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# COLONIC POUCHES AFTER SURGERY FOR RECTAL CARCINOMA

By
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*Therev is little dout about the excellent early functional outcome obtained after colonic pouch analanastomosis . the improvement in the functional outcome at 2 years following complete rectal excision with colonic J- pouch anal anastomosis has been frequently reported .*

*The aim of this to evaluate the clinical, the function and the oncologic results of low and ultralow anterior resection of the rectum for carcinoma with or without creation of a pouch .*

*Forty patients in the Surgical Oncology Unit in Mansoura University Hospital , under low or ultralow anterior resection for rectal carcinoma located between 4-11 cm from tge anal verge . twenty patients werw randomized for restoration of cotinuity by coloanal anastomosis , and the remainig 20 patient underwent colonic J- pouch anal anastomosis. All patirnt underwent a complete metastatic and oncologic workup , abdominal ultrasound , pelviabdominal CT , barium studies and colonoscopy .*

*As regards the functional outcome , about 90% of the patient , with pouch were good continence but only 80% in the othergroup . Uregency was 5% in the pouch group and 45% in the other group . Frequency of tool was 2- day and 4- day in both groups respectively. As regards the recurrence of the disease the creation of the pouch does not affect the oncologic results.*

*Colonic J- pouch anal anastomosis is an oncologically safe procedure and an optimum means of reconstruction after rectal excision for carinoma of the low and mid rectum, if distal safety of at least 2-cm could be ascertained . The superior functional outcome after colonic pouch anal anastomis could achieved and maintained.*

*Keywords: Colonic J- pouch, Cancer retum, Anterior resection , Coloanal anastomosis*

## INTRODUCTION

The classic 3- cm role of distal clearance margin in rectal carcinomas has been greatly modified. Rectal excision with a minimum distal safety margin of 2- cm below the lower limit of the tumor is associated with a 5 years survival rate and local recurrence rates similar to abdominoperineal resection [1&2]. Therefore, sphincter saving resection for mid-and low rectal cancers can be performed without jeopardizing the radical clearance, if there is at least a 2 cm distance between lower limit of the tumor and the anorectal ring [3].

The objective of the study to evaluate the clinical , the functional and the oncologic results of low and ultralow anterior resection of the rectum for carcinomas of its middle or lower third .

## MATERIALS AND METHODS

From December 1994 to April 1996 in the Surgical Oncology Unit in Mansoura Hospital, fourty patients underwent low or ultralow anterior resection for carcinomas located between 4-11 cm. from the anal verge. Twenty patients were randomized for restoration of continuity by stapled straight colonal anastomosis and the remaining 20 patients underwent colonic J- pouch anal anastomosis. All patients underwent a complete metastatic and oncologic workup including tissue diagnosis, From December 1994 to April 1996 in the Surgical Oncology Unit

**Table (3):** *Anorectal physiology before and after surgery.*

| | Before surgery | After surgery | |
|---|---|---|---|
| | | Pouch group | Non pouch group |
| - Maximum resting anal pressure ( cm H2O) | 68.5 | 64 | 65 |
| - Maximum squeez anal pressure ( cm H2O) | 185 | 164 | 160 |
| - Threshold volume (ml) | 20 | 26 | 20 |
| - Maximum tolerated volume (ml) | 230 | 228 | 185 |
| - Physiologic length of anal canal ( cm ) | 3.3 | 2.7 | 2.9 |
| - Rectoanal inhibitory reflex | +ve | +ve in 15 patients | +ve in 12 patients |

**Table (4):** *postoperative frequency of defecation in the pouch group (n 20 )*

| Postoperative time | Frequency / 24 hours | |
|---|---|---|
| | Mean | Range |
| 1st. month | 2.8 | 0.4-8 |
| 3rd. month | 2.6 | 0.3-7 |
| 6th. Month | 2.4 | 0.3-7 |
| 12th. Month | 2.1 | 0.3-6 |
| 2nd. Year | 2 | 0.3-3 |

**Table (5) :***postoperative frequency of dfefcation in the non - pouch group (n 20 )*

| Postoperative time | Frequency / 24 hours | |
|---|---|---|
| | Mean | Range |
| 1st. month | 5 | 4-10 |
| 3rd. month | 4 | 3-8 |
| 6th. Month | 4 | 3-8 |
| 12th. Month | 4 | 3-8 |
| 2nd. Year | 4 | 3-6 |

