

Defecating Function after Ileal W Pouch-Anal Anastomosis for Restorative Proctocolectomy: An Evaluation by Age

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Summary. To assess the postoperative defecating function according to age, ulcerative colitis patients undergoing restorative proctocolectomy with an ileal W pouch-anal anastomosis were divided into two age groups: below 50 (Group A: N=16) and 50 or above (Group B: N=4). Time intervals from ileostomy closure were 33.3 months for Group A and 27.3 for Group B, hence not significantly different. The mean of daily stool frequency in Group A was 3.6 ± 1.2 and 4.8 ± 0.5 in Group B respectively, but there was no significant difference between groups. On the examination of neorectoanal manometry, the maximal anal sphincter resting pressure in Group B (34.3 ± 5.8 cmH₂O) was significantly lower than that in Group A (55.3 ± 11.8 cmH₂O), but other parameters revealed no significant difference. Therefore, we conclude that the operation may reasonably be expected to promise a better quality of life than permanent ileostomy even in patients of age 50 or above, though it may afford some degree of soiling and be associated with an increased frequency of bowel movement.

INTRODUCTION

Restorative proctocolectomy with an ileal reservoir, which cannot only remove all diseased mucosa but avoid a permanent ileostomy, has become an accepted and standard form of treatment for ulcerative colitis and familial adenomatous polyposis. Five types of reservoirs are normally practiced.

Since 1984, we have performed ileal W pouch-anal anastomosis utilizing 4 ileal loops on patients with ulcerative colitis and familial adenomatous polyposis. We have previously reported that the mean of daily stool frequency after the operation correlates negatively with capacity and horizontal diameter of the

ileal reservoir in studies of neorectoanal manometry and pouchogram.¹⁾ The present study is designed primarily to assess this parameter of postoperative defecating function according to the age of the patients.

PATIENTS AND METHODS

The operative technique has previously been described in detail.²⁾ Ulcerative colitis patients treated by ileal W pouch-anal anastomosis at our department or affiliated hospitals, (20 undergoing ileostomy closure, the last operations performed in stages 9 to 62 months previously: average: 32.1 months), were studied. This series had an age range of 21 to 61 years (average: 37.6 years) with a male-to-female ratio of 7:13. These patients were divided into 2 age groups, i.e. below 50 (group A: N=16) and 50 or above (group B: N=4). Except for 2 patients who experienced a recurrence of ulcerative colitis following a previous ileorectal anastomosis, the operation was performed as the primary one.

A survey was made of mean daily stool frequency and bowel habits by interviewing the patients or by contacting them by a questionnaire. Each patient had a neorectoanal manometry performed by the open tip perfusion method and was measured for maximal reservoir resting pressure, maximal anal sphincter resting pressure, length of anal canal, maximal tolerated reservoir volume, reservoir compliance and neorectoanal reflex for comparison.

Student's t-test was used to compare mean values between Groups A and B.

RESULTS

Time courses of mean daily stool frequency after ileostomy closure for individual patients are shown in Fig. 1, where patients aged 50 or above are represented by the thick solid lines. Mean daily frequency remained virtually constant without showing a declining tendency from 6 months after ileostomy closure. Comparisons of the two age groups showed that while respective time intervals from ileostomy closure were 33.3 and 27.3 months without any significant differences, the mean daily frequency was 3.6 ± 1.2 for the former as compared with 4.8 ± 0.5 for the latter group (Table 1).

On the other hand, neorectoanal manometry revealed that the maximal reservoir resting pressure averaged 5.5 ± 2.3 cmH₂O for group A and 3.6 ± 0.7 cmH₂O for group B; the length of anal canal averaged 3.4 ± 0.5 cm and 3.4 ± 0.5 cm for Group A and B, respectively. The group means of maximal tolerated reservoir volume and reservoir compliance were

312 ± 85 ml vs. 310 ± 68 ml and 9.6 ± 3.9 ml/cmH₂O, respectively, hence there were no statistically significant differences noted between the two groups. In contrast, the maximal anal sphincter resting pressure averaged 55.3 ± 11.8 cmH₂O for group A and 34.3 ± 5.8 cmH₂O for group B, for a significant difference ($P < 0.01$, Table 1). Neorectoanal reflex was abolished or impaired in all patients from Groups A and B, but difficulty in passing stool was not a complaint for any patients of either group.

Postoperative complications encountered were stenosis at the anastomotic site requiring dilatation, occurring in 3 (15%) of 20 patients, dehiscence at the ileal pouch-anal anastomosis in 1 patient (5%), intestinal obstruction requiring laparotomy in 2 patients (10%), and anovaginal fistula in 1 patient (5%). Inflammation of the ileal pouch and failure to remove the pouch did not occur in any patients. There was no significant difference in the incidence of postoperative complications between Groups A and B (Table 2).

