

# Review of our ileal pouch experience in the light of literature

Murat Çakır, Serhat Doğan, Tevfik Küçükartallar, Ahmet Tekin, Şakir Tekin

## ABSTRACT

**Objective:** Retrospective proctocolectomy is a distinguished, sphincter saving treatment used for the treatment of ulcerative colitis and FAP disease. We aimed to evaluate ileal pouch interventions performed at our clinic and their results in the light of literature.

**Material and Methods:** Medical records of 35 restorative proctocolectomy and J pouch ileo-anal anastomosis surgeries performed at Necmettin Erbakan University, Meram School of Medicine between the years 2006-2013 were retrospectively examined. The patients were assessed according to their age, gender, length of hospital stay, diagnosis, follow-up duration and pouch-related complications. All patients were contacted by phone and they were scheduled for controls at the outpatient clinic.

**Results:** Nineteen patients were male (54%) and 16 were female (46%). Their mean age was 45 years (21-74). The mean length of hospital stay was 11 (5-20) days. Twenty two (63%) patients were operated on due to FAP, 12 (34%) due to synchronous rectum cancer and colon tumor or polyp, and one (3%) due to ulcerative colitis. All patients received J pouch and protective ileostomy. After the closure of ileostomy, two cases were identified to have J pouch fistulas. The patients were followed up for 6 months to 7 years. They were contacted by phone and they were questioned about their active complaints, number of defecations, urinary and sexual dysfunctions. It was identified that they had 5 (3-8) defecations per day on average and that 4 (11%) cases had one nocturnal defecation. No pouchitis was identified in the follow-up endoscopic examinations.

**Conclusion:** Restorative proctocolectomy and ileo-anal anastomosis technique is a surgical procedure that can be performed with low rates of morbidity and mortality, including the elderly.

**Key Words:** Ileal pouches, ileo-anal anastomosis, restorative proctocolectomy

## INTRODUCTION

Restorative proctocolectomy, which was originally described by Parks in 1978, is a distinguished treatment currently used for treating ulcerative colitis and familial adenomatous polyposis (FAP) (1). Defecation through a natural route is ensured by this method, which removes the entire diseased colon and rectum. Additionally, no serious deteriorations develop in the quality of life in more than 90% of the patients. Generally, an average six defecations per day and one nocturnal defecation do not influence the quality of life (2). The problem of continence is low especially among young patients. While the entire surgical mortality is around 1%, pouch-related morbidity rates are reported up to 18-20% (3). Even though problems such as small intestine obstruction and pouchitis are encountered after surgery, it is the best treatment method that is known as compared to other treatment methods.

There are ongoing controversies about the type of pouch to be selected, requirement of mucosectomy, the type of ileo-anal anastomosis to be performed and whether protective ileostomy is required in the context of ileal pouch anal anastomosis (IPAA) method (4). Restorative proctocolectomy does not have any contraindications, apart from anal incontinence and advanced stage colorectal cancer.

We aimed to investigate the ileal pouch interventions performed at our clinic and their results in the light of literature.

## MATERIAL AND METHODS

The results of 35 restorative proctocolectomy and J pouch ileo-anal anastomosis surgeries performed at Necmettin Erbakan University, Meram School of Medicine between the years 2006 and 2013 were retrospectively investigated upon approval received from the Non-Clinical Research Ethics Committee of Necmettin Erbakan University, Meram School of Medicine. The patients were assessed with respect to their age, sex, hospital stay, diagnosis, follow-up duration and pouch-related complications. All the patients were contacted by phone and were scheduled for an outpatient follow-up visit. The patients who complied with follow-up were questioned for sexual-urinary dysfunction and defecation habits, and their pouch structure was endoscopically assessed.

Department of General Surgery,  
Necmettin Erbakan University  
Meram Faculty of Medicine,  
Konya, Turkey

### Address for Correspondence Murat Çakır

Department of General Surgery,  
Necmettin Erbakan University  
Meram Faculty of Medicine,  
Konya, Turkey

Phone: +90 505 605 51 58

e-mail:

drmuratcakir@hotmail.com

Received: 09.06.2014

Accepted: 23.07.2014

©Copyright 2015

by Turkish Surgical Association

Available online at

www.ulusalcerahidergisi.org

### Statistical Analysis

The Statistical Package for Social Sciences (SPSS Inc., Chicago, IL, USA) program for Windows 13.0 was used for analysis. In assessing the study data, descriptive statistical methods (average, standard deviation, frequency) were used.

