Different Modalities of Sphincter Saving Procedures for Distal Rectal Cancer

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Abstract

Background: In the last few decades, the treatment of rectal cancer has changed dramatically. The value of sphincter-preserving surgery is the radical resection of the tumors of the distal rectum with preservation of the anal sphincter and genitourinary functions. A sphincter-preserving operation may be classified as a standard low anterior resection, low anterior resection with coloanal anastomosis, or low anterior resection with J-pouch colonic reservoir. A coloanal anastomosis is an extra pelvic anastomosis situated at the apex of the anal canal or lower in the anal canal at the dentate line. Minimally invasive techniques with laparoscopic technologies are resulting in comparable outcomes to open procedures with decreased perioperative blood loss and shorter recovery times. Recent evidence supports a role for preoperative radiotherapy in rectal cancer. In a recent report, long course radiotherapy resulted in down staging in 40% and allowed sphincter-preserving surgery in 80% of patient with low rectal cancer.

Objectives: The aim of this work was to focus a light on different methods of sphincter preserving procedures for patients with distal rectal cancer.

Patients and Methods: The present study was carried on sixty patients admitted with adenocarcinoma of the middle or lower portion of the rectum. All patients were subjected to thorough history taking, complete physical examination, laboratory investigations, rigid proctosigmoidoscopy, colonoscopy and/or barium enema, abdominal ultrasonography and/or abdominopelvic C.T. scan, chest X-ray, intravenous pylography and clinical evaluation of bowel function. The patients were divided into 4 groups according to the distance of the tumour above the anal verge and its histologic grade, and the method of anastomosis: Group 1: Included 16 patients with tumours in-the lower third of the rectum or in the middle third but lying low or having unfavourable histology. These patients were treated by ultra-low anterior resection (ULAB) with total mesorectal excision (TME) and straight coloanal (SCA A) anastomosis. Group 2: Included 15 patients with tumors in the lower third of the rectum or in the middle third but lying low or having unfavorable histology. These patients were treated by ULAR with TME and colonic pouch-and anastomosis (CPAA). A 6 cm J-pouch was constructed by folding a 12 cm segment of the distal colon and creating a side to side anastomosis by manual suturing or using a GIA stapler. Group 3: Included 17 patients with tumours in the middle third of the rectum having favorable histology or lying high in the middle third, these patients were treated by low anterior resection (LAR) with adequate mesorectal excision like upper third rectal cancers. Group 4: Included 12 patients for whom laparoscopic colorectal anastomosis was done. The anastomosis was stapled in all patients and no covering stoma was done .The mean operative time was 3.2 hours ranging from 3-4 hours.

Results: In the present study, postoperative complications developed in 33 patients (55%). 12 patients in the SCAA group (75%), 10 patients in the CPAA group (66.6%) and 5 patients in the LCRA group (29.4%) and 7 patients (58.3%) in the laparoscopic group. There was no postoperative mortality. Patients were followed up every 3 months for the first one year. Eight patients (13.3%) developed recurrent disease. The ability degree of continence was not significantly different between the three groups, but-there-was-some decrease in degree of continence within the SCAA group between 3 months and 1 year. At 1 year postoperatively, the overall well-being of bowel function was significantly higher in the pouch group, colorectal group and laparoscopic groups than in the straight coloanal anastomosis group.

Conclusion: Rectal cancer seems to be more common among patients 40 years of age or younger in our country. The choice between a low anterior resection and an abdominoperineal resection depends on many factors. Patients undergoing surgery for rectal cancer sometimes have limited life expectancy and should be offered the best outcome shortly after the operation. Low anterior resection with total mesorectal excision and colonic pouch construction should be the procedure of choice for some middle third and all lower third rectal cancers unless there is an absolute contraindication to its performance.

Keywords: Rectal cancer
Introduction

In the last few decades, the treatment of rectal cancer has changed dramatically. The cancer-related and functional goals of operations for distal rectal cancer are integrally related. Although the goals of cancer treatment are cure and local control, careful selection of the planes of pelvic dissection can help preserve both sexual and urinary functions [1].

