

CHANGING PRACTICE OF RECTAL CANCER SURGERY IN PAKISTAN

Abdul Razaque Shaikh¹, Ambreen Muneer², Zameer Hussain Laghari³

ABSTRACT

Objective: To describe the presentation and pathology of rectal cancer, and to evaluate the local experience after total mesorectal excision at a tertiary care hospital in Pakistan.

Methodology: A retrospective study of two hundred cases of carcinoma rectum that had undergone total mesorectal excision at Liaquat University Hospital Jamshoro Pakistan was carried out from January 1998 to December 2007. The cases were admitted through outpatient and emergency departments. The demographic details of each patient and variables such as clinical presentation, tumor location, Dukes staging, TNM staging, operations and complications were recorded on proformas. Each patient was followed up at two months for one year, every four months for three years and annually thereafter.

Results: Male to female ratio being almost equal 1.6:1, Age ranged from 14-70 years. Site of tumor at upper one third 25%, middle one third 30% and lower one third 45%. Majority of patients (more than 62%) were in Dukes B Group. There were no postoperative deaths, complications occurred in a total of 59 (29.5%) patients, which were mostly colostomy related (13.0%). The abdominal wound infection 5%, anastomotic dehiscence 1.0%, urinary tract infection 5%, and impotence occurred in 1.5%. In 20% patients' local recurrence was detected.

Conclusion: Total mesorectal excision is a safe and feasible technique for rectal cancer surgery with acceptable perioperative morbidity and adequate local disease control.

KEY WORDS: Rectal cancer, Total Mesorectal excision, Presentation, Outcome.

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INTRODUCTION

Rectal cancer is one of the most challenging problems encountered by colorectal surgeons and is currently the second leading cause of cancer deaths in western countries.¹ The incidence of rectal cancer is also increasing in Pakistan and other developing countries possibly due to industrialization and gradual westernization of the diet. The pathology and treatment modalities of rectal cancer are quite different from those of colon cancer because of the peculiar location of the rectum in the pelvis and its proximity to the anus.²

Total mesorectal excision (TME) is becoming widely accepted universally as the preferred technique for surgical excision of rectal cancer.

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1. Abdul Razaque Shaikh, FCPS
 2. Ambreen Muneer, FRCS
 3. Zameer Hussain Laghari FCPS
- 1-3: Department of Surgery,
Liaquat University of Medical and Health Sciences,
Jamshoro,
Sindh - Pakistan.
- Correspondence:
Dr. Ambreen Muneer,
H. No. C 112,
Sharif Square Hussainabad,
Hyderabad - Pakistan.
E-mail: banglani_90@hotmail.com

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The basic principle of excising tumor and the mesorectum en bloc remains its foundation. Total mesorectal excision results in the lowest rates of local recurrence, especially when combined with pre-operative radiation treatment.³⁻⁶ Preservation of hypogastric nerves and the splanchnic nerves is one of the integral parts of total mesorectal excision and this nerve sparing dissection is less likely to result in sexual and urinary dysfunction.^{7,8}

We conducted this study to document the presentation and pathology of rectal cancer, and to evaluate the local experience after total mesorectal excision at a tertiary care hospital in Pakistan

METHODOLOGY

Two hundred patients with histologically proven rectal adenocarcinoma were operated from 1998 to 2007, at Liaquat University of Medical & Health Sciences Jamshoro. Pre-operative assessment was done by standard history and physical examination. All patients had colonoscopy for evaluation of synchronous tumors. The search for metastatic disease outside the pelvis was accomplished by chest radiography, liver biochemical studies, ultrasonography and computed tomography scan where appropriate. Counseling about colostomy and sexual dysfunction was done.

All patients were prepared for surgical procedure with standard mechanical bowel preparation and preoperative antibiotics. Curative resection done in carcinoma upper and middle one third of rectum was anterior resection in 55 cases and in lower one third was abdominoperineal resection. Palliative procedures done were Hartmann procedure in 10 cases and sigmoid colostomy in 65 patients. Anterior resection was done by manual anastomosis in 46 cases and stapler in nine cases.

Surgical Technique: The essence of the surgical technique is the development under direct vision of avascular plane between the mesorectum and surrounding parietal tissues right down to the distal extremities of the pelvis. The excised specimen thus includes the whole

posterior, distal and lateral mesorectum out to the plane of inferior hypogastric plexus, which are carefully preserved. Anteriorly it includes the intact Denonvilliers fascia and peritoneal reflections. The characteristic bilobed encapsulated appearance of the intact mesorectum posteriorly and distally reflects the contour of the pelvic floor and midline anococcygeal raphe. Finally, great importance is attached to preventing implantation by the use of saline to wash out the rectal stump below and clamp before the anorectum is divided and pelvis itself, both before and after the division.