**Table ( 6):** *degree of continence through the period of follow up in the pouch group (n= 20)*

| Degree of continence | Time | | | | |
|---|---|---|---|---|---|
| | 1 month | 3 month | 6 month | 1 year | 2 year |
| - Perfect continence | 8 | 8 | 10 | 10 | 10 |
| - Minor soiling | 10 | 10 | 8 | 8 | 8 |
| - Major soiling | 2 | 2 | 2 | 2 | 2 |

**Table (7):** *degree of continence through the period of follow up in the non- pouch group (n= 20)*

| Degree of continence | Time | | | | |
|---|---|---|---|---|---|
| | 1 month | 3 month | 6 month | 1 year | 2 year |
| - Perfect continence | 7 | 7 | 7 | 8 | 8 |
| - Minor soiling | 9 | 9 | 9 | 8 | 8 |
| - Major soiling | 4 | 4 | 4 | 4 | 4 |

1 year after stoma closure. There was no significant between the reservoir and non- reservoir group in the recovery of both resting and sqyeeze qnal pressure, through the 28 months follow up period. The sensitivity threshold value, maximum tolerated volume and dispensability are much more increased in patient with colonic reservoirs when compared to those values in patients with no reservoirs.

*III- Oncologic results:*

During the follow up period (28 months), no patients developeed a local recurrence and 3 patients ( 2 with a colonic pouch and 1 with straight colonal anastomosis ) developed multiple hepatic secondaries at 18 months and 20 months respectively ( Table 2).

*IV- Procedure related complications: (Table 2)*

No operative related morality occurred in our series. Partial anastmotic leakage occurred in 3 patients ( 2, with colonuc pouch , and 1 with straight colonal anastomosis ) at 2 weeks and 4 weeks postoperatively repectively . However , non required operative intervention and all were managed conservatively .

Pelvic sepsis occurred in 2 patients (one with pouch and one with coloanal annastomosis ) and was successfully managed by zepeated CT guided aspiration .

Wound infection occurred in 4 patients and was successfully managed by open drainage and systemic administration and sensitivity based antibiotics. Small bowel obstructation of culture in 4 patients in both groups (with and without pouches), 3 of them were managed conservatively, and 1 patient (with a pouch) required laparotomy and adhesolysis in 2 patients one from each group. Anastomotic stricture occurred in 3 patients with pouch anal anastomosis (in 2 of them the anastomosis was stapled), and in 2 patients with straight coloanal anastomosis . However all patients responded to gentle dilatation with no long term incapacitating effects.

**Table (1) :** ***patients criteria.***

| | *Pouch group* | *Non pouch group* |
|---|---|---|
| -Total number | 20 patients | 20 patients |
| -Mean age | 55.4 (39-70) | 54.5(40-68) |
| -Sex :M:F | 12:8 | 13:7 |
| -Mean tumor distance from the anal verge(cm). | 5.6 (4-11) | 5.2(4.5-10) |
| -Anastomotic height from the anal verge (cm) | 3.6(2.5-4.5) | 3.9(2.6-5) |
| Pathologic grade: | | |
| GI | 6 | 5 |
| GII | 12 | 13 |
| GIII | 2 | 2 |
| Duke's stage : | | |
| A | 3 | 2 |
| B | 7 | 10 |
| C | 10 | 8 |

**Table (2) :** ***operative criteria and postoperative complication***

| | Pouch group | Non pouch group |
|---|---|---|
| Mean operative time | 140 min (120-170) | 115 min (100-130) |
| Mean operative blood loss | 480 ml (360-560) | 420 ml (340-500) |
| Distal safety margin | 2.2cm (2-4.5) | 2.6 cm (2-4) |
| Hospital stay | 20 days (12-36) | 21 days (14-30) |
| Anastomaotic leakage | 2 patients | 1 patients |
| Pelvic sepsis | 1 patients | 1 patients |
| Wound sepsis | 2 patients | 2 patients |
| Small bowel obstruction | 2 patients | 2 patients |
| Stricture | 3 patients | 2 patients |
| Distant metasasis | 2 patients | 1 patients |
| Impotence | 1 patients | 1 patients |

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| Postoperative time | Frequency / 24 hours | |
|---|---|---|
| | Mean | Range |
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| 3rd. month | 4 | 3-8 |
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|---|---|---|---|---|---|
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| Degree of continence | Time | | | | |
|---|---|---|---|---|---|
| | 1 month | 3 month | 6 month | 1 year | 2 year |
| - Perfect continence | 7 | 7 | 7 | 8 | 8 |
| - Minor soiling | 9 | 9 | 9 | 8 | 8 |
| - Major soiling | 4 | 4 | 4 | 4 | 4 |

