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Functional outcome and quality of life after restorative proctocolectomy and ileo-anal pouch anastomosis

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Summary

Objective: Reconstructive proctocolectomy with ileal pouch-anal anastomosis (IPAA) is the surgical treatment of ulcerative colitis (UC) and familial adenomatous polyposis (FAP). The aim of our study was to evaluate the functional results of this procedure and to assess its impact upon patient quality of life (QoL).

Methods: We evaluated QoL and functional results in patients who had undergone IPAA using two self-rating questionnaires: 1) Medical Outcome 36 item Health Survey (SF-36); and 2) a specific questionnaire evaluating various aspects of anorectal and urogenital function.

Results: 107 patients (median age 38 [range 17–69] years) underwent reconstructive proctocolectomy with IPAA between 1981 and 2002. Median duration of follow-up was 83 (range 4–230) months. 66 patients (61%) answered both questionnaires. Two thirds of patients have more than five bowel movements per day and one bowel movement at night. Whilst true faecal incontinence is exceptional, episodes of soiling are reported by 25% of patients. Regarding QoL in this population, the two scores of the SF-36, which summarise physical and mental health status (Physical Component Summary and Mental Component Summary) were 54.6 and 45.8, respectively (both are 50 in the general population).

Conclusion: Our data indicate that, as measured with SF-36 questionnaire, QoL after IPAA is close to normal. However, good quality of life is not a surrogate for good functional results. Despite excellent control of continence during the day, IPAA is often associated with night time bowel movements and soiling.

Key words: ulcerative colitis; familial polyposis; surgery; proctectomy; functional outcome; quality of life

Introduction

Reconstructive proctocolectomy with ileal pouch anal anastomosis (IPAA) described in 1978 by Allan Parks [1] is the gold standard of surgical management for ulcerative colitis (UC) and familial adenomatous polyposis (FAP). The aim of this procedure is to resect the entire large bowel (colon plus rectum) down to the dentate line, and to restore intestinal continuity through an ileo-anal anastomosis [2]. This is a well established technique, which carries a minimal mortality (<1%) but a significant morbidity (19–63%) [3]. Short and long term results are good, with excellent scores of quality of life (QoL) and good functional results in many large series originating from North America [4, 5].

Despite extensive surgical experience in many institutions, there is a paucity of data regarding the functional results of IPAA in the European literature [6]. This is related to the absence, during a long period, of a French or German translation of validated QoL questionnaires such as the Medical Outcome 36 item health survey (SF-36) [7]. Therefore, the aim of our study was to assess long-term functional results of IPAA in a Swiss population, and to evaluate the impact of this procedure on QoL.

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Methods

Patients

The medical charts of all patients who underwent reconstructive proctocolectomy at University Hospital Geneva between 1981 and 2002 were reviewed in order to monitor the type of pouch constructed and to identify all immediate and/or delayed surgical complications. Two standardised questionnaires were sent by mail to all patients who were still living in Switzerland at the time of the investigation. The first questionnaire (FQ) included 24 items, and was designed to comprehensively assess digestive, urinary and sexual function in patients who had undergone pelvic surgery. Regarding intestinal function, items were related to number of bowel movements per day, number of bowel movements at night, episodes of faecal incontinence, their frequency and their severity, the need to wear protection pads in the underwear, episodes of pouchitis, diarrhoea, loss of appetite, etc. The second questionnaire was the Medical Outcome 36 item Health Survey (SF-36).

SF-36 Questionnaire

This is a patient self-rating multi-item questionnaire measuring physical, role, social, emotional and cognitive functions, as well as overall QoL. It assesses the following items: 1) limitations of physical activities due to health problems [PF-Physical Functioning]; 2) limitations of social activities due to physical or emotional problems [SF-Social Functioning]; 3) limitations of professional activities [RP-Role Physical]; 4) Physical pain [BP-Bodily Pain]; 5) psychological well-being [MH-Mental Health]; 6) limitations of daily activities due to emotional problems [RE for Role-Emotional]; 7) vitality [VT]; and 8) general perception of health [GH-General health]. All results are expressed as scores for each of the eight items. In addition, the various items are combined together to establish two scores that globally summarise the physical and mental health status (respectively PCS «Physical Component Summary» and MCS «Mental Component Summary»).

This questionnaire has been validated for clinical research and the evaluation of health policy strategies, as well as general investigations regarding the health in the general population. Its conceptual model was originally established in the United States, but the International Quality of Life Assessment (IQOLA) project has demonstrated its validity for the European population [8]. Its validity has also been recognised for evaluation of QoL after IPAA [9, 10]. For each item a score (range 0–100) is established. The norm value for the general healthy population is 50. A score above or below 50 therefore indicates that the study population has a superior, respectively inferior, QoL with reference to the general population. Quality of life scores were subsequently correlated with various clinical and surgical variables, such as the patient's condition (UC vs FAP), duration of symptoms, type of pouch constructed (J- vs S-pouch), pouch size, performance of mucosectomy, distance between the anastomosis and the dentate line, hand sewn vs stapled anastomosis, and postoperative complications.