### RESULTS

Nineteen (54%) patients were male and sixteen (46%) were female. Their mean age was 45 years (21-74). The mean length of hospital stay was 11 (5-20) days. Twenty two (63%) were treated due to FAP, 12 (34%) for colon tumor or polyp with concomitant rectum cancer and 1 (3%) for severe dysplasia in ulcerative colitis. All the patients underwent J pouch and protective ileostomy procedures. The ileostomies of all the cases were closed in the 3<sup>rd</sup> month, on average. Prior to ileostomy take-down surgery, the J pouch structure was endoscopically examined in all cases. Following the closure of ileostomy, two patients developed fistulas through the J pouch (6%) in the 2<sup>nd</sup> and 6<sup>th</sup> months. Seton was applied on fistulas at high levels. While one patient was treated with this method, the ileostomy had to be re-opened for the other one. The patients were followed up for 4 years (6 months-7 years) on average. Thirty (86%) of the cases were contacted by phone, and they were asked about their active complaints, number of defecations as well as urinary and sexual dysfunctions. They were scheduled for endoscopic assessment appointments. None of the cases under the age of 40 years were observed to have any urinary and sexual dysfunctions. Urinary dysfunctions were encountered especially in 8 (23%) elderly patients. The mean number of defecations per day was 5 (3-8), with one nocturnal defecation identified in 4 (11%) cases. Pouchitis was not detected in any of the cases in endoscopic control examination. In the file review, it was found out that medical treatment was performed in 2 (6%) cases due to pouchitis. Liver metastasis was observed in 5 (14%) cases. It was determined that 5 (14%) patients had died.

### DISCUSSION

Restorative proctocolectomy performed with a three limb S pouch, which was introduced in the early 1980s, brought about a revolution in the surgical treatment of ulcerative colitis and FAP (5). Soon afterwards, Utsonomiya (6) published the two-limb J pouch technique. The need for catheterization in the S pouch due to its long efferent limb was eliminated with the two limb J pouch method (7). After the resolution of the problem of the long efferent limb, J pouch received widespread acceptance and its use became even more common (6, 7). Currently, J pouch is the most frequently administered pouch type. J pouch is simpler to administer as compared to other pouches, and it can be easily performed in a short period with the aid of stapler. S pouch has a larger volume than J pouch and it may access the pelvis more conveniently than J pouch. Because of this feature, the use of S pouch is suitable in obese patients with a short mesentery, and in asthenic persons with a thin, long pelvis structure in order to reduce tension on anal anastomosis (8). In spite of this advantage, S pouch should always be administered manually, which is a time-consuming procedure. Although W pouch of four limbs and isoperistaltic

H pouch of two limbs have also been described to provide a larger volume, these pouches did not gain wide acceptance (8). In all our cases, a J pouch procedure was performed. It was preferred since it was easy to carry out, provided an adequate reservoir and had the advantage of being created in a short time. Staplers were used during the procedures, which seriously reduced the procedure time. Pouches of 15-18 cm on average were prepared.

When the ileal pouch anal anastomosis technique first came into use, mucosectomy used to be performed for every patient. A rectal stump with varying lengths would be left in place and a mucosectomy would be performed (9). Mucosectomy constitutes the long and hemorrhagic part of the IPAA procedure. The long duration of anal diversion and effective anal dilatation are accepted as reasons for post-operative incontinence. Once it was identified that the anal transition site immediately above the dentate line contributed to incontinence, the requirement for mucosectomy started to be questioned (10). However, a site with cancer is left behind if a rectum wall of more than 1.5-2 cm remains in place (11). In our clinic, our cases routinely undergo mucosectomy. However, the patients are followed up more frequently if there is remaining mucosa in the distal rectum due to surgical difficulty, and they are informed about cancer growth. The mucosectomy procedure is performed especially if the rectum mucosa of young patients remains in place. However, the mucosectomy procedure is not preferred for rectal mucosa, in elderly patients.

