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Own Experience in the Surgical Treatment of Patients with Ulcerative Colitis and Colonic Polyposis

Własne doświadczenie w chirurgicznym leczeniu wrzodziejącego zapalenia i polipowatości jelita grubego

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Abstract

Background. Proctocolectomy is performed mainly in ulcerative colitis (UC) and colonic polyposis (CP) treatment. **Objectives.** The aim of the paper was to present authors' experience concerning qualification for restorative proctocolectomy, methods of the operation and treatment results.

Material and Methods. Between 1989–2003 twenty-three patients underwent restorative proctocolectomy. There were nineteen cases of ulcerative colitis and four with colonic polyposis. Among them were sixteen men and seven women. Patients with CP were operated electively in one stage procedure. Fourteen patients with UC were operated electively but five others had to be operated for urgent indication. Most of patients with UC were operated in one stage (sixteen) and only three in two stage procedure. No decompressing ileostomy was used. That function was fulfilled by the wide drain coming from above jejunal pouch through rectum and out of the anus.

Results. Good results of treatment were achieved in twenty-one patients. Two deaths were due to toxic colitis complications, and cancer of the rectal stump. The most common complication observed was pouch inflammation – four cases and pouch-rectal anastomosis stenosis – two cases.

Conclusions. Patients with extensive changes UC and often recurrences should be qualified for the operation in earlier stages than now. Elective operations can be performed as one stage procedure without decompressing ileostomy. The serious complications like: haemorrhage, perforation, toxic colitis are a great danger for the patients' life. These patients should be operated in two stage procedure (*Adv Clin Exp Med 2005, 14, 2, 301–307*).

Key words: restorative proctocolectomy, ulcerative colitis, colonic polyposis.

Streszczenie

Wprowadzenie. Proktokolektomia jest zabiegiem stosowanym głównie u chorych cierpiących z powodu wrzodziejącego zapalenia jelita grubego (WZJG) oraz polipowatości jelita grubego (PJG).

Cel pracy. Przedstawienie własnych spostrzeżeń dotyczących kwalifikacji chorych do proktokolektomii odtworczej, sposobów przeprowadzenia operacji i wyników leczenia.

Materiał i metody. W latach 1989–2003 operowano 23 chorych – 19 z powodu WZJG i 4 z powodu PJG. W grupie leczonych chorych było 16 mężczyzn i 7 kobiet. Chorych z PJG operowano w trybie planowym, jednoetapowo. U chorych z WZJG w 14 przypadkach wykonano operacje planowe, a w 5 pozostałych w trybie pilnym ze wskazań życiowych. W przypadku 16 chorych operacje przeprowadzono jednoetapowo i tylko u 3 pacjentów dwuetapowo. U chorych nie stosowano odbarczającej przetoki na jelicie biodrowym. Funkcję tę spełniał dren wprowadzony przez odbyt sięgający ponad zbiornik jelitowy.

Wyniki. U 21 operowanych chorych uzyskano dobry wynik leczenia. Przyczyną 2 zgonów było: *colon toxicum* w pierwszym przypadku i rak dolnego odcinka odbytnicy w przypadku drugiego chorego, a najczęstszymi powikłaniami: zapalenie zbiornika jelitowego, *pouchitis* (u 4 osób) i zwężenie w miejscu zespolenia (u 2 osób).

Wnioski. Chorych z rozległymi zmianami wrzodziejącego zapalenia i częstymi nawrotami powinno się wcześniej niż obecnie kwalifikować do leczenia operacyjnego. Operacje planowe mogą być przeprowadzone jednoetapowo bez konieczności zakładania odbarczającej przetoki na jelicie biodrowym. Groźne powikłania (krwotok, perforacja, *colon toxicum*) stanowią duże zagrożenie dla chorych i operacje w tych przypadkach powinny być dwuetapowe (*Adv Clin Exp Med 2005, 14, 2, 301–307*).

Słowa kluczowe: proktokolektomia odtworcza, wrzodziejące zapalenie jelita grubego, polipowatość jelita grubego.

