

Surgical Treatment in Stenosing Rectal Cancer

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Rezumat

Tratamentul chirurgical în cancerul de rect stenozant

Introducere: Cancerul rectal reprezintă o importantă problemă de sănătate, ce implică un tratament multidisciplinar, fiind o provocare chirurgicală majoră, atât la nivel de diagnostic, cât și la nivel de tratament.

Material și metodă: În perioada 2009-2013, am analizat 83 de pacienți cu cancer de rect stenozant operați în Clinica de Chirurgie Generală II a Spitalului Clinic Colentina și în Clinica de Chirurgie I a Institutului Oncologic “Prof. Dr. Al. Trestioreanu”, București. Repartiția pe sexe: 51 de bărbați, 32 de femei. Vârsta medie a fost de 65 ani. Cele mai frecvente simptome au fost reprezentate de dureri abdominale colicative și rectoragii. 25 de pacienți au prezentat fenomene de ocluzie intestinală în momentul internării, celelalte 58 de cazuri au fost în stadiu subocluziv.

Rezultate: În stadiile ocluzive: 17 pacienți au avut tumori rezecabile, iar 8 pacienți au avut forme neoplazice avansate loco-regional (“pelvis înghețat”), optându-se pentru colostomie iliacă stângă cu biopsie tumorală. În stadiile subocluzive: 5 cazuri au avut tumori nerezecabile, pentru care s-a practicat anus iliac stâng cu biopsie tumorală; 53 de cazuri cu tumoră rezecabilă, efectuându-se operație Hartmann (12 pacienți) și colostomie iliacă stângă cu biopsie tumorală (41 pacienți). În funcție de rezultatul histopatologic, pacienții au urmat trata-

ment radioterapic și chimioterapic. Rezecția tumorii a fost posibilă în 70 de cazuri (84,33%), cu intenție de radicalitate fiind doar 34 de cazuri (40,96%).

Concluzii: Tratamentul cancerului de rect stenozant este unul multimodal, reprezentat de chirurgie, radioterapie și chimioterapie. Motivația chirurgiei ca prim gest terapeutic pe lotul studiat a fost dată de necesitatea rezolvării complicației de tip ocluziv, pacienții beneficiind ulterior de radio- și chimioterapie. Oportunitatea unei a doua intervenții chirurgicale, în scopul îndepărtării tumorii, a fost stabilită pe baza răspunsului terapeutic la radio- și chimioterapie.

Cuvinte cheie: cancer rect, stenoza, ocluzie

Abstract

Introduction: Rectal cancer represents an important health issue, which involves multidisciplinary treatment, posing a major surgical challenge, both in terms of diagnosis and treatment.

Material and Method: Between 2009-2013, we analysed 83 patients with stenosing rectal cancer operated on at the Clinic of General Surgery II of Colentina Clinical Hospital and at the Clinic of General Surgery I of “Prof. Dr. Al. Trestioreanu” Oncology Institute, in Bucharest. Gender distribution was: 51 males and 32 females. Average age was 65 years old. The most frequently encountered symptoms were colicky abdominal pain and rectorrhagia. 25 patients presented intestinal occlusion phenomena at admission, the other 58 cases being in subocclusive stage.

Results: In occlusive stages: 17 patients presented with resectable tumour, while 8 patients had locally advanced neoplastic forms (“frozen pelvis”), left iliac colostomy with tumour

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biopsy being the chosen approach. In subocclusive stages: 5 cases had unresectable tumours for which left iliac anus with tumour biopsy was performed; 53 cases presented with resectable tumour, for which the Hartmann procedure (12 patients) and left iliac colostomy with tumour biopsy (41 patients) were performed. Depending on the histopathological result, patients were submitted to radio- and chemotherapy. Tumour resection was possible in 70 cases (84.33%), only 34 of these (40.96%) being with radical intent.