Operative specimens were analyzed histopathologically for the Dukes stage, including the number and status of nodes, tumor differentiation and extramural vascular invasion. Patients with Dukes C lesion were offered adjuvant chemotherapy and radiotherapy.

Follow-up: Patients were scheduled for follow-up visits ever two months for one year, every four months for three years and annually thereafter with radiation oncologist and primary surgeon. The postoperative surveillance included a carefully taken history and physical examination. Symptoms such as weight loss, fatigue, rectal bleeding, abdominal or pelvic pain, cough, change in bowel habits and bone pain were noted. Serum CEA level and imaging studies like CT scan and ultrasound of abdomen and pelvis were also performed to detect recurrence. Full blood count, liver function test, serum carcinoembryonic antigen at each visit, abdomen and pelvic ultrasound and C.T. Scan abdomen and chest x-rays every year and colonoscopy every two year. For patients who could not return to LUMHS for follow-up, information was obtained from the patients or basic health unit present at local area by phone calls. Functional outcome was assessed by evaluating the frequency and characteristics of bowel movements and anal continence.

Statistical Analysis: Demographic details and other data were statistically analyzed on SPSS version 11.

RESULTS

The study population includes 200 cases. The age range was from 14-70 years. The highest incidence was between the ages 45-60 years. Male to female ratio being almost equal (1.6:1). The commonest site of tumour was lower one third of rectum 45% (Table-I). The main presenting symptoms was bleeding per rectum in 60%, alteration of bowel habits 30%, diarrhea 5%, intestinal obstruction 15%, abdominal pain 30% and constipation 55%(Table-I).

The histopathology reports showed adenocarcinoma in 98% patients. Majority of the patients (more than 60%) were in Duke's B Group (Table-II). All patients were operated, anterior resection was performed in 55 (27.5%) patients, abdominoperineal resection in 70 (35%)

Table-I: Demographic and Clinical Details.

Presentation	No. of Patients	%
Age:		
Mean \pm SD	56.52 \pm 4.23	--
Median	54	--
Range	14 - 70 years	--
Bleeding per Rectum	120	60
Alteration of Bowel Habit	120	30
Diarrhoea	10	5
Intestinal obstruction	30	15
Pain Abdomen	60	30
Constipation	110	55
Tumour size		
Median	5	--
Range	1 - 12 cm	--
Distance form anal verge		
Median	6 cm	--
Range	0 - 12 cm	--
0-4 cm	90	45
4.1-8 cm	60	30
8.1-12 cm	30	25
Location of tumor		
Upper one third	50	25
Middle one third	60	30
Lower one third	90	45

patients, Hartmann's procedure 10 (5%) patients and palliative colostomy only performed in 65 (32.5%) patients (Table-III). Post-operative complications were abdominal wound infection 10 cases, colostomy complication in 26 cases, anastomotic dehiscence in two cases and impotence in three cases (Table-IV). So far, 10 patients have local recurrence. These patients are symptomatic and detected after 10 months of surgery during monthly checkup. They were sent to oncology centre for radiotherapy.

DISCUSSION

Colorectal cancer is one of the most common malignancies in developed countries. The inci-

Table-II: Histopathology and Stage.

Presentation	No. of Patients	%
Diagnostic Pathology		
Adenocarcinoma	196	98
Others	04	02
Diagnostic Histology		
Well differentiated	06	03
Moderately differentiated	93	46.5
Poorly differentiated	55	27.5
Unknown	46	23
Clinical T stage		
< T2	04	02
T3	142	71
T4	54	27
Clinical N stage		
N0	80	40
N1-2	110	55
Unknown	10	05
Lymphovascular invasion		
Present	26	13
Absent	140	70
Unknown	34	17
Circumferential radial margin		
Positive	04	02
Negative	196	98
Duke's stage		
A	0	0
B	125	62.5
C	75	37.5

Table-III: Surgical Procedure.

