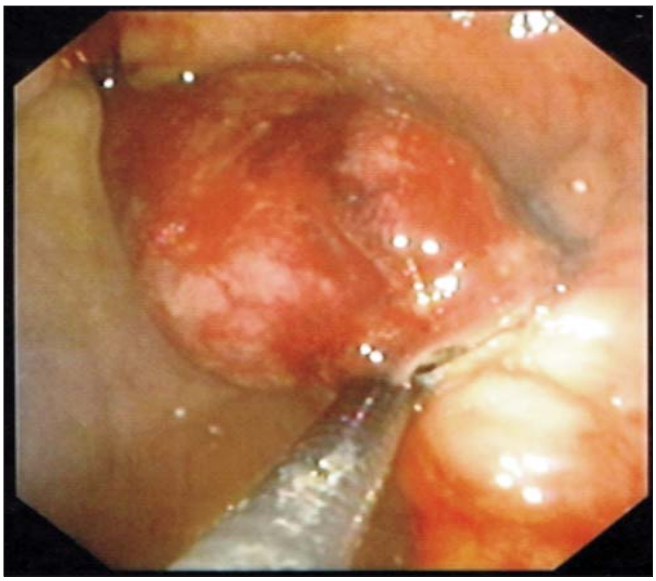

Figure 4. *multiple colonic polyps – endoscopic polypectomy*

were identified as metachronous lesions after a previous polypectomy. The histopathology exam performed on the endoscopic resection and classic surgery samples, as well as on fragments obtained through endobiopsy, recorded adenomatous tubular aspects in 129 cases (52.9%). Tubular-villous adenomatous histologic aspect was encountered in 30 cases (12.3%), inflammatory polyp aspect in 8 cases (3.3%), and in 18 (7.4%) cases an incipient CRC was recorded. The degree of lesion dysplasia varied between low-dysplasia, high-grade-dysplasia and incipient CRC. Thus, 57 of the analysed patients presented low-grade dysplasia, and high-grade dysplasia was noted in 48 cases (19.7% of the studied patients), the majority among patients with multiple polyps and polyps over 2 cm in size. Of the patients identified with high-grade dysplasia, in 21 cases invasion of the submucosa was noticed, and in 27 cases the lesion was limited to the superficial epithelium (intraepithelial cancer), situation considered by WHO as in situ carcinoma. It is to be noted that in all instances where a cancer was determined from a histopathology point of view to have originated in a degenerated polyp, the differentiation degree of the carcinoma was high (highly-differentiated carcinomas).

From the treatment perspective, a differentiation was made between benign polyps and those with intraepithelial carcinoma foci (in situ), for which endoscopic polypectomy was performed each time it was technically possible (*Fig. 3, 4*), and polyps presenting invasive cancer (intramucous carcinoma invading the submucosa), poorly differentiated or invasive

carcinoma on the polypectomy sample, in which cases classic surgery was preferred. No notable postoperative complications were recorded.

Discussions

Endoscopic examination of the colorectal segment is the gold standard both in the diagnosis and therapeutic management of colorectal polyps. The sensitivity and specificity of the endoscopic method are over 95%, surpassing in value double contrast barium enema, as well as CT and MRI exams, which have up to 80-85% specificity and sensitivity (1). Also, endoscopy can provide bioptic material which is essential for the histopathology exam. In order to perform a quality histopathology exam, providing all the elements necessary to establishing an adequate therapeutic conduct, it is extremely useful to send the entire excised polyp to the pathology laboratory, offering the pathologist the possibility to obtain serial sections in order to determine the exact degree of depth of a possible cancer invasion (1).

Modest symptoms, and their disregard by patients especially, frequently leads to late address to the physician. The patients' lack of discipline with regards to follow-up protocols of cases diagnosed with colorectal polyps also often results in missing the optimal moment to treat, with subsequent malignant degeneration and development of CRC, with an obviously more severe prognosis. One must take in to account as well that, unfortunately, endoscopic equipment and specialists in this domain are not available in all hospital units, in rural areas especially, the consequences of this fact being severe at times.

