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FUNCTIONAL OUTCOME AND QUALITY OF LIFE AFTER RESTORATIVE PROCTOCOLECTOMY AND ILEAL POUCH-ANAL ANASTOMOSIS

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A b s t r a c t: Restorative proctocolectomy with ileal pouch-anal anastomosis is the surgical treatment of choice for patients with medically refractory ulcerative colitis, ulcerative colitis with dysplasia or cancer, or familial adenomatous polyposis (FAP).

The aim of this study is to report our 6-year experience of restorative proctocolectomy and IPAA at a tertiary referral centre.

Chart review was performed for 7 patients undergoing IPAA from 2006 to 2010. Preoperative histopathological diagnoses were ulcerative colitis (n = 5), FAP (n = 1) and other (n = 1). We collected data regarding patient demographics, type and duration of the disease, previous operations and indications for surgery. We analysed the operative protocols and postoperative pathological diagnoses. Early (within 30 days after surgery) and late complications were noted. Follow-up was conducted upon annual function and a quality of life questionnaire, physical examination and endoscopic evaluation of the pouch.

Postoperative histopathological diagnoses were: ulcerative colitis (n = 3), indeterminate colitis (n = 2), FAP (n = 1) and colonic necrosis and gangrene (n = 1). The average age of the operated patients was 48, with a female predomination of 71%. The mean duration of the follow-up was 4 years. We report 2 cases of steroid use prior to operation as well as 2 cases of extraintestinal manifestations. We report no septic complications and 3 cases of pouchitis. Functional results and quality of life were good to excellent in all 7 cases of IPAA.

Restorative proctocolectomy with IPAA is a safe procedure with a low morbidity rate. Functional results are generally good and patient satisfaction is high.

Key words: ulcerative colitis, indeterminate colitis, IPAA, hand sewn J-pouch, functional results, quality of life.

Backround

Restorative proctocolectomy with ileal pouch-anal anastomosis is a surgical treatment of choice for patients with medically refractory ulcerative colitis, ulcerative colitis with dysplasia or cancer, or familial adenomatous polyposis (FAP) [1, 2]. Since the first reports by Sir Alan Parks and John Nicholls in 1978 [3] several modifications of this procedure have been made. Pouch configuration with either two (J), three (S), or 4 (W) loops of the ileum has been performed and the J pouch has become the most commonly used configuration [4]. The initial functional results are marred by a high evacuation frequency with gross imperfection of anal continence and the overall functional results improve gradually during the first 3–6 months with further improvement over the next couple of years. The frequency decreases and stabilises to 4–5 evacuations per day [5]. A few patients may need to evacuate during the night, others may suffer minor incontinence problems, particularly at night, and most patients need to use constipating drugs. the vast majority of patients consider that the overall general satisfaction with their sexual life had normalized considerably after surgery [6]. The ultimate functional outcome is influenced by significant prognostic factors described as the most feared complications, such as anastomotic leakage with pelvic sepsis, fistulae and pouchitis. Most authors report encouraging short-term results with low failure rates. Only a few large series, providing the opportunity to examine the operation in detail with meaningful outcome analysis, are available [1]. Most pelvic pouch patients have the operation at a young age and can be expected to live another 40–50 years [5]. This is a reason for concern regarding the long term complication rate and the stability of function over time. It is regarded that mean maximum resting anal pressure and maximum squeeze pressure significantly lower in elderly people, but in patients with longstanding ulcerative colitis any tendency for the anal sphincter to weaken with age may be counterbalanced by the effect of work hypertrophy on the anal sphincter. For that reason it should not be assumed that elderly patients with ulcerative colitis have a weaker sphincter than younger patients [7].