Table 1. Comparison of defecating function in patients below 50 years of age and those aged 50 or above

Defecating function	Group A	Group B
Average time after ileostomy closure	33.3 months	27.3 months
Mean daily stool frequency	3.6 ± 1.2	4.8 ± 0.5
Maximal reservoir resting pressure (cmH ₂ O)	5.5 ± 2.3	3.6 ± 0.7
Maximal tolerated reservoir volume (ml)	312 ± 85	310 ± 68
Reservoir compliance (ml/cmH ₂ O)	9.6 ± 3.9	6.3 ± 2.2
Length of anal canal (cm)	3.4 ± 0.5	3.4 ± 0.5
Maximal anal sphincter resting pressure (cmH ₂ O)	$55.3 \pm 11.8^*$	$34.3 \pm 5.8^*$
Neorectoanal inhibitory reflex	all patients (-)	all patients (-)

Group A: patients below 50 years of age, Group B: patients aged 50 or above

*: statistically significant ($p < 0.01$)

Table 2. Incidence of postoperative complications in 20 patients

Postoperative complications	No. of patients	
	Group A	Group B
Ileal pouch-anal anastomosis		
Stenosis requiring dilatation	2	1
Dehiscence	1	0
Intestinal obstruction requiring laparotomy	1	1
Anovaginal fistula	1	0
Pouchitis	0	0
Failure	0	0

Group A: patients below 50 years of age, Group B: patients aged 50 or above

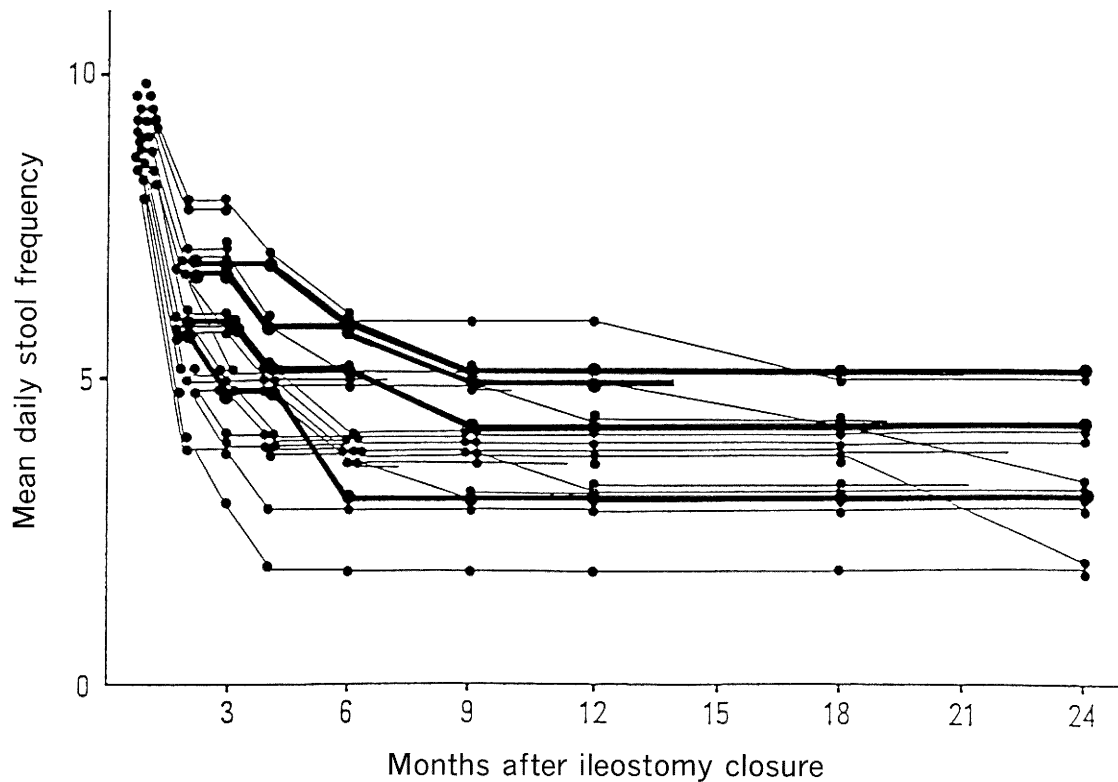


Fig. 1. Changeover time in mean daily stool frequency after ileostomy closure. Thick solid lines indicate patients aged 50 or above. Mean daily stool frequency was 3.6 ± 1.2 for patients below 50 years of age, and 4.8 ± 0.5 for patients aged 50 or above, but the difference is not significant.

DISCUSSION

Ileal W pouch-anal anastomosis for restorative proctocolectomy, first reported by Nicholls et al.,³⁾ is a procedure designed to decrease the mean daily frequency of defecation by creating an ileal reservoir of greater capacity. There is a negative correlation between the maximal tolerated reservoir volume and the mean daily frequency;^{1,4,5)} thus, the latter decreases as the former increases. In view, however, of a likely possibility that the postoperative defecating function is subject to the influence of aging, the outcome of the operation in the present patients was assessed and compared between two age groups: below 50 and 50 or above. The results indicated that the higher age group had similar frequencies of incidence of postoperative complications and, though tending to show a somewhat higher mean daily stool frequency, gave values for all neorectanal anatomic parameters (except for maximal anal sphincter resting pressure) that were not significantly different

from those of the lower age group. Only maximal anal sphincter resting pressure, reflecting internal anal sphincter activity, in the higher age group was significantly lower than those in the lower age group. Low resting pressure may result in minor soiling. Dozois,⁶⁾ in a similar comparative study of the results of ileal J pouch-anal anastomosis, found patients over 50 years of age to have a poorer outcome with respect to daily stool frequency and anal continence than those below 50 years of age, and concluded that it was an ideal procedure for those young adult patients under 50 years of age. Nevertheless, ileal W pouch-anal anastomosis may reasonably be expected to promise a better quality of life than permanent ileostomy, though it affords some degree of soiling and is associated with an increased daily stool frequency in patients aged 50 or above. An ileal W pouch appears to give the best functional result in defecation among J, S and W pouch.^{4,7)} Accordingly, we conclude that it may serve as an operative procedure having an acceptable defecating function even in patients of age 50 or above undergoing restorative proctocolectomy.

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