The treatment of colorectal polyps usually consists of applied endoscopic polypectomy, with favourable results in most cases. In cases of benign or in situ carcinoma foci cases, the therapeutic indication is that of endoscopic polypectomy, considered sufficient given the lack of vascular and lymphatic implication, and thus having no metastasis potential. On the other hand, lesions invading the submucosa present a risk of vascular and lymphatic infiltration, situation where endoscopic polypectomy can prove insufficient (3). Furthermore, presence of residual tissue post-polypectomy or invasion at less than 2 mm from the endoscopic resection line call for a classic surgery approach. There are however authors reporting favourable results after performing endoscopic polypectomy together with endoscopic mucosal resection – EMR – in this type of situations (4). For these patients, given the high risk of residual tissue presence after EMR, careful endoscopic post-operative control is recommended, associated with biopsy sampling from the post-EMR scar tissue even if there is no macroscopic remnant tissue (5). Presence of poorly differentiated carcinoma, cancer invasion at the level of implantation into the colon wall of the polyp, situations that technically render endoscopic polypectomy impossible, require classic approach surgery. In case of patients with multiple polyps within the same colic segment, presenting malignant degeneration at the level of several of these, classic surgery can be considered. In case of lesions synchronous with a CRC within the same colic segment the situation is quite clear, requiring classic surgical resection. Rectal villous lesions, especially large ones, over 2 cm in size, can be resected both endoscopically (high degree of technical difficulty) and by local excision surgical procedures (6). Endoscopic therapy or local surgery failure, highlighted by presence of residual neoplastic tissue of poorly differentiated carcinoma, require a radical oncological surgery approach, that may be associated or not with radiotherapy (for low rectal lesions) (7). Controversies in connection to endoscopic polypectomy as the sole therapeutic measure arise in situations where the submucosa is invaded, some authors noting a 2-5% risk of lymphatic and vascular metastasis (8,9), while others claim that the situation did not present any significant risk to be taken into account when deciding the choice of therapeutic conduct (10,11). There are on the other hand studies certifying that in the presence of poorly differentiated carcinoma the metastatic rate can reach 40-100% (10). Although these controversies exist, we can state that in the case of a malignantly degenerated polyp, in circumstances of high differentiation and complete polypectomy with no residual tissue present, endoscopic treatment is the recommended and sufficient course of treatment, while low-degree of differentiation, presence of remnant degenerated tissue or invasion at less than 2mm from the endoscopic resection line require the association of a complementary surgical treatment.

As a result of this study, we have come to observe that nearly half of the patients with colorectal polyps (sessile of pedunculated) presented multiple polyps (most patients having 2-5 polyps), most frequently located at the level of the left colon (descending and sigmoid), with sizes of over 2 cm in some cases. Degenerative modifications observed at histopathology exam occurred mostly in patients with multiple polyps and polyps larger than 2 cm in size. We can state that presence of multiple polyps along with high-grade dysplasia and polyp size over 2 cm represent important risk factors for the development of CRC.

We wish to underline the necessity of post-therapeutic follow-up of all patients with single or multiple polyps. This conduct must constitute a rule, and the patient should be educated in this perspective. There is no criteria for predicting polyp recurrences. Colonoscopy evaluation is recommended over the course of these patients' lifetime, as follows: for patients operated on for CRC, colonoscopy exam is recommended 6 months postoperatively, 1 year after the procedure, 3 years after and then every 5 years, while follow-up protocol for patients with colorectal polyps will include colonoscopy exam 3 years post-polypectomy and every 5 years thereafter (1).

Conclusions

1. Adenomatous polyps are precancerous lesions with possibility of developing into CRC.
2. Presence of multiple polyps is noted among half (43-44%) of the patients with colorectal polyps included in the study.
3. Presence of high-grade dysplasia and carcinomatous foci was directly connected to presence of multiple

polyps and of polyps larger than 2 cm.
4. Endoscopy is the gold standard in the diagnosis of colorectal polyps.
5. Endoscopic polypectomy represented the main option in the case of benign structure polyps and of those with intraepithelial carcinoma foci (in situ).
6. Conventional surgery treatment was necessary in the presence of carcinoma invasive in the submucosa, as well as of poorly differentiated carcinomas.
7. Diagnosis and adequate therapeutic management of colorectal polyps represent an efficient prevention measure for the occurrence of CRC.
8. Post-therapy follow-up is essential in identifying polyp recurrences.

Conflicts of interest. Source of Funding

None declared.

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