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Evaluation and Management Of Rectal Carcinoma In The GIT Hospital

*Dr. Hasanain Talib Essa
**Dr.Rafid Monneir Shakir
***Dr. Ghassan Ali Al-Kizwini

ABSTRACT

Background: Rectal cancer is a major health concern in the United States; with an estimated 40,340 new cases diagnosed in 2005. According to SEER (Surveillance, Epidemiology and End Results program) cancer registry, incidence of rectal cancer has shown annual increment for the last twenty five years. It is similar in men and women.Rectal cancer survival is highly dependent upon stage of disease at diagnosis.**Objective:** this study aims to assess the patterns of presentation, distribution, and management of rectal carcinoma in Gastroenterology and hepatology center.**Patient and Method:** From November 2013 to march 2015, 40 patients with rectal carcinoma 22 males and 18 females were admitted to the Gastroenterology and hepatology center. The age, sex, presentation, modes of investigation, stage of the cancer, treatments as well as complication have been documented.**Results:** Male: female ratio about 1.2:1 with peak age of incidence is from 50-59 years, 20% are below age of 40. The main presenting symptom was bleeding per rectum 75%.The period between onset of presenting symptoms and final diagnosis was from less than one month to two years. The most common site was upper rectum 46.6%. 71.7% were moderately differentiated, 37.5% were stage III.**Conclusion:**The study highlights the importance of early diagnosis, keeping in mind the increasing incidence of rectal carcinoma in younger age groups.

Introduction:

There are about 140000 and 40000 new cases of colorectal cancer diagnosed each year in the USA and UK respectively. Around two-thirds are located in the colon and one-third in the rectum. [1] According to SEER (Surveillance, Epidemiology and End Results program) cancer registry, incidence of colonic tumor in young patients remained static, while incidence of rectal cancer has shown annual increment for the last twenty five years. [2] It is similar in men and women.[3]Rectal cancer diagnosis increases after the age of 40 and rising sharply after age 50.[4] Personal History of Adenomatous Polyps[5],Personal and family History of Inflammatory bowel disease (IBD).[6] Approximately 5 to 10% of colorectal cancers are a consequence of recognized hereditary conditions e.g familial adenomatous polyposis. [7]Colorectal cancer is widely considered to be an environmental disease include a wide range of often ill-defined cultural, social, and lifestyle factors.[8]Bleeding is the earliest and most common symptom.[9] More advanced lesions present with change in bowel habits, constipation, obstipation, tenesmus, and passage of thin, narrow stools.[10] As part of a full physical examination, proctosigmoidoscopy should be performed in conjunction with a digital rectal examination to determine the distance of the lesion from the anal verge. [11] And at the same time the opportunity to get biopsies from the tumor. [1] Colonoscopy is currently the most accurate and most complete method for examining the large bowel [3] and to exclude a synchronous tumor.[9]Carcinoembryonic antigen (CEA) levels should be assessed for the establishment of baseline values and during the surveillance period to monitor for signs of recurrence.

[12]CT is used to assess local and distant disease. [13] Ultrasonography of the liver and a chest radiograph are decreasingly used alternatives. Positron emission tomography scanning can be helpful in identifying metastases if imaging is equivocal. [11]MRI allows assessment of the circumferential resection margin and adjacent structures. [9] Endoscopic rectal ultrasound is used to clinically determine the tumor (T) and lymph node (N) stage of rectal cancer.[14] Rectal cancer staging is based on tumor depth and the presence or absence of nodal or distant metastases. Older staging systems, such as the Dukes' Classification and its Astler-Coller modification, have been replaced by the tumor-