Patients and methods

Our group of analysed patients consisted of 7 patients who went through restorative proctocolectomy in the University Digestive Surgery Clinic at the Medical Faculty in Skopje in the period between 2006 and 2010. Indica-

tions for surgery included FAP in 1 case, ulcerative colitis in 5 cases and colonic gangrene and necrosis in 1 case. The age of the patients varied from 29 to 65. Only one patient (colonic gangrene and necrosis) required emergency surgery. In this case a 3-stage procedure was performed. The first stage included colectomy with occlusion of the distal rectum at the level of the transitional zone (Hartmann`s procedure) and an end ileostomy (Brooke). The second stage consisted of the construction of an ileal J-pouch (hand-made, of distal segment of the ileum) with double stapled pouch-anal anastomosis and temporary protective loop ileostomy. During the third stage the loop ileostomy was closed after endoscopic and radiological assessment of the ileal pouch and anastomosis. The remaining 6 patients were operated on an elective basis, mainly in the course of long-lasting ulcerative colitis. They underwent a 2-stage procedure: the first stage included proctocolectomy with ileal pouch construction, pouch anal anastomosis and loop ileostomy, while the second stage consisted of occlusion of loop ileostomy.

The pouch-anal anastomosis was performed by means of a double stapled suture with a CEEA 31 stapler about 1–1.5 cm above the dentate line. In all operated patients an ileal J-shaped pouch was constructed. The average pouch length was about 15–20 cm resulting in optimal pouch capacity of 150–200 ml. In all 7 cases the pouch was hand-sutured and the pouch-anal anastomosis was protected by loop ileostomy. The loop ileostomy was closed after 2–4 months.

Before occlusion of the ileostomy, each patient underwent rectoscopy with assessment of pouch-anal anastomosis and an X-ray study of the ileal pouch with barium introduced via a Foley catheter placed in the efferent loop of the ileostomy. The collected material was analysed in relation to early and late postoperative complications as well as final functional results.

Results

All the patients in our review underwent a proctocolectomy with the formation of a J-pouch reservoir for the IPAA. Out of 7 patients, 5 patients had a diagnosis of ulcerative colitis, 1 had FAP, and 1 had colonic necrosis and gangrene. In the ulcerative colitis group, the colectomy specimen revealed 2 cases of indeterminate colitis. The mean patient age at the time of pelvic pouch creation was 48 years and the median patient age was 52 years (standard deviation 12.6; range 29–65). The age distribution is shown in Chart 1.

This chart makes it evident that patients can be divided into two separate, rather homogenous groups according to their age: a group of younger patients with a mean and median age range of 34 and 36 (standard deviation 3.5; range 29–36) and elderly patients with a mean and median age of 59 years

(standard deviation 5.2; range 52–65). Gender distribution of the patients involved in the study is shown in Chart 2.

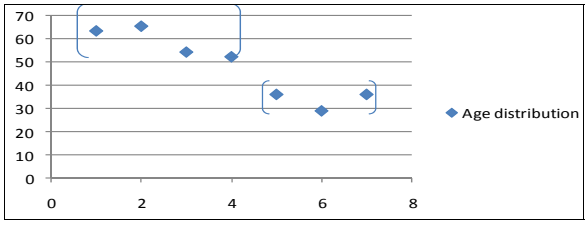

Chart 1 – Age distribution

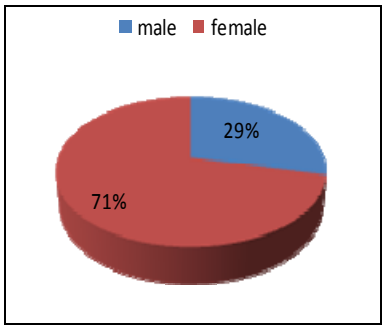

Chart 2 – Gender distribution

Other clinical data are shown in Table 1.

Table 1

Clinical data

Duration of UC, yr (± SD)	7 ± 9.5
Duration of IPAA, yr (± SD)	4 ± 2.1
Refractory UC as an indication for IPAA cases (%)	5 (100%)
Excessive alcohol use (%)	0%
Excessive tobacco use (%)	0%
Steroid use, cases (%)	2 (40%)
Family history of inflammatory bowel disease (%)	0%
Extraintestinal manifestations (%)	2 (40%)

Postoperative complications (divided into early and late complications) are shown in Table 2.