Surgical technique

Under prophylactic systemic antibiotics (ceftriaxone plus metronidazole) a midline laparotomy was performed, and complete mobilisation of the colon was performed. The ileum was transsected at the ileo-caecal junction, followed by ligature of the major vascular trunks, including the superior rectal artery, which initiated the pelvic dissection. Great care was taken to identify and preserve the inferior hypogastric plexus, and the dissection was then pursued anteriorly in the plane of Denonvilliers' fascia down to the pelvic floor. Section of the lower rectum was performed at the top of the anal canal 1–2 cm above the dentate line. The type of reservoir (S-pouch until 1994, then J-pouch), the type of anastomosis (double-stapled vs manual), as well as the performance of mucosectomy were left to the discretion of the surgeons.

Results

107 patients underwent restorative proctocolectomy with IPAA in our institution between 1981 and 2002. There were 66 men and 41 women with a median age of 38 (range 17–69) years at the time of surgery. The indications for surgery are summarised in table 1. The type of reservoir was a J pouch in 66 patients (62%) and an S-pouch in 41 patients (38%). Median size of the pouch was 15 (range 7–21) cm and a mucosectomy was performed in 52 patients. The ileo-anal anastomosis was hand sewn in 57 patients (53%) and double-stapled in 50 cases (47%). The mean distance between the anastomosis and the dentate line was 1 (range 0–5) cm. All IPAA were protected with a diverting ileostomy. The median duration of hospital stay was 15 (range 10–80) days, with an early complication rate of 34%. Table 2 summarises the early and late complications in this series.

Table 1

Ileal pouch-anal anastomosis: indications for surgery

	Patients N = 107 (%)
UC (steroid-resistant)	61 (57)
UC (severe acute colitis)	16 (15)
FAP	24 (22)
Cancer	4 (4)
Other	2 (2)

Non-responders

70 (65%) and 66 patients (61%) completely answered FQ and SF-36 questionnaires, respectively. We tried to contact all 37 non-responders by phone. Twenty-five had no mailing address in Geneva, and were considered lost to follow-up. Two patients had died outside our institution of medical conditions. Finally, ten patients who were still living in Geneva were interviewed by phone. These 10 patients (all with UC), expressed a high degree of satisfaction, and all would agree to undergo the same procedure again.

Functional results (FQ)

Median duration of follow-up was 83 (range 4–230) months. 70% of patients declared themselves satisfied with the results of the procedure, whilst 9% of patients declared themselves poorly satisfied with their functional performance. 54% of patients were fully active professionally, while 38% had a part-time professional activity and 8% were retired. 30% of patients declared themselves to be preoccupied with their intestinal function, which had a significant impact on daily activities in one third of them. By contrast, 42% of IPAA patients said they were never bothered by their intestinal function.

The outcome of IPAA with regard to intestinal function is summarised in table 3. A majority (66%) of patients had 5–10 bowel movements/24 hours and 73% had at least one movement during the night. Of note, none of these patients reported true faecal incontinence during the day, but 17% had some degree of incontinence to gas, 31% reported occasional soiling and 35% regularly used a perineal pad. At night, continence was excellent in only 41% of patients, 34% of patients reported minor episodes of incontinence to loose stools and 24% complained of soiling. One patient experienced true faecal incontinence at night. Urinary function was good or excellent in 84% of patients, and sexual function was good or excellent in 45% of patients. 44% of male patients with IPAA reported no problems with erection, while 16% had diminished libido and/or capacity of erection. In female patients, some degree of dyspareunia was reported in 31% of cases.

Table 2

Ileal pouch-anal anastomosis: postoperative complications

Complications	Patients (N = 107)
Early (≤30 days from surgery)	
Acute renal failure	10
Small bowel obstruction	7
Wound infection	5
Anastomotic leak	5
Acute respiratory failure	3
Pulmonary embolus	3
Other	3
Total	**36 (33.6%)**
Late (>30 days from surgery)	
Anastomotic stricture	15
Small bowel obstruction	12
Fistula	5
Pulmonary embolus	2
Total	**34 (31.7%)**