The value of sphincter-preserving surgery is the radical resection of the tumors of the distal rectum with preservation of the anal sphincter and genitor-urinary functions. Two predominant factors determine the suitability of a patient with rectal cancer for a sphincter-preserving resection. The first requirement is the presence of a functioning, disease-free sphincter mechanism. A history of preoperative incontinence should be noted, with a high level of suspicion for sphincter injury in patients with previous anal surgery or complicated vaginal delivery. The second requirement is distance of the tumors from the anal margin. Tumors of the rectum disseminate proximally and radially, but rarely distally. As a result, patients with tumors as low as 2cm above the dentate line may be suitable for a sphincter-preserving operation. The recommended distal margin for an oncologically safe resection is 1cm for T1-2 lesions and 2cm for T3-4 tumors [2].

A sphincter-preserving operation may be classified as a standard low anterior resection, low anterior resection with coloanal anastomosis, or low anterior resection with J-pouch colonic reservoir. By definition, all low anterior resections represent a resection and an anastomosis between the serialized colon and the extra peritoneal nonserosalized rectum. A standard low anterior resection usually involves an intra pelvic anastomosis situated within the sacral hollow proximal to the floor of the pelvis [3].

A coloanal anastomosis is an extra pelvic anastomosis situated at the apex of the anal canal or lower in the anal canal at the dentate line. In a standard low anterior resection, the amount of the remaining distal rectal segment may be variable, while in a coloanal anastomosis, there is no remaining distal rectal pouch [4].

Minimally invasive techniques with laparoscopic technologies are resulting in comparable outcomes to open procedures with decreased perioperative blood loss and shorter recovery times. The UK Medical Research Council (MRC) trial of conventional versus laparoscopic-assisted surgery in colorectal cancer (CLASICC) reported several interesting results. With a conversion rate of 34% in rectal cancer surgery associated with a steep learning curve, complication rates were comparable (14% open vs 16% laparoscopic). No difference was seen regarding three-year overall survival, disease-free survival, and recurrence rates. Although there was a higher positivity of circumferential margins in the laparoscopic anterior resection group, it was not reflected with increased local recurrence incidence [4].

Rullier, et al. [5] supported a role for preoperative radiotherapy in rectal cancer. In a recent report, long course radiotherapy (usually 40-45Gy over 5 weeks) resulted in down staging in 40% and allowed sphincter-preserving surgery in 80% of patient with low rectal cancer. Combined radiotherapy and chemotherapy increases the possibility of radical resection and improve the local control. The use of high dose preoperative has been proposed to allow sphincter-saving surgery for very low rectal cancer that would normally require abdominoperineal resection.

The aim of this work was to focus a light on different methods of sphincter preserving procedures for patients with distal rectal cancer.

Patients and Methods

This study was performed on sixty patients with adenocarcinoma of the middle and lower portions of the rectum admitted between 2013 and 2016.

Preoperative Evaluation

All patients were subjected to
1. Thorough history taking.
2. Complete physical examination.
3. Laboratory investigations including:
   * Complete blood picture.
   * Liver function tests.
   * Kidney function tests.
   * Fasting blood sugar.
   * Urine and stools analysis.
   * Coagulation profile.
   * Serum carcinoembryonic antigen (CEA).
5. Abdominal ultrasonography and abdominopelvic CT scan.
6. Transrectal ultrasound if needed.
7. Chest X-rays to exclude pulmonary metastases.
8. Spiral C.T and Intravenous urography.

Operative Techniques

The open methods: These include straight coloanal anastomosis, colonic pouch-anal anastomosis and low colorectal anastomosis.

Laparoscopic Method

Open methods

Position and preparation: Patients were placed in the modified lithotomy position, which allowed simultaneous access to the abdomen and perineum.

Incision and exploration: A long midline incision was made extending from the pubis to at least 5 cm above the umbilicus. The abdomen is thoroughly explored for evidence of metastases and to exclude other diseases.

Dissection

Dissection on sigmoid and ligation of inferior mesenteric vessels.

Pelvic dissection.
Distal bowel division and anastomosis

Patients were divided into 3 groups according to the height of the tumour above the anal verge and its histologic grade, and the method of anastomosis.

**Group 1:** Included patients with tumours in the lower third of the rectum or in the middle third but lying low or having unfavorable histology. These patients were treated by ultra-low anterior resection with total mesorectal excision and straight coloanal anastomosis. The rectum is fully mobilized down to the level of the levator and the entire mesorectum was removed. However, the distal tail of the mesorectum was not trimmed off the back of the muscular cuff. The mesorectum usually ended 1-2 cm above the levator and the fully mobilized rectum. Therefore the level of distal bowel division in this group was at 1-2 cm above the level of the levators depending upon the level of tumour and adequacy of distal clearance but always including the whole mesorectum.