Table 2

Complications

Type	Early, n (%)	Late, n (%)	Total, n (%)
Anastomotic leak or separation	0 (0%)	0 (0%)	0 (0%)
Bleeding pouch	0 (0%)	0 (0%)	(0%)
Pouch infarction	0 (0%)	0 (0%)	0 (0%)
Parapouch abscess or peritonitis	0 (0%)	0 (0%)	0 (0%)
Pouch/anastomotic-cutaneous fistula	0 (0%)	0 (0%)	0 (0%)
Pouch-vaginal fistula†	0 (0%)	0 (0%)	0 (0%)
Ileostomy retraction or prolapse	0 (0%)	0 (0%)	0 (0%)
Anal stricture	0 (0%)	0 (0%)	0 (0%)
Incontinence	0 (0%)	0 (0%)	0 (0%)
Small bowel obstruction	1 (14%)	1 (14%)	2 (29%)
Pouchitis	3 (43%)	0 (0%)	3 (43%)
Incisional hernia	1 (14%)	0 (0%)	1 (14%)
Wound infection	2 (29%)	0 (0%)	2 (29%)
Total number of patients with complications	**7**	**1**	**8**

† out of total number of female patients

Functional results and quality of life in patients that underwent restorative proctocolectomy and ileal pouch-anal anastomosis are shown in Table 3.

Table 3

Functional outcome

Variable	Ulcerative colitis (n = 3)	Indeterminate colitis (n = 2)	Other (n = 2)	Total (n = 7)
Bowel movement per 24hrs Median (range)	3 (2–5)	5 (4–10)	3 (1–5)	3 (1–10)
Urgency				
Always, n (%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Sometimes, n (%)	1 (33%)	1 (33%)	0 (0%)	2 (29%)
Seepage				
Night, n (%)	2 (66%)	2 (100%)	2 (100%)	6 (87%)
Day and night, n (%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)

Dietary restriction, n (%)	0 (0%)	1 (50%)	0 (0%)	1 (14%)
Antidiarrheal medications				
Always, n (%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Sometimes, n (%)	2 (67%)	2 (100%)	2 (100%)	6 (87%)
Sexual function limitation	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Quality of life				
Good/excellent, n (%)	2 (67%)	1 (50%)	2 (100%)	5 (71%)
Fair, n (%)	1 (33%)	1 (50%)	0 (0%)	2 (29%)
Poor, n (%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)

Discussion

There is strong evidence indicating that complications, in particular septic complications and pouchitis, may develop several years after the operation and that the probability of a complication occurring increases as the follow-up time progresses, often due to erroneous original diagnosis [5]. An originally erroneous diagnosis may influence the outcome. Large series of patients show that 15–20% of all colectomy specimens removed for ulcerative colitis are described as indeterminate colitis. The cumulative risk of complications after ileal pouch-anal anastomosis is greater in the indeterminate colitis group compared to the ulcerative colitis group, and becomes more evident as time elapses [8]. the cumulative risk of developing septic complications is almost 25% at 5 years in ulcerative colitis and the corresponding risk in FAP patients is less than 10% [9]. We report 3 cases of pouchitis occurring in the first year after the operation and 2 of them were in the indeterminable group. Our percentage of 42% pouchitis should be regarded in the light of the very small number of patients in total who are included in the study. Another factor that should be taken into consideration is that there was a case of mild pouchitis occurring only once in the early stage of the postoperative period. Regarding the fact that we included only one case of FAP, we believe that this comparison should have no significance. Analysing the demographics shown in Table 1, we have to pay attention to one important parameter: the duration of the ulcerative colitis before the operation. In our study, the mean value was 7 years, however, with a very high standard deviation of almost 9.5 years. The range of duration was 2–20 years. We regard the duration of the disease of 20 years prior to the operation as an extreme case. In this aspect our results are in the vicinity of the results referred to by Fazio et al. [1]. According to a meta-analysis of 4,183 patients by Lovegrove et al., anastomotic leak occurred in 6.9% and 8.8% in the hand-sewn group like ours, pelvic sepsis occurred in 7.2% of patients, pouch related fistulae occurred in 4.7% of patients and 5.9% in the hand-sewn group. 16.8% of patients developed