Conclusions: Treatment for stenosing rectal cancer is multimodal, represented by surgical approach, radio- and chemotherapy. The rationality behind surgery as a first therapeutic gesture in the given study group was represented by the need to treat occlusive type complications, patients benefitting subsequently from radio- and chemotherapy. The opportunity of a second surgical intervention, with the objective to remove the tumour, was established based on the therapeutic response to radio- and chemotherapy.

Key words: rectal cancer, stenosis, occlusion

Introduction

Colorectal cancer represents a serious public health issue at global level, being the 4th most frequent type of cancer on the planet, behind bronchopulmonary, gastric and genital cancers (1). Rectal neoplasia is a major surgical challenge, both in terms of diagnosis, frequently established in the face of complications or systemic progression of the disease, and of treatment, the latter being a multimodal one – centred on the surgical component. Rectosigmoidal localizations are encountered with a frequency of over 50% of all colorectal cancers, and in approximately 60% of cases the patients are admitted in advanced stages of the disease, with accompanying complications which dictate the need for an appropriate choice of therapeutic approach (2,3). The most frequent complications of rectal cancer, aside from metastases, are represented by locoregional invasion, occlusion, haemorrhage and peritoneal carcinomatosis, which significantly reduce the

possibilities of a complex course of treatment and of a radical intent intervention.

Material and Method

The present clinical study consists in the retrospective analysis of 83 patients with stenosing rectal neoplasm, operated on at the Clinic of General Surgery II of Colentina Clinical Hospital and at the Clinic of General Surgery I of “Prof. Dr. Al. Trestioreanu” Oncology Institute, in Bucharest, between January 2009 – December 2013. Case distribution by year is presented in Fig. 1. In terms of area of origin, most cases came from an urban setting (Fig. 2). Distribution by gender presented male predominance (61.45% males, 38.55% females). Average age was 65 years old, in accordance with the data from medical literature (1,4). With regard to topographic localization of the tumour, 42 cases were at the level of the medium rectum, 22 of the superior rectum and 19 cases with inferior localization.

The predominant signs and symptoms encountered at admission were: colicky abdominal pain, rectorrhagia, bowel movement disorders, rectal tenesmus. The tumour was accessible to digital rectal exam in 39 cases (46.98%). 66.26% of patients also presented signs of neoplastic infiltration (asthenia, lack of appetite, significant weight loss). Most patients (59.03%) described the onset of symptoms to have occurred 6 to 12 months prior to admission, while the remaining 14.46% observed their first symptoms 6 months before.

Affliction onset was acute in 25 cases (30.12%): intestinal occlusion - 19 cases, localized peritonitis (peritumoral abscess or at a distance from the primary tumour) - 4 cases, generalized peritonitis through tumour perforation - 2 cases. In these patients, due to altered general state, age, comorbidities, but also due to appearance and degree of loop injury, we proceeded to perform left iliac colostomy with tumour biopsy. Post-operatively, a patient died due to acute myocardial infarction accompanied by cardiogenic shock. In 58 cases (69.88%) patients presented with incomplete occlusion phenomena (Fig. 3). In 12 patients a Hartmann procedure could be performed, given the localization and tumour stage (stage II with localization at superior rectum level). The other 46 patients presented in stages III and IV, and left iliac colostomy with tumour biopsy was resorted to.

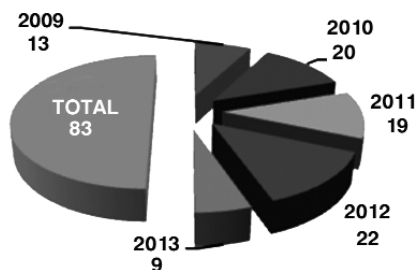


Figure 1. Distribution by year of stenosing rectal cancer cases

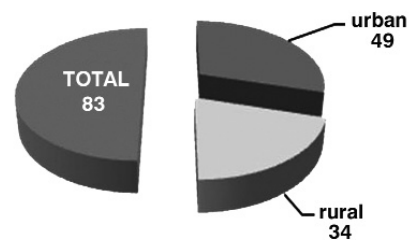


Figure 2. Distribution of cases by area of origin

For staging, TNM classification of the AJCC and UICC was used (5). Distribution by TNM staging is presented in Table 1.