Straight coloanal anastomosis was done by triple stapling technique in 8 patients and by park's perianal technique in 8 patients.

**Group 2:** Include patients with tumours in the lower third of the rectum or in the middle third but lying low or have unfavorable histology. These patients were treated by low anterior resection and colonic pouch-anal anastomosis. A 6 cm j-pouch was constructed by folding a 12 cm segment of the distal colon and creating a side to side anastomosis by manual suturing in 8 patients or using GIA stapler in 7 patients. The open end of the short limb of the j-pouch was closed by manual suturing or using linear stapler. The colonic pouch-anal anastomosis was done using the triple stapling technique in 7 patients and park's perianal technique in 8 patients.

**Group 3:** Include patients with tumours in the middle third of the rectum having favorable histology or lying high in the middle third. These patients were treated by low anterior resection with adequate mesorectal excision like upper third rectal cancers. The rectum, with the enveloping mesorectum was mobilized and divided 3-5 cm distal to the lower edge of the tumour. Low colorectal anastomosis was done by one-layer manual suture technique in 4 patients or by stapling using 31 mm circular stapler in 13 patients.

**Laparoscopic Method**

**Position and preparation**

Under general anesthesia, in lithotomic position with 15° head-down tilt by the surgeon with two assistants.

**Incision and induction of pneumoperitoneum**

Pneumoperitoneum was introduced through subumbilical incision to maintain pressure at 12-14 mmHg.

**Operative Procedure**

Laparoscope was inserted at 25° or 30° into abdominal cavity via the camera port.

With the operation proceeding of total mesorectal excision, division was moved downward into the pelvis along the anatomic space between visceral and parietal endopelvic fascia.

Pathological evaluation

The following parameters were assessed:

1. Total length of the specimen.

Lateral ligaments of the rectum containing the middle rectal artery or its branches were gradually divided with the harmonic scalpel from the inner limit of the inferior hypogastric nerve fibers.

At posterior, the rectosacral ligament, anococcygeal ligament, and pubococcygeus muscle were divided, and S2, S3, and S4 sacral splanchnic nerves were identified and protected carefully.

To extract the bowel loop of the tumor, the port incision was extended at the left McBurney's point to about 3.5 cm long, and isolated the tumor routinely by inserting in a sheath shaped plastic bag through the incision.

A 10 mm sized latex tube was routinely put into pelvic cavity through the port at the right McBurney point.

**Drainage and Diversion**

The presacral space was drained with a clothed suction system.

The absence of anastomotic leak was ascertained by water-soluble contrast enema and proctoscopic examination two months after surgery and before stoma closure.

Intraoperative difficulties and complications were meticulously recorded (Figures 1-7).

Pathological evaluation

The following parameters were assessed:

1. Total length of the specimen.
2. Inspection of the fascial sheath to assess the circumferential surgical resection margin.

On opening the specimen, the following was noted:
1. Tumour size in cm.
2. The distance in cm between the lower edge of the tumour and the lower surgical resection margin.
3. The distance in cm between the upper edge of the tumour and the upper surgical resection margin.
4. The presence of any polypoid growth in the nearby mucosa.
5. Serial sectioning of the perirectal fat to assess the number of lymph nodes associated with the specimen.
6. The level of the lowest and highest lymph nodes are recorded in relevance to the tumour.

**Follow up**

Patients who had undergone a curative resection of their rectal cancers were followed up every 3 months for the first 2 years after surgery and every 6 months thereafter.

The follow-up regimen consisted of:
1. Complete physical examination including digital rectal examination.
2. Serum CEA level.
3. Abdominal ultrasonography.
5. Proctosigmoidoscopy to exclude anastomotic recurrence.
6. Transectal ultrasound.

**Results**

This study was performed on sixty patients. They were 36 males and 24 females with male to female ratio of 1.5:1 as shown in figure 8.

The age of our patients ranged from 22 to 74 years with a mean age of 47.2±8 years. The age distribution of our patients was illustrated in table 1.

Symptoms were present in 56 patients (92.3%) at time of presentation. Bleeding per rectum was the most common complaint in this study and was followed by altered bowel habits. Subacute bowel obstruction was the least common clinical presentation. No symptoms were present in 4 patients (6.7%)
and the diagnosis was made during routine investigations. Some patients shared combined symptoms (figure 9).