Proctocolectomy is performed mainly in ulcerative colitis (UC) and polyposis colonic (CP) treatment [1, 2]. It is also used in multiple colonic cancer. Crohn disease is very rare indication for the proctocolectomy [3]. The only possibility to avoid permanent ileostomy is pull-through reconstructive operation when ileal pouch is created and then sewed to the dentate line in the rectum. This operation for the first time was proposed by Parks and Nicholls in 1978 [4]. The other possible solution is to connect ileal pouch with the short rectal remnant. So called restorative proctocolectomy can be a permanent operation for UC or CP patients. Original method of operation proposed by Parks has changed over many years. Modifications concerned the way ileal pouch is created, stapled versus hand sewn anastomosis [5, 6]. Nowadays restorative proctocolectomy in many variants is widely used all over the world. It is now taken as a standard surgical procedure in the UC and CP treatment. However many, both recent and late, complications occur. Those complications influence patients' quality of life. They can be divided into several categories. The most common are complications concerning ileo-anal or ileo-rectal anastomosis. They are fistulas and stricture formation as sequel of suture insufficiency [7–11]. Complications concerning ileal pouch function and pouch inflammation are less severe but they are common and are connected with the patients' complaints [12, 13]. The other complications concern anal sphincter insufficiency. The most severe but luckily seldom complication is the malignancy development [14].

The aim of the paper is presentation of authors' experience. The rules of patients' qualification, the method of the restorative proctocolectomy and the results achieved will be presented.

Material and Methods

From 1989–2003 the authors have performed restorative proctocolectomy in 23 patients. There were 19 patients with UC and 4 with CP. There were 16 men and 7 women. In the UC group age ranged from 22–65 years (mean 39 yrs). The hospital stay lasted from 21–50 days (mean 32 days). In the CP group age ranged from 39–46 years (mean 43 yrs). The hospital stay lasted from 28–39 days (mean 35 days) (Tab. 1). The diagnosis based on history, radiological contrast examinations (Fig. 1), colonoscopy and histology of biopsies (Fig. 2, 3). Fourteen UC patients were qualified for elective operation during remission. They underwent one stage elective procedure consisted of resective and reconstructive part. In the resective part total colon and almost total rectal resection was performed. Only small about 4–5 cm long distal part of rectum was left (Fig. 4). In the reconstructive stage hand sewn ileal J-pouch was created (Fig. 5). It was then hand sewn with the rectal remnant (Tab. 2). Anastomosis was started from the rear pouch and rectal walls which were connected by one layer of interrupted suture. That suture was performed before whole already mobilised colon and rectum were excised. Pulling by the mobilised intestine enabled very deep rectal suture localisation. After the rear suture line was in place, pouch was lowered to the rectum by pulling the sutures which were then sutured one by one. It was the moment when rear rectal wall was cut leaving anterior rectal wall intact. When the rectum was pulled upwards the second line of the continuous suture was placed on the rear pouch and rectal walls. After rear part of the anastomosis was done the assistant introduced by anus wide perforated drain which was advanced through the pouch up to the ileum. The authors tried to place it 10 centimetres above the upper margin of the

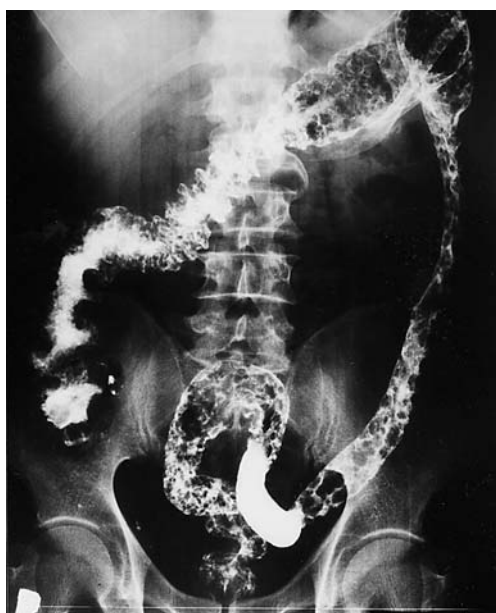
Table 1. Age and gender of patients and length of hospital stay