* *C.A.B.S.*/Gastroenterology and Hepatology Teaching Hospital - Medical City, Baghdad
**F.I.C.M.S, C.A.B.S./Gastroenterology and Hepatology Teaching Hospital - Medical City, Baghdad
***CABS ,FIBMS /Gastroenterology and Hepatology Teaching Hospital - Medical City, Baghdad

node-metastasis (TNM) staging system.[15]
The basic tenet of performing colorectal cancer surgery with curative intent is to remove the primary lesion with adequate margins, along with regional lymph nodes.[16]The distal 10 cm of the rectum are accessible transanally. *Transanal excision* (full thickness or mucosal) is an excellent approach for noncircumferential, benign, villous adenomas of the rectum and is curative in patients with a primary tumor which is limited to the submucosa (T1N0M0), without high-risk features.[17,18]Once the tumor invades the muscularispropria (T2), radical rectal resection is recommended. In patients with transmural and/or node positive disease (T3/T4 and/or N1) with no distant metastases, preoperative chemoradiation followed by radical resection according to the principles of total mesorectal excision (TME) has become widely accepted.[14]TME ensures en bloc removal of the primary rectal cancer and associated mesentery, lymphatics, and vascular and perineural tumor deposits.[19] for tumors of the upper rectum, the mesorectal excision should extend 5 cm below the distal edge of the tumor, whereas a TME is required for tumors of the middle and lower rectum.[20]The possibilities for further development of anterior resection were realized after a study demonstrated that distal margins up to 2cm do not compromise the oncological result in terms of survival and local control.[1]Host factors influence the choice of operation for a given patient. Probably the most important factor is the level of the lesion.For patients with unresectable distant metastatic disease, surgical excision of the primary rectal cancer may still be considered when palliation of symptoms is anticipated. [14]

Aim of study:

The aim of this study is the assessment of the patterns of presentation ,age and sex distributions ,methods of investigations, pathological distribution ,site ,stage and grade and surgical management and complication of rectal carcinoma in Gasrotroentorology and Hepatology teaching hospital and if there is any difference or changes in comparison with other studies done in Iraq as well as world wide.

Setting:

Gastroenterology and Hepatology Teaching Hospital-Medical City, Baghdad, Iraq.

Patients and methods:

In this prospective and retrospective study , analysis of the data of 40 patients newly diagnosed to have rectal carcinoma who were treated at Gastroenterology and Hepatology Teaching Hospital Medical City from November 2013 to march 2015.The data were collected by a special form and the patients were admitted and treated at the surgical department where investigations carriedout to prove the diagnosis using preoperative tissue biopsy and determine the site and the extent of the disease include biochemical , endoscopy, preoperative biopsy and imaging as U/S ,CT, MRI and barium enema .
Preoperative bowel preparation was done for most of the Prophylactic antibiotics were given at induction of anesthesia and continued for two days if no clinical feature of sepsis were present. The surgical technique depends on the site of tumor , the condition of the bowel and the general condition of the patient All specimens was sent for histopathology examination. Clinical data from physical examination, investigations and operative finding were used for staging system used. In this study the modified TNM staging system was used as shown in table below.

Results:

There were 40 patients, 22 were male patients and 18 female patients. Age distribution from 22 years to 75 years. The mean age incident for males was 54.09 years and for females was 52.27 years. Male to female ratio was 1.2: 1. , peak age of incidence both for males and females was 50 to 60 and 20% be were below 40 years old.