It was believed that protective ileostomy was absolutely required following an IPAA procedure in the initial years of the restorative proctocolectomy technique (11, 12). Even though protective ileostomy does not prevent potential leakages from distal anastomosis, it ensures that the patient experiences this event more lightly in clinical terms. Pelvic sepsis is the most frightening complication for IPAA patients, and it may sometimes be life-threatening, and sometimes result in events that would require resection of the pouch. As experience in IPAA built up, single session surgeries without protective ileostomy gained acceptance (12). Small intestine obstruction, one of the most important long-term problems for IPAA patients, is more frequent among patients undergoing ileostomy (13). The protective loop ileostomy may be closed 6-12 weeks after surgery. Before the closure of ileostomy, the ileal pouch should be radiologically controlled via the anal path with contrast material (pouchogram) (13). If no problems are present in the pouchogram, patients may be admitted to surgery for ileostomy closure. Following these surgeries performed at our clinic, a temporary ileostomy is routinely opened and it is closed 3 months later on average. No obstruction-related complications have been encountered in our patients in whom an ileostomy was opened. We are convinced that ileostomy is required to maintain an ileal pouch anal anastomosis with very low localization. Otherwise, the pelvic infection due to leakage may contribute to infertility especially in young women. We do not encounter any serious problems during and after the closure of ileostomy. However, re-hospitalization, pre-operative preparation

and the surgical procedure result not only in an extra problem for the patient but also increased cost.

Although it has been suggested in recent years that IPAA did not have good functional outcomes in patients above the age of 50, it was demonstrated that restorative proctocolectomy could be safely performed even in patients above 70 years (14, 15). Twelve of our cases were above the age of 50 and three of them were above the age of 70. In our follow-up period, we identified that the group of elderly patients had more frequent urinary dysfunction. We did not observe any significant differences between patients below or above the age of 40 with respect to continence.

The parameters that have the biggest influence on functional outcomes are the number of defecations and fecal incontinence. They both increasingly improve within the first two years. In large series, the average number of daytime defecations is reported as 6 and nocturnal defecations as 1 (16, 17). While our cases had 5 defecations per day on average, 4 cases were identified to have 1 nocturnal defecation. It was determined that the highest number of defecations was 8. However, we identified that the average number of defecations was better than literature reports. None of our cases had incontinence.

The rate of pouch-related morbidity is approximately 40% and the rate of pouch failure is 10% (18, 19). Therefore, pouch revision, pouch removal or permanent ileostomy may be necessary. The other complications include pelvic sepsis, anastomotic leak and pouch fistulas (20, 21). We detected fistulas in 2 of our cases and applied setons. It was seen that the fistula of one of the patients opened to a wide abscess pouch and we had to open another ileostomy since the treatment performed did not result in success.

## CONCLUSION

Restorative proctocolectomy and J pouch ileo-anal anastomosis surgery constitute a distinguished surgical method, which can be applied with low morbidity and mortality among patients with FAP and ulcerative colitis including elderly patients.

**Ethics Committee Approval:** Ethics committee approval was received for this study from the ethics committee of Necmettin Erbakan University Meram Medical Faculty, Non-Invasive Clinical Research Ethics Committee (2014/666).

**Informed Consent:** Written informed consent was obtained from all patients who participated in this study.

**Peer-review:** Externally peer-reviewed.

**Author Contributions:** Concept - M.Ç., Ş.T.; Design - M.Ç.; Supervision - T.K., A.T.; Funding - M.Ç.; Materials - M.Ç., S.D.; Data Collection and/or Processing - S.D.; Analysis and/or Interpretation - M.Ç.; Literature Review - M.Ç.; Writer - M.Ç.; Critical Review - T.K., A.T.