Tabela 1. Wiek i płeć chorych oraz okres leczenia szpitalnego

Reason for the operation (Wskazania do operacji)	Number of patients (Liczba chorych)	Male (Mężczyźni)	Female (Kobiety)	Age – years (Wiek – lata)	Length of hospital stay in days (Okres leczenia szpitalnego w dniach)
Ulcerative colitis (Wrzodziejące zapalenie jelita grubego)	19	13	6	22–65 mean 39 (śr. 39)	21–50 mean 32 (śr. 32)
Colonic polyposis (Polipowatość jelita grubego)	4	3	1	39–46 mean 43 (śr. 43)	28–39 mean 35 (śr. 35)

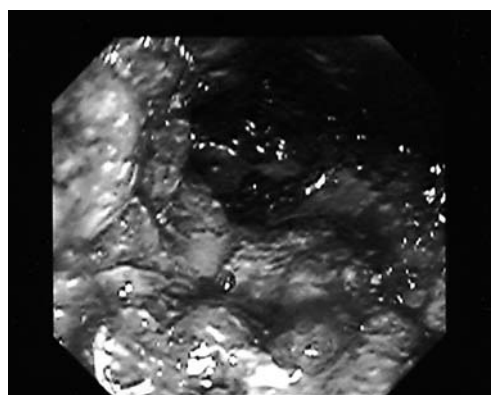
Table 2. Type of operation and anastomosis**Tabela 2.** Rodzaje operacji i zespożeń

Reason of the operation (Wskazania do operacji)	Type of operation (Rodzaj operacji)		Type of anastomosis (Typ zespolenia)	
Ulcerative colitis (Wrzodziejące zapalenie jelita grubego)	elective one stage (planowe jednoetapowe)	urgent (pilne)		handsewn (ręczne)
		one stage (jednoetapowe)	two stage (dwuetapowe)	stapled (stapler)
	14	haemorrhage (krwotok)		17
		1	1	2
		perforation (perforacja)		
		1	1	
		toxic colitis (<i>colon toxicum</i>)		
		–	1	
Colonic polyposis (Polipowatość jelita grubego)	4	–		4

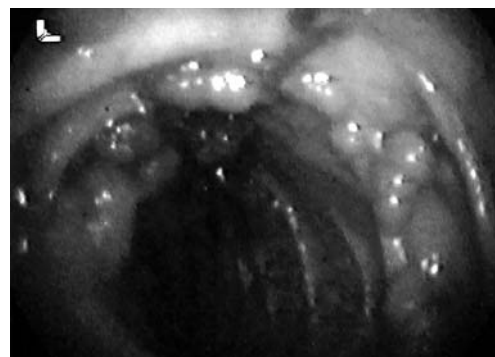
**Fig. 1.** Barium enema showing smoothness of the colonic wall and multiple pseudopolyps

Ryc. 1. Wlew kontrastowy ukazujący wygładzenie ścian jelita grubego i liczne pseudopolipy

J-pouch. When drain was in place the assistant sutured it to the buttock skin to prevent its dislocation. Only then the anterior rectal wall cut and removed the resected colon from the operating field. Then two layers suture was placed on the anterior anastomotic wall. The first layer was usually con-

**Fig. 2.** Endoscopic view in ulcerative colitis – multiple ulcerations, blood and pseudopolyps

Ryc. 2. Rozległe owrzodzenia, krew i pseudopolipy w badaniu endoskopowym wrzodziejącego zapalenia jelita grubego

**Fig. 3.** Endoscopic view in colonic polyposis

Ryc. 3. Obraz endoskopowy polipowatości jelita grubego



Fig. 4. Colon and rectum from inside with visible extensive ulcerative colitis lesions and colonic stenosis in the middle part – postoperative view

Ryc. 4. Okrężnica i odbytnica z widocznymi od wewnątrz rozległymi zmianami wrzodziejącego zapalenia jelita grubego i cechami zwężenia w środkowym odcinku – widok pooperacyjny