According to the histopathological result, patients were directed towards an oncology service, in order to be submitted to radiotherapy and chemotherapy. From an anatomopathological point of view, the most frequent type of cancer observed was moderately differentiated adenocarcinoma (Table 2).

The protocol for radio- and chemotherapy was decided by the oncologist in collaboration with the radiotherapist, bearing in mind the type of the first operation performed, the tumour staging and histologic type, thusly 70 patients being submitted to neoadjuvant therapy and 12 patient to adjuvant therapy. First step oncological evaluation (after radio- and chemotherapy) showed that 12 patients were non-responsive to the administered treatment, most probably due to a combination of factors which included a poorly differentiated histological type, locoregional expansion ("frozen pelvis" type) and dissemination at a distance. (6,7)

The other 58 patients, who had a favourable response to chemoradiotherapy, manifested primarily through reduction of tumour size, were submitted to a second surgical operation. The period of time passed between the end of oncological treatment and the moment when the intervention was performed varied between 4 and 8 weeks. Tumour removal was possible in these cases, the resection having however palliative intent in some of the patients. Rectal amputation was performed in 16 patients, and anterior rectal amputation with colostomy in 42 patients. Of these 58 interventions, only 22 had radical intent, with preservation of oncological safety margins.

In 14 of the patients with anterior rectal resection with colostomy transit reinstatement was possible after approximately 6 months postoperatively, in lack of local recurrence or at a distance, certified clinically, by imaging and by colonoscopy exam.

In the 12 patients submitted to Hartmann procedure,

Table 1. Distribution by TNM staging of cases

	Stage I	Stage II	Stage III	Stage IV
No.	-	12	22	49
%	-	14.45	26.5	59.05

Table 2. Histopathological result

Highly-differentiated ADK	Moderately-differentiated ADK	Poorly-differentiated ADK
6.03%	65.06%	28.91%

loop reinstatement was performed approximately 6 months postoperatively, the decision being made based on clinical, imaging and colonoscopy results, showing no signs of local recurrence or metastases.

In the patients operated on, a total number of 21 latero-terminal or termino-terminal mechanical anastomoses was performed, by circular EEA 29, 32, 34 mm staplers, with no incidents of anastomotic fistula (Fig. 4). For the closure of the lateral end GIA 45, 60, 90 cm or Endo GIA roticular 45, 60, 90 cm staplers were used. 5 anastomoses were performed manually in double layer, with one case of anastomotic fistula treated conservatively. Having verified that the anastomotic partners present good mobility and appropriate vascularization, we did not perform a protection ileo/cecostomy routinely. (8)

Results

All patients in the study group presented with occlusive type phenomena (25 patients with intestinal occlusion and 58 with subocclusion), so reestablishment of bowel movement was the first therapeutic aim.

Pretherapeutic staging of the 83 patients with stenosing rectal cancer revealed a clear predominance of stage IV