Presentation	No. of Patients	%
Anterior resection	55	27.5
Abdomino perineal resection	70	35
Harmann's procedure	10	05
Colostomy	65	32.5

dence of rectal cancer in many Asian countries is increasing. According to Pakistan Medical Research Council report in 1992, the incidence of rectal cancer is low in Pakistan but reports from Karachi, Lahore and Peshawar shows high figure as compared to western reports.^{9,10}

Mean age at presentation is 55 years and is comparable with local and regional studies.¹¹⁻¹³ and is 10-15 years younger than reported from west.¹⁴ In the present study the predominance site of tumour is lower rectum which is same as in western studies.^{15,16} Presentation of the patients in our study is consistent with other similar studies.¹⁷

Total mesorectal excision has been shown to achieve a more accurate staging and locoregional control of the neoplastic disease, lower the rate of local recurrence, and improve survival rate.^{18,19} In our experience, by using the procedures detailed by Heald et al²⁰ and Macfarlane et al²¹, dissection of mesorectum has proven to be straight forward because the mesorectum develops along well defined vascular root. Pelvic bleeding and neoplastic and septic contamination of the operative field consequent to intraoperative perforation of rectum and breaching of the mesorectum are the main pitfalls described to occur frequently during the conventional procedure. Such complications, which are only rarely reported to occur during TME^{22,23} were never registered in our series.

In our study we have seen that patients presented with advanced disease. This delayed presentation with advanced disease can be because of patients, or doctors who have been treating the patients initially. Delayed presentation on the part of patients is because of the fact that they are ignorant about disease and they take initial symptoms of bleeding per rec-

Table-IV: Complications.

Presentation	No. of Patients	%
Abdominal wound infection	10	05
Colostomy complication	26	13
Anastomotic dehiscence	02	01
Perineal haemorrhage	08	04
Impotence	03	1.5
Urinary tract infection	10	05

tum as piles and they were reluctant to show anal area to the doctors. In 200 patients we did not see even a single patient with a stage A disease for the above mentioned reason.

We offered surgery as the main stay of treatment providing both the cure and long periods of palliation in advanced disease. The most common procedure done was abdominoperineal resection of rectum, as 90% of tumours were in lower third of rectum. This is in contrast to international and regional studies which showed that the implementation of TME has led to a decline in the ratio of abdominoperineal resections compared with low anterior resections. Most patients are now treated with the sphincter saving procedures and low anterior resections according to TME principles are performed in 70-80% of patients.^{24,25} This progress has been made possible because of widespread availability and use of modern stapling devices and application of new ultralow anastomotic and endoluminal techniques.

In our study, anterior resection was performed in 55 patients (27.5%) which is comparable to other reported data from Pakistan, where low and ultra low anterior resection was performed in 19% of rectal cancers.²⁶

Over all resectability rate was 67.5 percent with 62.5% potentially curative resection in the present study which is 15-18 percent less than the international published figure.²⁷ This seems remarkable because the prognosis for patients with unresectable tumour was even worse than after palliative resection.²⁸We had done straight

end-to-end anastomosis proximal colon without any pouches and covering ileostomy.

In Pakistan Open TME is more common procedure than laparoscopic TME. We have performed all the cases with open TME due to learning curve and technical difficulties in the pelvis. In laparoscopic TME the oncologic results are equivalent to open TME in terms of surgical margins and number of removed lymph nodes.

Circumferential radial margin (CRM) is one of the powerful predictor of local recurrence and in our series only in four cases (2%) there was involvement of CRM and these cases developed local recurrence in follow up. The completeness of mesorectum is another factor predicting local recurrence and in our series three case had defects and these developed local recurrence. Distal margin involvement is another factor favouring local recurrence especially if it is less than 2cm. In our series the distal resection margin was more than 3cm as we have not attempted low/ ultralow anterior resections and the distal margins were clear from the tumour involvement. Lymph node involvement was found in 55% cases and is one of the factors determining survival. We are not practicing lateral pelvic lymph node dissection which is claimed by Japanese to improve the survival and decreasing local recurrence.

Colostomy complications 13.% were higher mostly in emergency cases. Anastomotic dehiscence was 1% in our study comparatively same to international report.²⁹ Careful sharp dissection TME preserves the autonomic nerves but in international series urinary bladder dysfunction reported is up to 54% and sexual dysfunction is up to 59%.³⁰ We did not find any urinary bladder dysfunction and sexual dysfunction impotence was found only in 1.5% cases.

CONCLUSION

In our experience, rectal cancer is more common in younger age group and with advanced stage. Total mesorectal excision was performed as an optimal surgical treatment.

The outcome of total mesorectal excision for rectal cancer proves that acceptable

perioperative morbidity and adequate local disease control is achieved with our surgical practice. This series confirms the safety and feasibility of total mesorectal excision for rectal cancer surgery. We believe that with modern surgical tools and techniques rectal cancer surgery can be further improved to maximize sphincter preservation with favourable oncological outcome.

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