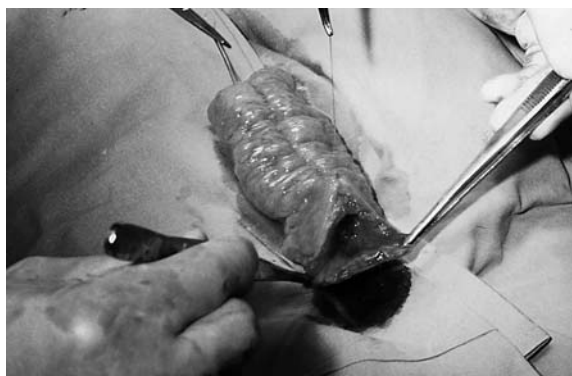


Fig. 5. J-pouch created with terminal part of ileum – intraoperative view

Ryc. 5. Zbiornik jelitowy „J” wytworzony z końcowego odcinka jelita biodrowego – obraz śródoperacyjny

tinuous. The second layer as a rule was an interrupted suture. In all elective cases the authors have not done a decompressing ileostomy. The authors believe that this function can be fulfilled by the drain placed during the operation and going from ileum through the pouch and then by the anus. All patients had uneventful postoperative period. Neither fistulas nor the suppuration in the anastomosis and pouch were observed. In the whole period of observation the authors have not encountered pouch-rectal anastomosis stenosis (Fig. 6, 7).

Several patients with the complications like – haemorrhage (2), perforation (2), and toxic colitis (1) were operated as urgent. Two of them were operated in one stage procedure. In the remaining 3 patients the operation was performed in two stages. The first consisted of resection of the

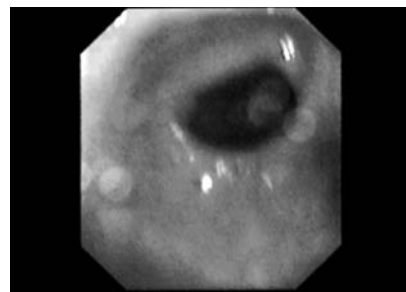


Fig. 6. Endoscopic view of ileo-pouch-rectal anastomosis

Ryc. 6. Obraz endoskopowy zespolenia zbiornika jelitowego z odbytnicą

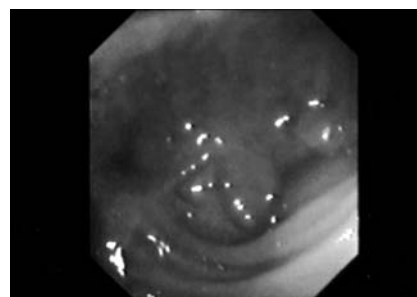


Fig. 7. J-pouch from inside – endoscopic view 4 years after operation

Ryc. 7. Wnętrze zbiornika jelitowego w obrazie endoskopowym 4 lata po operacji

whole colon and upper part of the rectum. The rectal remnant was closed and left *in situ* like in Hartmann procedure. Ileum was exteriorized as a preternatural anus. After the operation the patients were admitted to Intensive Care Unit and after stabilisation of their general state they were transferred on General Ward. Several months later the second stage was performed. Ileum was mobilised, excised from the skin, and ileal pouch was created and then connected to the rectal stump. The authors did not create decompressing ileostomy and its role, similarly as in elective procedure, was fulfilled by the wide drain introduced by the anus through the ileum above the upper pouch margin.

In the cases of 4 patients with CP one stage elective procedure was performed. Similarly as in elective procedure in patients with UC the authors did not create the decompressing ileostomy. Function of the decompression of the ileum was fulfilled by drain introduced through the anus above anastomosis.

Results

All 14 elective operations in UC patients and 4 in CP patients were performed as one stage procedure. There were no complications in this group.