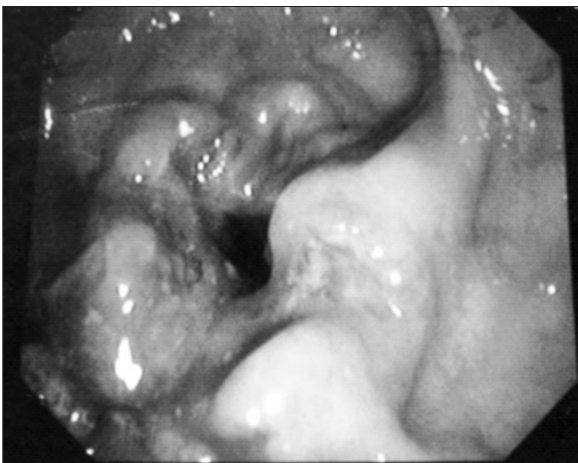


Figure 3. Endoscopic appearance of stenosing rectal tumours

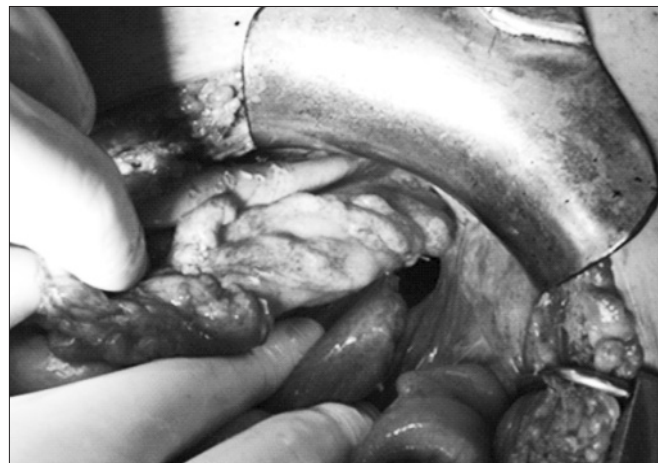


Figure 4. Latero-terminal mechanical colorectal anastomosis

disease (49 cases, 59.05% respectively).

From an oncological point of view, 13 cases (15.66%) in the study group presented non-resectable stenosing rectal tumours, with locoregional extension (“frozen pelvis”) and metastases (hepatic and/or pulmonary). In 36 patients (43.37%) with apparently resectable rectal tumours we discovered the presence of metastases, this leaving only 34 patients (40.97%) with resectable rectal tumours (stages II and III) in which radical intent interventions were possible.

For stage II patients (12 cases) we resorted to the Hartmann procedure, which allowed the treatment of the occlusive complication and the resection of the tumour within oncological safety margins. Patients followed a neoadjuvant course of treatment established by the oncologist, based on the histopathological result. Their progress was without local or at a distance disease signs, transit reinstatement being possible after approx. 6 months. (7,9)

Stage III patients (22 cases) were submitted to the first surgical operation with the same purpose (to treat the occlusive complication), the solution of choice being left iliac colostomy with tumour biopsy, followed by neoadjuvant treatment (radiotherapy and chemotherapy). After neoadjuvant therapy tumour regression was observed, allowing rectal resection with total mesorectal excision or rectal amputation (Fig. 5, Fig. 6), depending on the case, transit reinstatement being possible in 14 cases after approximately 6 months. (6,9)

In the 49 stage IV cases, left iliac colostomy with tumour biopsy was performed as a first step of the oncological treatment. One death was recorded at one week postoperatively, by acute myocardial infarction. 12 patients with locoregionally advanced rectal tumours and hepatic and bilaterally disseminated pulmonary metastases showed no response to radio- and chemotherapy. In 16 patients tumour regression was obtained and rectal amputation (with curative intent) was performed. 20 patients responded favourably to radiotherapy and chemotherapy, rendering anterior rectal amputation possible. (9)

When the local situation demanded, resections of the infiltrated neighbouring organs were performed (2 cases of enterotomy, 1 hysterectomy, 3 adnexectomies and 2 partial cystectomies). Hepatic metastasis resection during the same surgical procedure for treating the occlusive episode was not considered advisable.

The following postoperative complications were recorded:

- 1 patient died due to an acute myocardial infarction;
- 1 case of postoperative evisceration with secondary intestinal occlusion, treated by secondary suture, enterectomy not being necessary;
- 1 case of colorectal anastomotic fistula, treated conservatively;
- severe respiratory complications (broncho-pneumonia) – 2 cases, remitted under antibiotherapy;
- urinary complications: urinary infections resistant to treatment (2 cases);
- postoperative parietal complications – perineal suppuration (5 cases), treated conservatively.

Discussions

Due to localization and anatomical particularities, especially in male patients, surgical approach of the rectum is more difficult, a deep dissection being required, with limited visibility and a narrow operative field. (1,10)

Local and lymphatic extension evaluation is essential to preoperative staging, high resolution imaging investigations being necessary, such as spiral CT, endorectal ultrasound, MRI. (11,12)

In the event of a severe complication, such as an occlusive one, its treatment is of first priority in a complex therapeutic approach plan. In extreme cases, the intervention can be limited to a stent placement in the stenosing area, in order to reverse the occlusion.