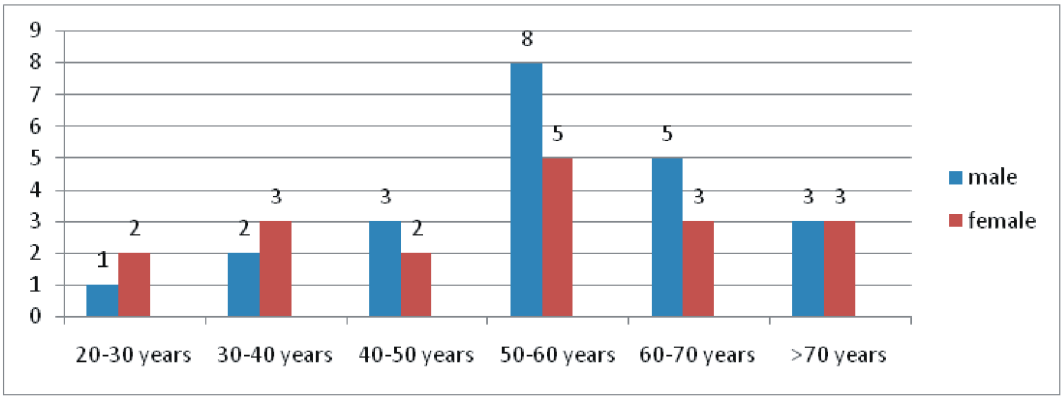


Fig (1) Age group distribution

Mode of presentation

Bleeding per rectum was the main presenting symptom present in 75%. Patient may have more than one symptom. And the duration of symptoms were from less than one month to two years. Table(1).

Table (1) mode of presentation

Mode of presentation	Number of patients	Percentage%
Bleeding per rectum	30	75%
Change in bowl motion	24	60%
Abdominal pain	20	50%
aneamia	19	47.5%
Wight loss	18	45%
Intestinal obstruction	10	25%
Rectal mass	20	50%
tensmus	10	25%

Predisposing factors

Predisposing factors found only in 9 patients.Table(2).

Table (2) predisposing factors

Predisposing factors	number
Adenomatous polyp	5
Family history	2
Ulcerative colitis	1
Familial adenomatous polyposis	1

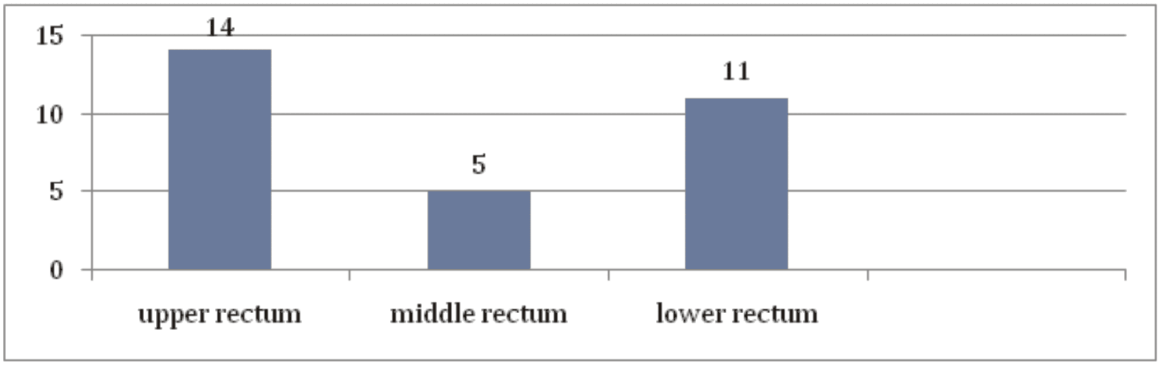
Investigations:

38 Patients had colonoscopy but 13 patients did not complete total colonoscopy because the endoscope could not pass beyond tumor, three patients proved to have synchronous polyps.Computed tomography and ultrasound also had done in all patients for Staging. MRI used in ten patients four of them the depth of tumor invasion was identified. Preoperative biopsy done in all patients, all of which show positive results.Table(3).

Table (3) types of investigation tool

Investigation tool	Number of patients
colonoscopy	38
CT scan	40
ultrasound	40
MRI	10
Barium enema	6
Abdominal X-ray	8
Preoperative biopsy	40

Site of the tumor
commonest site of the tumor was at the upper rectum 46.6% followed by lower part (36.6%), and middle part (16.6%). Ten tumors not exactly sited because no exact information available about the location.