Table (8): *The act of defecation in patients with colonic J. pouch at 1 year postoperative*

| | |
|---|---|
| Discrimination of gas from stool | Good, 16 patients<br>Fair, 3 patients<br>Absent , 1 patients |
| Perception of the need to defecate | Normal : 18 patients<br>Absent :2 patients |
| Urgency | 1 patients |
| Spontaneous evacuation | 15 patients |
| Use of antidiarreal medication | non |
| Use of rectal enemata or suppostory | 5 patients |

Table (9) : *The act of defection in patients without pouch at 1 year postoperative*

| | |
|---|---|
| Discrimination of gas from stool | Good, 8 patients<br>Fair, 8 patients<br>Absent , 4 patients |
| Perception of the need to defecate | Normal : 8 patients<br>Absent : 12 patients |
| Urgency | Present in 9 patients |
| Spontaneous evacuation | 10 patients |
| Use of antidiarreal medication | 12 patients |
| Rectal enemata or suppository | Non |

*(Fig 1 A,B): Creation of Colonic J-Pouch*

*(Fig 1): Creation of Colonic J-Pouch*

*(Fig 2): Three months Postoperative Pouchogram*

## DISCUSSION

There is little doubt about the excellent early functional outcome obtained after colonic pouch anal anastomosis , and the improvement in the functionl outcome at 2 years following complete rectal excission with colonic J pouch anal anastomosis has beeen frequently reported [5].

The continued improvement of function after colonic pouch anal anastomosis is the consequence of both the recovery of anal sphincteric function and the increasse in the capacity of neroectal reservoir [6].

In our study we intended to compare the long term results (with a 28 month follow up) between colonic j. pouch anal anastomosis and straight coloanol anastomosis. Our results indicate that the functional results obtained after colonic pouch anal anastomosis better and appears than those obtained after straight coloanal anastomis. These function are still maintained at than 2 years.

Many functionl disorded after complete rectal excision results from loss of the reservior function, and in accordance with the receent radomized trials, our obtained functional results appesred superior in patients with constucted colonic pouches, wich manifested mainly in the form of reduction of stool frequency / 24 hours, good continence, ability to defer defecation and abseence of urgency.

In our patients the mean number of bowel motiions per day was 2 (range 0.3-3) which is lower than that reported by Berger et al [7] who reported or more bowel motions / day. This frequency of defecation was semilar to that reported by Ortz et al.[8]. Two of our patients with colonic reservior required small enemata or suppositories to assist evacuation of the reservior , and this is still reported by these patients at 1.5 years . Semilar results were reportew by Paty et al [2], who reported the indidence of incomplete rectal evacuation in 20 % of their patients. Parc and cowokers of two with absence of urgency and a satisfactory continence in 96% of patients.

Lazorthes et al [1] demostrated an improved functional outcome with a significant correlation between the volume of nerorectum and the frequency of defecation. Semiliar results were reported by Nicholls et al.,[9], who reporteed that normal continence was achieved in 70% of patients and a mean stool frequency of 1.4 / day ( 0.5-2/ day ) in these patients with a constructed pouch .

Nakahara et al.[10] reported disappointing functiosl results after straight coloanal anastomosis or low col- rectal anastomosis, with distressing feacal soiling . Urgency and a mean stool frequency of 2.3 / day (3- 10 / day) at one year after surgery.

In more than 50 % of his patients semilar results were obtained by lewis et al[11] who reported major fecal leakage in 8 out of 11 patients at 11 months after straight colo anal anastomosis with a mean bowel frequency of 4 /24 hours (range 2- 8). Our clinical and physiological results support the better functional outcome obtained after colonic J pouch anal anastomosis , that is frequency reported by these different series. Sphincter saving resection for rectal cancer has become widely accepted as an oncol ogically safe operation [3].

In our patients, on isolated local recurrence was detected at a follow up of 28 months, although 3 patients developed multiple hepatic secondaries at 18 months. Berger et al.[7] reported an isolated rate of local recurrence after low anterior resection for mid and low rectal carcinoma to be of 6 %, which is still amenable to salvage by abdomimoperineal resection .

This could be explained by the oncologic adequency of the technique in pouch construction in which all the rectum and mesorectum are removed as in abdomioperineal resection . The total excision of he mesorectum , which is the clue to pelvic recurrene is of crucial importance[12].

## CONCLUSION :

Colonic J- pouch anal anastomosis an oncological safe procedure and an optimum means of reconstruction after rectal excision for adenocarinoma of the low and mid rectum, if a distal safety margin of at least 2 cm could be ascertained. The superior long term functionl outcome after colonic - pouch anal anastomsis could be achieved and maintained.

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