The benefits of radiotherapy in rectal cancer are



Figure 5. Appearance of surgical piece – anterior view

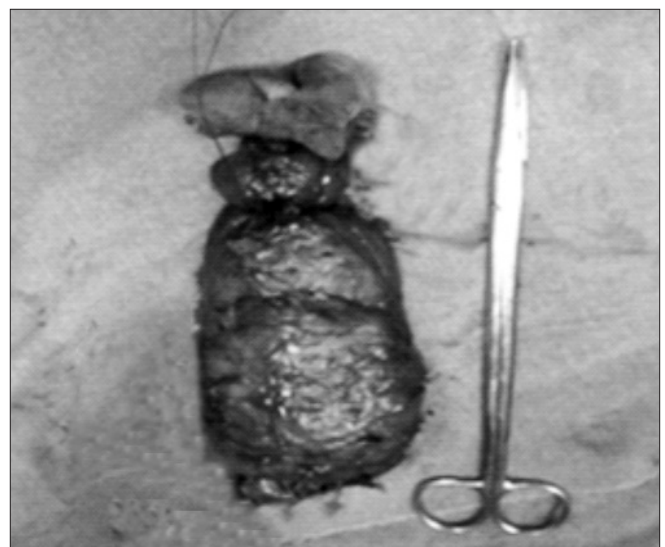


Figure 6. Appearance of surgical piece – posterior view

supported by numerous studies, presenting a decrease in local recurrence, and favouring tumour regression. (6,13,14,15,16)

Oncological principles in rectal cancer surgery dictate total mesorectal excision for medium and inferior rectum localizations. Complete mesorectal excision involves an anatomical dissection (in the posterior avascular plane, avoiding the conization of the operative piece), with preservation of the hypogastric plexus' elements. (1,17,18,19,20). The histopathologic result certifies the correctness of the total mesorectal excision.

The choice of surgical intervention in rectal cancer must be based first of all on the oncological safety degree of the resection, functional aspects relating to preservation of the sphincterian apparatus coming in second on the list of priorities. Reducing the safety margins in interventions with radical intent in order to obtain a better functional result can lead to increase in local recurrence risk and can favour lesions of the nervous plexuses, determining sexual, urinary bladder and sphincter dynamic disorders. In case of low or very low anterior rectal resections, with preservation of the anal sphincter, complications can occur, such as: anal incontinence, anastomotic dehiscence, urgency to defecate (a genuine anal colostomy can occur). An anastomosis performed very low can determine micturition disorders (incomplete, imperious, frequent, incontinence), erectile dysfunctions, retrograde ejaculation. (14,21,22,23,24)

Conclusions

1. The first therapeutic objective in stenosing rectal cancer is treating the complication, with restoration of bowel movements. Depending on the tumour stage, the possibility of radical exeresis can be taken into account, colostomy avoidance coming last on the list of objectives.
2. In case of low anastomoses maintaining a rectal stump of minimally 4 cm is necessary in order to reduce the risk of local complications.
3. The majority of authors support the necessity of a caudal safety margin for the rectum of minimally 2 cm below the tumour, the studies conducted so far showing that reducing this margin with the aim of preserving the sphincterian apparatus at any cost increases the risk of recurrence. (1,14,21,22,23,24)
4. The caudal safety margin for the mesorectum is at minimally 4 cm below the caudal pole of the tumour. (1,21,24)
5. An anastomosis performed very low can determine micturition disorders, erectile dysfunctions, retrograde ejaculation. (14,21,22,23,24)
6. A judicious choice of the surgical procedure, together with an optimal therapeutic sequence of chemo- and radiotherapy are the essential elements meant to improve the results of the multimodal treatment of rectal cancer.

Conflict of interest

None to declare.

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