Site of the tumor

The modality of treatment:

Anterior resection was the most common operation done in 52.5% (done in 21 patients as shown in table (4)), five patients had Hatrman's procedure and the rest of them had colo-rctal or colo-anal anastomosis with defunctioning stoma done only in nine patients, followed by abdominoperineal resection 22.5% and three patients had transanal excision of polyps (one of them had carcinoma in situ, the other had tumor limited to submucos and third one his histopathology Revealed invasion of muscularisproperia and he subsequently underwent radical operation).No procedure were done in 3 patients because either associated comorbidity or advanced disease. Five patients had defunctioning loop colostomy (two of them send for neoadjuvent later on and the other three colostomy done as final procedure because they had unrespectable cancer). palliative intent procedures done in 9 patients (22.5%).

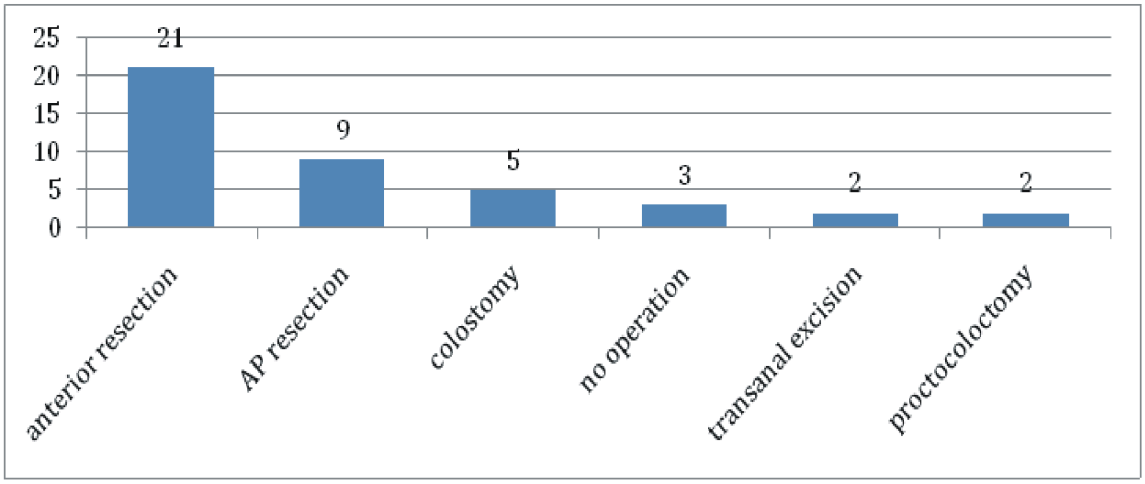


Fig (3) types of procedures

Table (4) types of surgical procedures. (the two proctocoloctomy procedures, one was ended as end illiostomy and abdominoperineal resection and the other was ended as ultralow anterior resection and coloanalanstamosis

Type of procedure	Number of patients	percentage
Anterior resection	21	52.5%
Abdominoperineal resection	9	22.5%
Loop colostomy	5	8%
No operation	3	7.5%
Transanal excision	2	5%
proctocoloctomy	2	5%

Table (5) types of anterior resection

Type of anterior resection	Number of patients
High	6
low	12
Ultra low	3

Staging :We use the TNM staging system and the most common stage was stage III (37.5%) followed by stage II (30%) and stage IV(25%). One patient had carcinoma in situ (stage 0).