Patient’s characteristics, tumour characters and operative management in the four groups were illustrated in tables 2, 3 and 4.

| Table 1: Age distribution of the studied group. |
|---|---|---|
| Age groups | No. | % |
| 20-30 | 4 | 6.7 |
| 31-40 | 12 | 20 |
| 41-50 | 16 | 26.7 |
| 51-60 | 12 | 20.0 |
| 61-70 | 8 | 13.3 |
| 71-80 | 8 | 13.3 |
| Total | 60 | 100.0 |

Eight patients (13.3%) developed recurrent disease. Isolated local recurrence developed in 4 patients (6.7%), isolated distal recurrence in 2 patients (3.3%), and both local and distant recurrence in 2 patients (3.3%). Thus the overall recurrence rate was 13.3%, and the local recurrence rate was 10%. The median time to the diagnosis of recurrence was 18 months postoperatively.

Clinical assessment (history and clinical examination) was the first follow up tool to point out to the recurrent disease in two patients, clinical assessment and elevated CEA level in the third patient and finally, an elevated CEA level alone in the fourth patient (figure 10).

There was a significant reduction in the degree of continence in CPAA, LCRA and laparoscopic group when compared with SCAA at 3 months and 1 year. There was nearly no difference in the continence state between the other 3 groups at 3 and 12 months (figures 11 and 12).

**Discussion**

Colorectal cancer (CRC) is the third most frequent malignant neoplasm worldwide [6].

The sex distribution in our study revealed male predominance with a male to female ratio of 1.5:1. In USA, the male to female ratio for rectal cancer is 1.8:1. This male predominance might be attributed to more exposure to environmental factors that may increase the incidence of rectal cancer [7].

The most common decade of life for the development of rectal cancer is the seventh decade. The most common age for the table:

| Table 2: Patients characteristics in the four studied groups. |
|---|---|---|---|---|
| Age : | SCAA group | CPAA group | LCRA group | Laparoscopic group |
| Mean | 46.2 yrs | 47.8 yrs | 46.3 yrs | 47.1 yrs |
| Range | 22-69 | 23-74 yrs | 29-70 | 22-73 |
| Gender (M:F) | 12:4 | 10:6 | 11:5 | 7:5 |
| Total | 16(26.7) | 15(25.0) | 17(28.3) | 12(20.0) |

**Table 3:** Tumor characteristics in the four studied groups.

<table>
<thead>
<tr>
<th>Tumor characteristics</th>
<th>SCAA group No=16</th>
<th>CPAA group No=15</th>
<th>LCRA group No=17</th>
<th>Laparoscopic group No=12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Distance from anal verge</td>
<td>6.5cm</td>
<td>7.8 cm</td>
<td>11.3 cm</td>
<td>11.3 cm</td>
</tr>
<tr>
<td>Range</td>
<td>6-7</td>
<td>7-8</td>
<td>10-12</td>
<td>10-12</td>
</tr>
<tr>
<td>Distal margin of resection</td>
<td>3.3 cm</td>
<td>4.8 cm</td>
<td>7 cm</td>
<td>7 cm</td>
</tr>
<tr>
<td>Mean</td>
<td>3-4</td>
<td>4-5</td>
<td>4-9</td>
<td>4-9</td>
</tr>
<tr>
<td>Range</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anastomosis height above anal verge</td>
<td>2.8 cm</td>
<td>3.8 cm</td>
<td>7.2 cm</td>
<td>7.2 cm</td>
</tr>
<tr>
<td>Mean</td>
<td>2-4</td>
<td>3-4</td>
<td>6-8</td>
<td>6-8</td>
</tr>
<tr>
<td>Range</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 4:** Operative management in the four studied groups.