**Conflict of Interest:** No conflict of interest was declared by the authors.

**Financial Disclosure:** The authors declared that this study has received no financial support.

## REFERENCES

1. Nasmyth DG, Williams NS, Johnston D. Comparison of the function of triplicated and duplicated pelvic ileal reservoirs after mucosal proctectomy and ileo-anal anastomosis for ulcerative colitis and adenomatous polyposis. *Br J Surg* 1986; 73: 361-366.
2. Burns EM, Bottle A, Aylin P, Clark SK, Tekkis PP, Darzi A, et al. Volume analysis of outcome following restorative proctocolectomy. *Br J Surg* 2011; 98: 408-417.
3. Beliard A, Prudhomme M. Ileal reservoir with ileo-anal anastomosis: Long-term complications. *J Visc Surg* 2010; 147: 137-144.
4. Kessler H, Mudter J, Hohenberger W. Recent results of laparoscopic surgery in inflammatory bowel disease. *World J Gastroenterol* 2011; 17: 1116-1125.
5. Çetiner S. Neoreservoirs. In: Baykal A, Zorluoğlu A, Geçim E, Terzi C, editors. *Colon and Rectal Cancers*. 1st ed. İstanbul: 2010. p. 525-529.
6. Utsunomiya J. Development of ileal J-pouch anal anastomosis. *Nihon Geka Gakkai Zasshi* 1997; 98: 443-448.
7. Onaitis MW, Mantyh C. Ileal pouch-anal anastomosis for ulcerative colitis and familial adenomatous polyposis: historical development and current status. *Ann Surg* 2003; 238: 42-48.
8. Aliosmanoğlu İ, Gül M, Hakseven M, Tekeş F, Uslukaya Ö, Ülger BV, et al. Analysis of 24 cases operated for familial adenomatous polyposis. *Kolon Rektum Hast Derg* 2012; 22: 1-4.
9. Gozzetti G, Poggioli G, Marchetti F, Laureti S, Grazi GL, Mastroianni M, et al. Functional outcome in handsewn versus stapled ileal pouch-anal anastomosis. *Am J Surg* 1994; 168: 325-329.
10. M'Koma AE, Moses HL, Adunyah SE. Inflammatory bowel disease-associated colorectal cancer: proctocolectomy and mucosectomy do not necessarily eliminate pouch-related cancer incidences. *Int J Colorectal Dis* 2011; 26: 533-552.
11. Coull DB, Lee FD, Henderson AP, Anderson JH, McKee RF, Finlay IG. Risk of dysplasia in the columnar cuff after stapled restorative proctocolectomy. *Br J Surg* 2003; 90: 72-75.
12. Heuschen UA, Hinz U, Allemeyer EH, Lucas M, Heuschen G, Herfarth C. One- or two-stage procedure for restorative proctocolectomy: rationale for a surgical strategy in ulcerative colitis. *Ann Surg* 2001; 234: 788-794.
13. Gorfine SR, Gelernt IM, Bauer JJ, Harris MT, Kreef I. Restorative proctocolectomy without diverting ileostomy. *Dis Colon Rectum* 1995; 38: 188-194.
14. Takao Y, Gilliland R, Nogueras JJ, Weiss EG, Wexner SD. Is age relevant to functional outcome after restorative proctocolectomy for ulcerative colitis?: prospective assessment of 122 cases. *Ann Surg* 1998; 227: 187-194.
15. Delaney CP, Fazio VW, Remzi FH, Hammel J, Church JM, Hull TL. Prospective, age related analysis of surgical results, functional outcome, and quality of life after ileal pouch-anal anastomosis. *Ann Surg* 2003; 238: 221-228.
16. Lovegrove RE, Symeonides P, Tekkis PP, Goodfellow PB, Short-house AJ. A selective approach to restorative proctocolectomy without ileostomy: a single centre experience. *Colorectal Dis* 2008; 10: 916-924.
17. Çelik S, Özenç MA, Hamaloğlu E, Karakoç D. Familial adenomatous polyposis associated desmoid tumors: Presentation of two cases with literature evaluation. *Ulusal Cer Derg* 2011; 27: 235-239.
18. Rokke O, Iversen K, Olsen T, Ristesund SM, Eide GE, Turowski GE. Long-term followup of patients with active J reservoirs after re-

- storative proctocolectomy for ulcerative colitis with regard to reservoir function, mucosal changes, and quality of life. *ISRN Gastroenterol* 2011;430171.
19. Martin ST, Tevlin R, Heeney A, Peirce C, Hyland JM, Winter DC. How I do it: the stapled ileal J pouch at restorative proctocolectomy. *Tech Coloproctol* 2011; 15: 451-454.
  20. Madbouly KM, Senagore AJ, Remzi FH, Delaney CP, Waters J, Fazio VW. Perioperative blood transfusions increase infectious complications after ileoanal pouch procedures (IPAA). *Int J Colorectal Dis* 2006; 21: 807-813.
  21. Nisar PJ, Kiran RP, Shen B, Remzi FH, Fazio VW. Factors associated with ileoanal pouch failure in patients developing early or late pouch-related fistula. *Dis Colon Rectum* 2011; 54: 446-453.