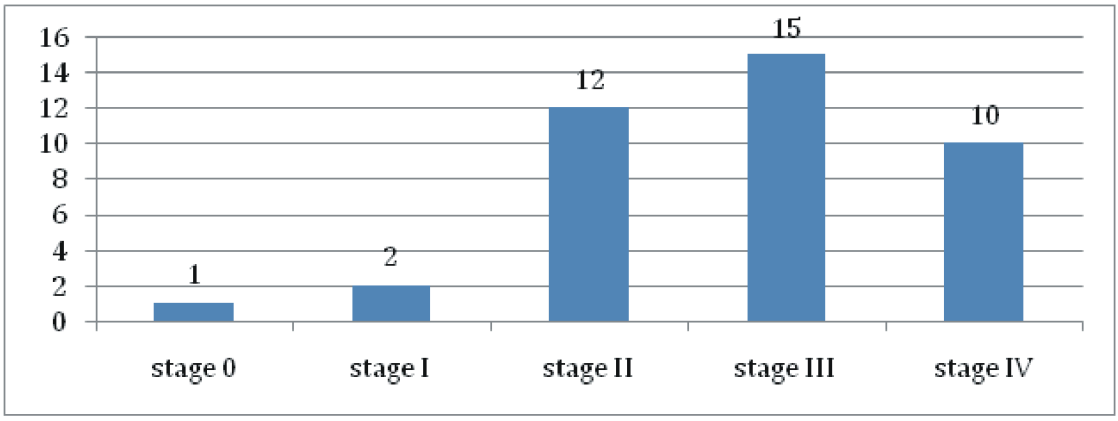


Fig (4) stage distribution according to TNM staging system.

Degree of differentiation :
Moderate differentiation (70%) was the most common type as shown in fig (7) followed by poor differentiation (15%) and then well differentiation in (12.5%). One patient had carcinoma in situ.

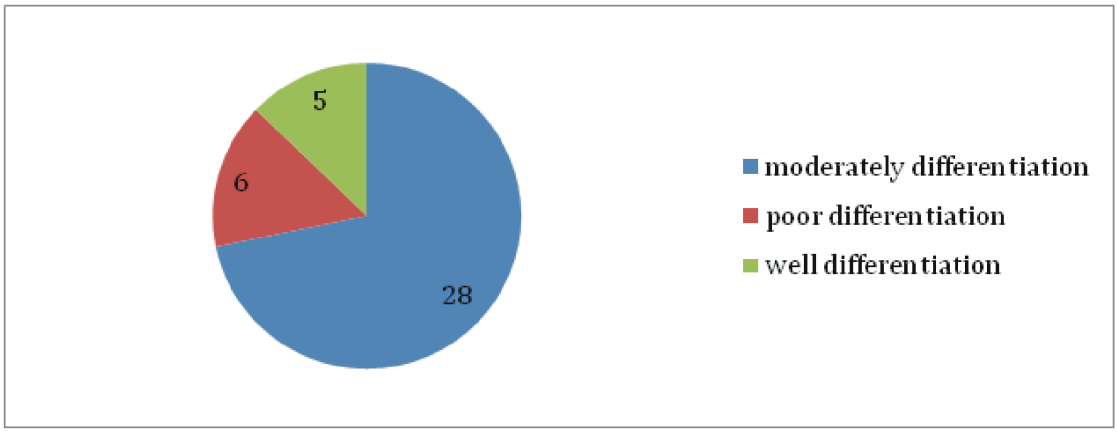


Fig (7) degree of differentiation

Post-operative morbidity and mortality:
During period of hospitalization the post operative complications occurred in 64.8% of operated patients the most common complication was wound infection which was found in 10 patients, one patient died due to pulmonary embolism. Regarding entero-cutaneous fistula, which occurred in 5 patients (13.5%). Two of them due to end colostomy gangrene which needed reoperation and revision of colostomy and the other three due to anstamosis dehiscence.

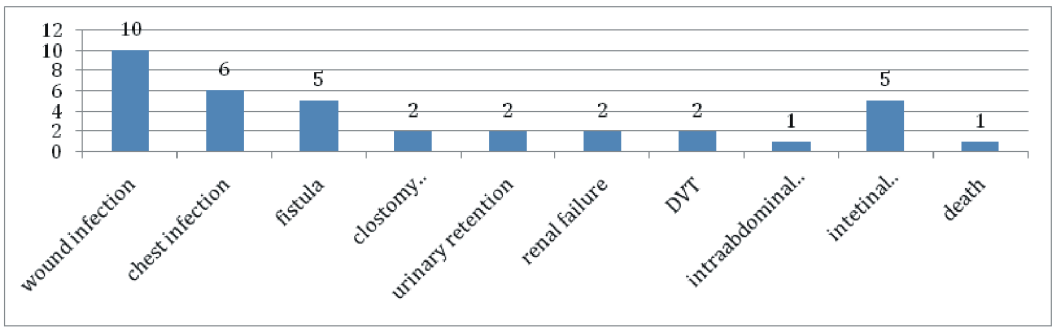


Fig (6) morbidity and mortality

Discussion:

Regarding age and sex incidence, male to female ratio was 1.2:1 and the mean age incidence for the males was 54.09 years and for the females was 52.27 years.TomislavPetrovic et al found that male to female ratio was 1.7:1 and the mean age of incidence was 63.96 which slightly differs from ours.[21]

Our results showed that 20% of the cases were below 40, the peak age incidence was between 60-69 years. Fatima A. Haggar and et al Stated in their study in 2009 that More than 90% of colorectal cancer cases occur in people aged 50 or older.[22] however, rectal cancer appears to be increasing among younger Persons.[5]G. A. Rahman study showed that his patients age range was 2075 years, with a mean of 46.8 years. The male to female ratio was 1:1, 38.9% of the patients were below the age of 40 years.

[23]Regarding the presenting symptoms; bleeding per rectum (found in 75%) and change in bowl habit (found in 60%) were the most common symptoms. This was nearly similar to the presenting symptoms incidences in another study where rectal bleeding was the presenting symptom in (60.4%), change in bowel habits was found in (43.3%).[24] (table (6)).

Table (6) shows the mode of presentation in the present study and Meslo TW and et al study.

symptoms	Our study	Mesko TW and et al sudy
Bleeding per rectum	30(75%)	3440(60.4%)
Change in bowl motion	24(60%)	2466(43.3%)
Abdominal pain	20(50%)	1190(20.9%)
Intestinal obstruction	10(25%)	512(9%)
Tensmus	10(25%)	285(5%)
Jaundice	zero	46(0.8%)

Regarding the location of the primary tumor; the most common location for the primary lesion in our study, was the upper third (46.6%), followed by the lower third (36.6 %), this was according to the distance of distal tumor from anal verge.In ten patients the location of primary within rectum could not precisely identified.

In the study done by Sami Alasari, et al in 2015; they found that distal third tumor were the most common (43%), followed by the upper third (31%).[25] ,while Werner Hohenberger, et al, found that middle rectal cancer incidence was 48.5% followed by lower rectal cancer 33.5%.[26]See table (7).

Table(7) level of rectal tumor comparison in different studies.

level of rectal cancer	Present study	Sami Alasari and et al	Werner Hohenberger an et al
Upper third	14(46.6%)	19(31%)	185(18%)
Middle third	5(16.6%)	16(26%)	498(48.5%)
Lower third	11(36.6%)	26(43%)	344(33.5%)

Regarding investigations; colonoscopy was done in 38 patients. Complete colonic examination was possible in only 25 patients because the scope could not passed through the tumor in the remaining patients. Three patients were discovered to have synchronous polyps (12%). The recorded incidence of synchronous polyps is 30% and the incidence of synchronous cancer (1%-3%).[11]

Computed tomography and the abdominal ultrasound were done in all patients because of availability in our hospital and the definite need for staging.We did MRI in only 10 patients. The accuracy of which was 40% in determining the T stage. While Kim NKKim, et al showed that the accuracy of the MRI for determining the depth of invasion was (81%).[27]

This significantly differs from our results; this was possibly due the fact that MRI interpretation is operator dependent.The most common stage in our study was stage III (37.5%), followed by stage II (30%), while TomislavPetrovic et al, also had the stage III (31%) as the most common stage (which is approximate to our results), The obvious difference was that stage one, was found in 28% of the patients.[21]In our study, stage one was found in 10% of the cases only. This can be explained by the poor screening programs in our region to discover early stages. See table (8).

Table (8) stage of tumor comparison.