<table>
<thead>
<tr>
<th>Operative management</th>
<th>SCAA group No=16</th>
<th>CPAA group No=15</th>
<th>LCRA group No=17</th>
<th>Laparoscopic group No=12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anastomosis :</td>
<td>Hand –sewn</td>
<td>Stapled</td>
<td>Hand –sewn</td>
<td>Stapled</td>
</tr>
<tr>
<td>Mean</td>
<td>8(50.0)</td>
<td>8(50.0)</td>
<td>8(53.3)</td>
<td>8(53.3)</td>
</tr>
<tr>
<td>Range</td>
<td>7(46.7)</td>
<td>7(46.7)</td>
<td>13(76.5)</td>
<td>13(76.5)</td>
</tr>
<tr>
<td>Operative time</td>
<td>2.6 hours in stapled</td>
<td>2.4 hours in stapled</td>
<td>2.6 hours in stapled</td>
<td>3.2 hours</td>
</tr>
<tr>
<td>Mean</td>
<td>3.5 hours in hand-sewn</td>
<td>3.5 hours hand-sewn</td>
<td>3.5 hours hand-sewn</td>
<td>3.4 hours</td>
</tr>
<tr>
<td>Range</td>
<td>2-3hs in stapled and 3-4 hs in hand-sewn</td>
<td>2-3hs in stapled and 3-4 in hand-sewn</td>
<td>2-3hs in stapled and 3-4 hs in hand-sewn</td>
<td>2-3hs in stapled and 3-4 in hand-sewn</td>
</tr>
</tbody>
</table>

**Figure 9:** The symptoms encountered in our study.

**Figure 10:** The incidence, pattern, time of recurrence among studied cases.
and the intestinal continuity was restored with low colorectal anastomosis (17 patients). Other middle third rectal cancers and all lower third rectal cancers lying at least 2 cm above the level of the levators were treated by total rectal and mesorectal excision and the intestinal continuity was restored by straight colectomy anastomosis in 16 patients and colonic pouch-anal anastomosis in 15 patients. Laparoscopic total mesorectal excision was done in 12 patients. The distal margin of resection in the present study ranged from 2 to 5 cm in the two coloanal groups (straight and pouch) with a mean of 3.2 cm.

It has been stated that a cancer residing within 5 centimeters of the anal verge usually cannot be treated by low anterior resection. Such lesions are located in the anal canal or immediately adjacent to the sphincter and resection with adequate margin requires excision of the sphincter with inevitable incontinence [9].

In the present study, the height of the tumour above the anal verge ranged from 5 to 9 cm in the two coloanal groups with a mean of 6.5 cm. In the colorectal group and laparoscopic group, the height of the tumour above the anal verge ranged from 9 to 12 cm with a mean of 10.5 cm and this allowed tumour-specific mesorectal excision and low colorectal anastomosis. A distal margin of resection of 1 cm has been described by is adequate. Rullier, et al. 2005 section margin for almost all operable rectal cancers. The term “close shave” has been used to describe those operations in which a distal resection margin of less than 1 cm has been employed [10].

The reported incidence of iatrogenic perforation of the rectum during surgical resection for rectal cancer ranged from 10-26% compared to two patients (6.7%). Pocard, et al. [11] reported that the risk of perforation is particularly higher during the perineal phase of abdominoperineal resection. In our study, this complication occurred when rectal dissection was being performed deep in the pelvis very close to the levators. The surgeon’s over-enthusiasm to save the sphincters in these ultra-low resections could probably be a strong contributing factor to the occurrence of such complication.

In the present study, iatrogenic perforation of the rectum. The importance of intraoperative air testing of colorectal anastomosis has been repeatedly demonstrated in various studies. Routine intraoperative air testing of all colorectal anastomoses prevented the development of postoperative anastomotic leak in two patients, in these patients, air test was positive for a leak. The source of the leak was traced and the defect was repaired. The patient did not develop postoperative clinical or radiological leak. The results of this study are thus in agreement with those of other studies that have demonstrated the value of intraoperative air testing in reducing the incidence of postoperative clinical and radiological leaks.

Any of the complications associated with major abdominal surgery can occur following rectal excision. Abdominal wound sepsis and respiratory tract infection are complications of major abdominal surgery and are not specific to rectal excision. Urinary tract infection and urinary retention are the most common complications following rectal excision [12].

In our study, erectile impotence occurred in 4 of 34 potent male patients, the four patients were in the laparoscopic group. Havenga and colleagues found that 86-96% of men younger...
than 60 years of age retained their ability to engage in sexual intercourse after total mesorectal excision with autonomic nerve preservation. In the present study, total mesorectal excision was employed in all patients with coloanal anastomosis and adequate mesorectal excision was employed in all patients with colorectal anastomosis and 88.2% of patients retained their ability to engage in sexual intercourse after surgery. The lower incidence of sexual dysfunction in our study is therefore in agreement with that reported by study done by Havenga, et al. [13].

In the present study, all women who were sexually active before surgery remained so after surgery. Anastomotic leak is one of the most serious complications associated with rectal resection for carcinoma, with mortality rate approaching 40%. The reported incidence of anastomotic leak varied widely ranging from 4.2% to 26%.