Table 3. Ulcerative colitis complications**Tabela 3.** Powikłania wrzodziejącego zapalenia jelita grubego

Type of complications (Rodzaj powikłań)		Number (Liczba)
Pouch inflammation (Zapalenie zbiornika – <i>pouchitis</i>)		4
Perianal fistula, sphincter dysfunction (Przetoki okołoodbytnicze z uszkodzeniem zwieraczy)		1
Stenosis anastomosis (Zwężenie zespolenia)	Stapled (Staple)	1
	Hand sewn (Ręczne)	1
Death (Zgon)		2

All patients observed increase in the quality of life and in UC patients diminishing in the number of stools, especially during the nights.

Five patients operated as urgent cases because of severe complications due to UC. Among them 2 were operated due to haemorrhage, other 2 due to colon perforation and 1 due to toxic colitis. Although half of them were performed as one stage procedure all were completed successfully. The fifth patient was operated in the stage of toxic colitis. He was admitted to the clinic in very bad general condition and his state was deteriorating. Eventually he died on the third post operative day.

Four patients developed severe inflammation of the pouch mucosa. They were treated successfully by sulfasalazine and metronidazol enema's (Tab. 3). Two others after several weeks developed stenosis in the pouch-rectal anastomosis. In 1 case it was hand sewn and in the other stapled anastomosis. Endoscopic examination of those patients revealed severe inflammation in both pouch and rectal stump, which aggravated the stenosis symptoms. Patient with stapled anastomosis had to be operated as symptoms of stenosis were very severe. The other patient was intensively treated by sulfasalazin, corticoids and azatioprin which resulted in inflammation resolution and the stenotic part was endoscopically widened by the hydrostatic balloon. The third patient due to severe inflammation and many fistulas had anal sphincter function destroyed which resulted in faecal incontinence. The authors were forced to perform total rectal and anal resection and to create permanent anus on the ileum. After that his general state has improved and he is feeling well and still active working as a medical doctor. It was the only case the authors have observed disorders in anal

sphincter function. One patient operated on because of UC with hand sewn anastomosis died two years after one stage restorative proctocolectomy. She died due to rectal adenocarcinoma with liver metastasis. Carcinoma emerged from the polyp in the rectal stump. She did not come to hospital in spite of the fact that she was called to many times. Her case stresses the importance of the regular periodic controls which patients have to fulfil. It is the only possibility to find and successfully treat early pathological changes which can emerge in short rectal remnant.

Discussion

Colonic polyposis (CP) and familial adenomatous polyposis are genetic disorders with a great malignant potential and they are important indication for urgent surgical treatment [1, 5, 10]. Ulcerative colitis (UC) with often occurring recurrences, because of possible malignancy development, should be treated operatively too [1, 2, 10].

The best and safest moment for the operation in patients with UC is longer remission when all typical inflammatory changes are absent or only slightly pronounced. The Truelove and Witts classification is very helpful in judging the right moment for the operation [15]. When nevertheless intensive medical treatment (sulfasalazine, corticoids, azatioprine or cyclosporin) exacerbation cannot be controlled patient should be in short, two–three days period, prepared for the permanent surgical solution. Absolute and urgent indications for the operation are severe complications like colon perforation, severe haemorrhage, obturation ileus or toxic colitis. The authors have treated five such patients. Two of them were operated by one stage operation and three others in two stage procedure. In four patients success was achieved. One patient with toxic colitis died. The surgical treatment of those complicated patients is very risky but it is the only way to save their life. Operation should be restricted to really necessary manoeuvres which are proctocolectomy, closing of the rectal stump like in Hartmann procedure and creating decompressing ileostomy. Patient with a severe peritonitis due to colon perforation to the abdominal cavity is rinsed with Betadine solution several times. Next laparostomy or rinsing drainage is performed in order to control peritonitis.