Stage of the tumor	Present study	TomislavPetrovic et al
Stage 0	1(2.5%)	2(2%)
Stage I	2(5%)	28(28%)
Stage II	12(27.5%)	23(23%)
Stage III	15(37.5%)	31(31%)
Stage IV	10(25%)	16(16%)

Treatment: anterior resection was done in 52.5% of cases and abdominoperineal resection was done in 22.5% this was comparable to TomislavPetrovic, et al (60% for the anterior resection and 17% for abdominoperineal resection).[21]

This definitely reflects encouraging sphincter preserving operations in our center.

Palliative procedures were done in nine patients (5 loop colostomy and four anterior resection procedures), this represents (22.5%), definitely to relief their complaint (to relieve obstructive symptoms or bleeding per rectum). This is slightly higher than TomislavPetrovic et al [21]who did palliative surgical treatment in 13%. See table (9).

Table(9) types of surgical procedures

type of procedure	present study	TomislavPetrovic et al
Anterior resection	21(52.5%)	60(60%)
Abdominoperineal resection.	9(22.5%)	17(17%)
Tansanal excision	3(5%)	zero
Palliative	9(22.5%)	13(13%)
No operation	3(7.5%)	zero

Regarding the degree of rectal adenocarcinoma differentiation, moderately differentiated tumors were the most common grade(found in 28 patients i.e. 70%) followed by poorly differentiated tumors which was found in six patients (15%) and well Differentiated tumors in 5 patients (12.5%), Jean-Bernard Dubois and et al found moderately differentiated adenocarcinoma of rectum comprise 53.6% followed by well differentiated 30%.[28]See table(10).

Table (10) Degree of differentiation comparison.

Degree of differentiation	Present study	Jean-Bernard Dubois and et al
Well	5(12.8%)	42(30%)
Moderate	28(71.7%)	75(53.6%)
poor	6(15.3%)	4(2.9%)

Post-operative mortality was only one patient (2.7%), due to pulmonary embolism. The most common post-operative complication (in the short term post-operative period) occurred in 64.8%; was wound infection (occurred in ten patients (27.02%) followed by chest infection in 6 patients (16.21%). Enterocutaneous fistula was in (13.5%) patients, intestinal obstruction developed in 4 patients (10.1%) and intra-abdominal bleeding in one patient (2.7%). Ashok Kumar et al showed Fifty Six patients (51.8%) had post-operative complications for patients with rectal cancer surgery, major complications included wound infection (25%), intra-abdominal bleeding (3.7%), anastomotic leak (14.6%) and their mortality rate was 1.8%.[29]Regarding the entero-cutaneous fistulae which occurred in two patients with end colostomy gangrene after abdomino-perineal resection mandates reoperation and revision of the end colostomy.

The other three which occurred after anterior resection due to anastomosis dehiscence, all of them were managed conservatively. Anastomotic leak was defined as either evident feculent discharge or a leak demonstrated on contrast imaging. Male sex has been reported to be a risk factor because of their unfavorable pelvic anatomy. The distance of the tumor from the anal verge and the position of the anastomosis were found to be associated with the development of anastomotic leaks.[29]So in our study the anastomotic leak rate in anterior resection group was 18.7%. These patients had no protective illiostomy and two patients were males (one with low and other with ultra-low anterior resection). The other patient was a female with low anterior resection.

Conclusion :

There is increased incidence of rectal cancer in young age patients and bleeding per rectum is the most common mode of presentation. The majority of patient had no identifiable risk factor for rectal cancer.Late presentation is common phenomena so the majority of patients had late stages of tumor and anterior resection was the most common procedure used.

Recommendations:

Screening program should applied properly for colorectal cancer for early detection of the cancer at early stage as the treatment of rectal cancer at early stage leads to good survival and sphincter preserving surgery should be encouraged even for low rectal tumor. Protective defunctioning ileostomy should be used for low colorectal or coloanal anastomosis to decrease incidence of anastomosis leak.

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