In the present study, anastomotic leak developed in six patients, four patients following hand-sewn straight coloanal anastomosis and (25%) and two patients (16.6%) in the laparoscopic group.

The single most important risk factor for anastomotic leak is the height of the anastomosis above the anal verge; the lower the anastomosis, the higher the risk of leakage [14].

The incidence of anastomotic stricture following anterior resection has been reported to range from 0-30% with most series in the range of 6-10%. Although stricture can occur regardless of the anastomotic technique, the incidence has apparently increased with the use of staplers.

In the present study, eight patients developed anastomotic stricture (13.3%); four in the straight group, two in the colorectal group and two in the laparoscopic group. In the straight group, two of the four patients who developed stricture were complicated by anastomotic leak, whereas the other two patients had a stapled coloanal anastomosis. In the colorectal group, two patients developed anastomotic stricture following stapled colorectal anastomosis.

Regardless of the site of recurrence, 60-84% of recurrences are detected within 2 years of the initial operation and 90-93% within 4 years [15].

In the present study, the total local recurrence rate was 10%. Isolated local recurrence developed in two patients (6.7%) and local recurrence with distant metastases developed in the third patient (3.3%). These results denote that the meticulous surgical technique adopted in the present study succeeded in achieving local recurrence rates/comparable to the lowest rates reported in the literature. Furthermore, the results of the present study clearly demonstrated that from the oncological point of view, low anterior resection is as safe as abdominoperineal resection in the management of middle and lower Third rectal cancers [16].

In the present study, history and physical examination was the first follow-up tool to diagnose recurrence in two of the four patients with recurrent disease. It has been found that elevated serum CEA levels were detected in about 75% of patients with widely disseminated disease but in less than 50% of patients with early or localized recurrence. Furthermore CEA levels were less likely to be elevated with rectal tumours when they recur locally.

In our study, Serum CEA levels were not elevated in the patient who developed isolated local recurrence and were only elevated in the presence of distant metastases which is in accordance with the above mentioned studies.

In the present study, inadvertent perforation of the rectum complicated the operative course of two patients, one of them developed local recurrence denoting that this event was a strong risk factor as well as a strong predictor of local recurrence following curative resection of rectal cancer as pointed out by others. The primary goal of any follow-up program is the detection of recurrent disease at a stage when the disease and the patient are amenable to curative treatment.

The basic promise is that early detection of recurrent disease results in an increased rate of curative resection and thus improved survival. In the present study, intensive follow-up detected recurrent disease in two patients at a stage amenable to surgical excision with a curative intent. The ability degree of continence was not significantly different between the three groups, but-there-was-some decrease in degree of continence within the SCAC group between 3 months and 1 year.

The results of the present study showed that the creation of a colonic pouch was associated with significantly reduced postoperative leak, stricture better evacuation, and thus incontinence score. Thus the advantages of the colonic pouch- anal anastomosis were achieved within a shorter period and were still maintained one year after surgery [16].

Conclusion

Rectal cancer seems to be more common among patients 40 years of age or younger in our country. It is therefore concluded that the young age of the patient is not a criterion against the diagnosis of malignancy and that rectal cancer is not a disease of the elderly alone as it was previously thought to be.

The choice between a low anterior resection and an abdominoperineal resection depends on many factors. However, the most important of these factors is the height of the tumour above the anal verge. Invasion of the anal sphincter complex and/or poor preoperative sphincteric function are absolute contraindications to sphincter preservation in the management of rectal cancer.

Patients undergoing surgery for rectal cancer sometimes have limited life expectancy and should be offered the best outcome shortly after the operation. Our results show that the use of a colonic pouch after total rectal excision gives a lower incidence of anastomotic leakage and a superior functional outcome when compared with the traditional straight coloanal anastomosis. Improvement is apparent from the early postoperative period when the function may be at its most critical level. This is especially important in the elderly who often have impaired sphincteric function, which may be easily overwhelmed by the urgency and frequency associated with straight coloanal anastomosis. For those with limited life expectancy it is also desirable to achieve optimum results as quickly as possible.

Low anterior resection with total mesorectal excision and colonic pouch construction should be the procedure of choice for some middle third and all lower third rectal cancers (tumours < 10 cm from the anal verge) unless there is an absolute contraindication to its performance (invasion of the anal sphincter complex or poor preoperative sphincteric function).
References