pouchitis following closure of the ileostomy, while stricture of the pouch-anal anastomosis occurred 12.5% in stapled anastomosis like ours. Pouch failure occurred in 5.3% of patients [10]. We report only 3 cases of pouchitis and at the same time neither anastomotic leak nor pelvic sepsis is described. Patients with ulcerative colitis are often taking steroids prior to undergoing proctocolectomy with IPAA. Because steroid use has been associated with a substantially increased risk of anastomotic leakage following large bowel resection [11] several studies have advocated the use of diverting ileostomy with IPAA in patients on steroids [12, 13]. Our experience shows that there is no difference between groups of patients who were on steroid therapy and who were not on steroid therapy prior to the pouch formation. We also have to emphasize the fact that it is a very small group of patients that we refer to. Regarding the functional outcomes, the Lovegrove et al. meta-analysis showed [10] incontinence to liquid stool in 29.4% of cases. Seepage during the daytime was reported in 25.6% and during the night in 29.8%. A daytime pad usage was reported in 15.5% of patients and a night-time usage in 26.7%, correlating to the higher incidence of nocturnal seepage. Our analysis showed 87% nocturnal seepage, and it is by far higher than the percentage of the meta-analysis. It is important to note that the nocturnal seepage occurred only in the first six months after the closure of the ileostomy and that it significantly improved in the course of time. Many of the studies assessing the quality of life of patients suffer from weaknesses in defining quality of life or in the use of quality of life instruments. Another issue that has to be considered is the cultural inhibition of the patients when referring to their sexual function limitations. According to the data we have gathered there were no limitations in the sexual function.

Conclusion

Restorative proctocolectomy with IPAA is a safe procedure with a low morbidity rate. Functional results generally are good and patient satisfaction is high.

The authors declare no conflict of interests.

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Р е з и м е

ФУНКЦИОНАЛНИ РЕЗУЛТАТИ И КВАЛИТЕТ НА ЖИВОТ ПО РЕСТОРАТИВНА ПРОКТОКОЛЕКТОМИЈА И ИЛЕАЛЕН ПАУЧ-АНАЛНА АНАСТОМОЗА

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Ресторативна проктоколектомија со илеален пауч-анална анастомоза е хируршки метод на избор за пациенти со улцерозен колит рефрактерен на медикаментозна терапија, улцерозен колит со дисплазија или карцином и фамилијарна аденоматозна полипоза (ФАП).

Целта на оваа студија е да се прикаже нашето шестгодишно искуство од ресторативна проктоколектомија со илеален пауч-анална анастомоза во терциерна медицинска установа.

Беа прегледани историите на 7 пациенти на кои беше конструирана илеален пауч-анална анастомоза во период од 2006 до 2010 година. Предоперативни хистопатолошки дијагнози беа улцерозен колит (n = 5), ФАП (n = 1) и други (n = 1). Собравме податоци во врска со демографските карактеристики на пациентите, типот и должината на болеста, претходни болести и индикации за операција. Ги анализиравме оперативните протоколи и постоперативните патолошки дијагнози. Беа нотирани рани (до 30 дена постоперативно) и доцни компликации. Следењето се изврши преку годишни прашалници за функцијата и квалитетот на животот, физикален преглед и ендоскопска евалуација на паучот.

Постоперативни хистопатолошки дијагнози беа: улцерозен колит (n = 3), индетерминантен колит (n = 2), ФАП (n = 1) и некроза и гангрена на колон (n = 1). Средната возраст на оперираните пациенти беше 48 години со предоминација на женски пол од 71%. Просечно времетраење на следењето беше 4 години. Опишавме два случаја на употреба на стероиди пред операцијата, како и два случаја на екстраинтестинални манифестации. Опишавме 3 случаја на пауч и ниту една септична компликација. Функционалните резултати и квалитетот на животот беа добри до одлични кај сите 7 случаи на илеален пауч-анална анастомоза.

Ресторативна проктоколектомија со илеален пауч-анална анастомоза е сигурна процедура со низок морбидитет. Функционалните резултати се добри и задоволството на пациентите е високо.

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Клучни зборови: улцерозен колит, индетерминантен колит, илеален пауч-анална анастомоза, рачно шиен J-пауч, функционални резултати, квалитет на живот.

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