In elective surgical treatment of UC and CP, conventional proctocolectomy and modified colectomy with double stapler suture is used. In both methods entire diseased colon and rectum are removed. Ileal pouch is anastomosed with anal canal either by stapler or hand sewn on the level of

dentate line. This type of operation allows for permanent cure of the UC and CP patients and the remain free of symptoms for the rest of their life. However, the draw back of the procedure is high percentage of postoperative complications, mainly distant which can be as high as 13–60% of all operated patients [7, 8, 10, 16, 17]. Among those complications, often encountered are pelveoperitonitis, perianastomotic abscesses, jejunovesicular, jejunovaginal and jejunojejunal fistulae. They have to be treated operatively and the final result can be removal of the jejunal pouch and creation of permanent ileostomy. The other group of the complications are sphincter dysfunction, vesicular athony and penile erection which are caused by pelvic neural plexus breakdown [8]. The most common complication is stenosis of the ileoanal anastomosis, especially stapled anastomosis are endangered by this complication [8–10, 16]. The main advantage of the stapled anastomosis is possibility to perform low patent anastomosis. The other advantage is a shorter time of the procedure comparing with hand sewn anastomosis. On the other hand its draw back is smaller diameter of the anastomosis which combined with often encountered pouchitis can result in stenosis [9]. It makes bougienage of the anastomotic ring an often performed procedure and decompressing ileostomy must be kept longer. The stenotic anastomotic ring causing problems in faeces passage can be one of the reason for the fistula formation.

In presented group ileoanal anastomosis was hand sewn. Only in two cases staplers were used. In one case serious stenosis resulted and decompressing ileostomy had to be performed. Most of the patients were qualified after thorough pharmacological treatment and preoperative preparation while inflammatory process was under control and general state of patients was good. In preoperative assessment, good cooperation between gastroenterologist and surgeon is crucial. They can estimate optimal time for the surgery. In so prepared group of patients no big inflammatory changes were found intraoperatively. This allowed authors to perform whole treatment as a one stage procedure. After low anterior rectal resection short 4–5 cm long rectal stump was connected with ileal “J” pouch created according to Utsonomiya. As many other surgeons the authors did not use decompressing ileostomy [18]. Ileal decompression was excellently fulfilled by wide perforated drain introduced by anus, rectal stump 10 cm over ileal pouch. In the presented group of patients only in one case stenosis occurred. Rest of patients during several years of observation had no problems nor with sphincter patency neither with faeces passage. Good long term results were confirmed during postoperative endoscopic examination. In some patients during

finger examination hard fibrotic anastomotic ring could be felt. No patient in the group had any fistulas formation. No sphincter disruption or vesicular athony was observed either. The most severe complication found was cancer emerging in the rectal stump two years after operation due to UC. The patient despite warnings never showed for periodic control examination. When the malignant process was diagnosed it was far advanced with distant metastases in both liver lobes. The place of the cancer origin was not found. The question if the tumor grew in the rectal stump or the ileal pouch cannot be answered. In recent literature, cases of malignancy in patients after total proctocolectomy emerging from either anal canal of ileal pouch were published [19, 20]. All patients despite the type of operation should be followed up by periodic endoscopic examination. One should not rely on the inflammation symptoms to examine the patient after restorative proctocolectomy. Presented group of patients is under constant clinical control with scheduled endoscopic examinations used not only for inflammation confirmation but to exclude malignant process. Several patients due to recurrent pouchitis or rectal stump inflammation had to be treated by anti-inflammatory agents – mainly sulfasalazine and metronidazole. The complaints caused by inflammation were not very severe however. All patients are in good general health, some returned to work and have no problems while performing all their duties.

The goal was to present the small group of patients and draw attention to good late results, small number of postoperative complications, especially hand sewn anastomosis stenosis despite the fact that the authors resigned from decompressing ileostomy. Even after more radical methods like proctocolectomy the most severe complication, malignant tumor can emerge. It confirms that the problem of UC and CP treatment is not yet completely resolved. All the time one has to look for new ways of treatment and constant improvement in the methods is necessary.

Restorative proctocolectomy with ileal pouch-rectal anastomosis is relatively safe method for ulcerative colitis and colonic polyposis treatment.

Procedure can be safely performed in one stage when remission and properly prepared patients with ulcerative colitis and colonic polyposis are qualified for the surgery.

When operation is performed due to complications (haemorrhage, colon perforation, toxic colitis) whole procedure should be divided into two or even three stages.

Regular follow-up with endoscopic examinations are mandatory, both in patients operated due to ulcerative colitis and colonic polyposis, to exclude malignant process arising from dysplastic lesions.

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