Table 3

Ileal pouch-anal anastomosis: functional results

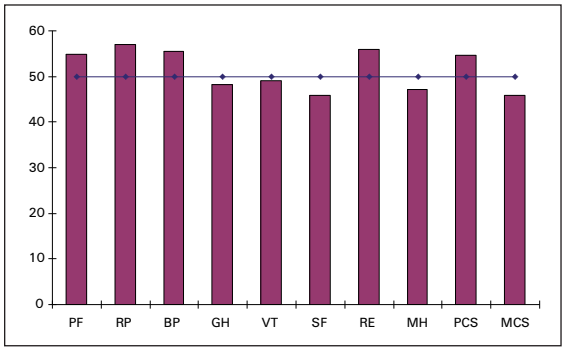
Intestinal function	N = 70 (%)
Bowel movements/day	
>10x	4 (6)
5–10x	46 (66)
<5x	20 (28)
Bowel movements/night	
>10x	1 (1)
5–10x	2 (3)
1–4x	48 (69)
Never	19 (27)
Degree of continence (day)	
Excellent	32 (46)
Good	22 (31)
Soiling	16 (23)
Incontinence	0
Degree of continence (night)	
Excellent	28 (41)
Good	24 (34)
Soiling	17 (24)
Incontinence	1 (1)
Use of pad	
Often	20 (28)
Sometimes	5 (7)
Never	45 (65)
Instances of pouchitis	
>10	7 (10)
6–10	5 (7)
<5	8 (11)
1–2	13 (19)
Never	37 (53)

Quality of life results (SF-36)

68 of patients answered the SF-36 questionnaire, and 66 (61%) were adequate for complete analysis. There were 40 men and 26 women with a median age of 38 (range 17–69) years; the indications for IPAA were UC in 49 patients and FAP in 17 cases. Median scores for each of the eight items of the SF-36 are illustrated in figure 1. This study was not designed to establish comparison of QoL between our patients and the general population of the United States. However, the two scores of the SF-36, which globally summarise physical and mental health status (Physical Component Summary and Mental Component Summary) were 54.6 and 45.8, respectively in IPAA patients (both = 50 in the general population). In univariate analysis (data not shown), none of the various clinical and surgical parameters was significantly associated with a better QoL score ($p > 0.05$).

Figure 1

Quality of life after IPAA – SF-36 scores



Discussion

The data presented here indicate that in Swiss patients who underwent reconstructive proctocolectomy with IPAA, firstly QoL measured by the SF-36 questionnaire is not different from the general population, secondly two thirds of patients have more than five bowel movements per 24 hours, and one bowel movement at night and, thirdly, while true faecal incontinence is exceptional, episodes of soiling are reported by 25% of patients.

Many factors, such as the extra intestinal manifestations of UC and the anxiety related to diagnosis of cancer in FAP, may possibly impact on QoL in IPAA patients. In addition, the high incidence of infertility in female patients who underwent IPAA is a matter of concern [11]. A number of complications, such as small bowel occlusion and pouchitis are inherent to the procedure, but might be responsible for repeated hospital admissions and are likely to interfere, at least temporarily, with intestinal function. Pouchitis is more common in UC than FAP patients, but in our series, was rarely severe to the point of necessitating in-hospital admission, was never a cause for pouch excision, and had little impact on QoL results. Finally, pouch failures due to anastomotic fistula, stricture or pelvic sepsis are rare, but devastating complications in young patients who are faced with the choice of living the rest of their lives with a terminal ileostomy [12].

In our series, as in others, the global rate of early and late complications was 65%. The most frequent pouch-related complications were anastomotic strictures (14%). The most significant morbidity is due to small bowel occlusion, which was reported in 11% of our patients. This is in accordance with the results of a recent meta-analysis (5,853 cases of IPAA) showing a 13% incidence of small bowel occlusion [13]. At least one episode of pouchitis was reported by 47% of patients, but, again, most instances of pouchitis were minor and did not require in-hospital admission. One of the main limitations of this type of study is related to the 35% of patients who did not return their questionnaire (non-responders). QoL might be inferior in patients who refused to participate, thus favourably biasing the results of this study. However, the issue of non-responders is inherent to this type of investigation. It is of note that there was a high percentage (30%) of FAP patients who refused to participate, making the conclusions of this study difficult to generalise to this specific population. In addition, this type of retrospective study is inadequate for reflecting the evolution of QoL after surgery. Most patients adapt relatively well to their new life status and progressively change the reference value of their expectation of health [14].

In conclusion, in our series, as in many US and UK institutions [4, 15], QoL of IPAA patients is similar to the general healthy population, with median scores approaching 50 for each of the eight items of the SF-36 questionnaire. However, a good QoL score is not a surrogate for good functional results and a more in-depth analysis of results clearly demonstrates that one third of IPAA patients are bothered by their intestinal function to the point that bowel dysfunction negatively impacts on their daily professional or social activities. Only 27% of patients have never been disturbed at night and 65% of patients have 5 to 10 bowel movements per day. Patients who are candidates for reconstructive proctocolectomy should receive adequate information preoperatively and be aware that, while the control of bowel movements is good during daytime, this procedure is associated with night time bowel movements and soiling in a significant percentage of cases.

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