

## Early assessment of abdominal wound healing after surgical treatment due to ulcerative colitis and rectal cancer: single-center experience

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**Abstract:** The aim of the study was the comparative evaluation of early abdominal wound healing after the first stage of restorative proctocolectomy due to ulcerative colitis and colonic resection due to cancer. **Material and methods:** Records of 62 patients operated on due to ulcerative colitis and 35 patients operated on due to rectal cancer in B and C Dukes stage in our Department from 1999-2003 were analyzed. Patients' average age was 44 years. In all patients the abdomen was opened with wide median incision. After surgery, the abdominal wall was closed in layers using Dexon 2.0 sutures; running for the peritoneum, interrupted for muscles and propylene single sutures for the skin. **Results:** Primary wound healing without complications was observed in 53 patients (86%) after surgical treatment of ulcerative colitis. In the remaining 9 patients (14%) the delay in healing was caused by haematomas in 5 (8%) patients and secondary infection in 4 patients (6%). In the group of cancer-suffering patients, primary wound healing was observed in 25 patients (72%). Delay in healing was observed in 10 patients (28%); it was caused by haematomas in 5 (14%) patients and secondary infection in the remaining 5 patients (14%). **Conclusions:** The delay in early abdominal wound healing caused more problem in patients operated on due to neoplastic disease.

**Key words** abdominal wound • healing process • surgical treatment

### Introduction

Restorative proctocolectomy is currently an accepted option of surgical treatment for ulcerative colitis, allowing resection of disease-changed colon with maintenance of the function of sphincters and physiological route of bowel movements. Restorative proctocolectomy may be performed as a one-stage or multi-stage procedure. In the beginning, resection of colon is performed from the wide median incision with formation (or not) of final ileostoma. Next, in subsequent stages of the procedure, neorectum is formed from the terminal part of iliac intestine by connecting it with the anus after mucosectomy manually, or without mucosectomy – by mechanical suture.

Anterior low and abdominal-genital rectum resection is a standard procedure in surgical treatment of malignant tumors in the area of the rectum. In both cases the resection is performed during the abdominal stage. In both procedures the resection is performed from the median incision [3].

The current study aimed to carry out a comparative evaluation of early abdominal wound healing after the first stage of restorative proctocolectomy, including resection of inflammatory-changed colon and rectum resection caused by the neoplastic process in this part of intestine.

### Material and methods

Comparative material consisted of 62 patients operated upon in the 1<sup>st</sup> Chair and Clinic of General, Gastroenterological and Endocrinological Surgery, Medical University in Wrocław, Poland, due to ulcerative colitis (group I) and 35 patients operated upon due to rectal cancer

in B and C Dukes stage (group II). The research was performed in the period 1999-2003. The age of patients ranged from 18 to 77 years. The average age in group I was 44, and 65 in group II. In all evaluated patients surgery was performed through a wide median incision. The postoperative wound was closed in layers, using Dexon 2.0. Running sutures were used for the peritoneum, interrupted sutures for the fascia and the skin was sutured with single knotted sutures using a non-absorbable monofilament. Postoperative wound was assessed in all patients until the moment of removal of sutures, i.e. until the tenth day. Normal wound healing by primary adhesion was defined as a pale wound, with no signs of inflammation or pathological exudate: blood, pus or parting of wound edges. In wounds healed by primary intention sutures were removed, and the patient was discharged for further ambulatory observation.

## Results

Wound healing *per primam intentionem* was observed in 53 patients (86%) of those treated surgically for ulcerative colitis. Delayed healing was observed in 9 patients (14%) in this group. In 5 patients (8%) delay in healing was caused by haematoma and in 4 patients (6%) by secondary wound infection. Parting of wound edges after suture removal was not observed. In group II, including patients operated upon because of rectal cancer, healing *per primam intentionem* of the abdominal wound was observed in 25 patients (72%). Delay of healing was observed in 10 patients (28%), in 5 (14%) patients delay was caused by haematoma and in the remaining 5 (14%) patients by wound infection. Parting of wound edges was observed in none of the patients in this group. Results are presented in Table 1.

## Discussion

Wound healing is a complex and multi-stage process necessary for the maintenance of homeostasis of the organism. In the current study we assessed early wound healing, i.e. until the tenth day (completion of inflammatory and reconstructive phase of healing) [1]. After this period surgical incision wounds maintain continuity and allow suture removal [5]. In accordance with other authors, this moment was deemed to be an early period of wound healing [6, 7]. Afterwards, complications of this period were analyzed in two different groups of patients. Group I included patients with ulcerative colitis, where repair processes are delayed and often disturbed because of the disease itself and possibly long-term steroid therapy. Group II included patients suffering from neoplastic disease, with worsened general condition of the patient, and reconstructive processes delayed because of the disease itself [2]. Complications observed in both groups (group I: 14%; group II: 28%) point to more frequent disturbances of reparative processes in the group of patients with neoplastic disease [5]. Moreover, this group is characterized by more advanced age, in comparison to patients with ulcerative colitis. Delay of healing in both groups pertained to wound infection and formation of haematoma evacuating until the tenth day from abdominal wound. Such complications were more frequent in the group of patients with neoplastic disease. Their frequency increased by 6% because of the haematoma and by 8% because of wound infection. Neoplastic process significantly deteriorates the regenerative functions of the patient [5, 10]. Wound edges parting was not observed after the removal of sutures in wound healed *per primam*. Based on data from literature, in the case of complicated healing, the wound was opened at the lower aspect (for evacuation of hematoma or exudate) [8, 9].

## Conclusions

Delay observed in the early phase of healing of abdominal wound is a bigger problem in patients operated on because of neoplastic disease than in patients operated on for inflammatory bowel disease.

Table 1. Results of healing of abdominal wounds in own material.

Group	<i>Per primam intentionem</i> healing	Complications in the early phase of healing: hematoma (%)	Complications in the early phase of healing: infection (%)	Parting of wound edges (%)	Total (%)
I Ulcerative colitis	86	8	6	0	14
II Rectal cancer	72	14	14	0	28

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