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Clinicopathological Characteristics and Treatment Outcomes of Rectal Carcinoma in Patients Under 40 Years of Age: A Prospective Case Study

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Abstract: ***Background**: As we enter the twenty-first century, rectal cancer continues to be a significant medical and social problem. Carcinoma rectum in combination with carcinoma colon is the most common malignancy in the gastrointestinal tract. Currently, rectal cancer comprises nearly 30% of all colorectal cancers. Carcinoma of the rectum in combination with carcinoma of the colon is the third most common site of new cancer cases and deaths in both men (following prostate and lung/bronchus) and women (following breast and lung/bronchus) in the western world. **Methodology**: This prospective observational study was conducted at Hi-Tech Medical College & Hospital, Bhubaneswar from March 2023 to March 2025. It included the patients admitted with rectal carcinoma in the department of general surgery and who have received radiotherapy and/or chemotherapy in the department of radiotherapy & medical oncology. Each patient underwent thorough clinical evaluation and due emphasis was given on the pathology of the carcinoma and the treatment received. **Result**: In this clinicopathological study of rectal carcinoma, we studied 25 cases of rectal carcinoma in patients who were below 40 years of age. It has been clearly seen that a major percentage of patients with rectal carcinoma were from this younger population. In this study, the peak incidence of rectal carcinoma in this younger age group was found in the third decade of life (48%). The male: female ratio was found 1.78:1. Two patients had positive family history (8%). About 9·2% of patients in the study were non vegetarian. Among these 25 cases, 4 cases (12%) presented in the emergency department with features of intestinal obstruction. Rest of the cases attended the out patient's department with variable symptoms. The average duration of symptoms was found to be 7 - 12 months. Carcinoma arising in lower part of rectum presented earlier.*

Keywords: Carcinoma rectum, Carcinoma colon, prospective study, Carcinoma under 40, Observational study, clinicopathological study

1. Introduction

As we enter the twenty-first century, rectal cancer continues to be a significant medical and social problem. Carcinoma rectum in combination with carcinoma colon is the most common malignancy in the gastrointestinal tract. Currently, rectal cancer comprises nearly 30% of all colorectal cancers. Carcinoma of colon and rectum is the third most common site of new cancer cases and deaths in both men (following prostate and lung/bronchus) and women (following breast and lung/bronchus). The average lifetime risk for an individual to develop colorectal cancer is approximately 6%. The risk increases two to fourfold if the patient has a personal history of or a first degree relative with colorectal cancer. Other risk factors include inflammatory bowel disease (IBD), genetic factors, old age, dietary habits etc. Cancer arising in the distal 15cm of large bowel (carcinoma rectum) shares many of the genetic, biologic, and morphologic characteristics of the colon cancer. It can occur in hereditary, sporadic, or familial forms. The incidence is similar in men and women. Hereditary forms of colorectal cancers have been extensively described and are characterized by family history, young age at onset and the presence of other specific tumours and defect. Inflammatory bowel disease is another known risk factor. In the first 10 years after the initial diagnosis of ulcerative colitis, the incidence of colorectal cancer ranges from 2-5%; However, this risk increases 1% for each year of disease thereafter. Approximately 80% of colorectal cancer occurs sporadically, while 20% arises in patient with known family history of colorectal cancer. So genetic risk factors also have been implicated. One is familial adenomatous polyposis (FAP), an autosomal dominant syndrome with 100% risk of developing cancer, due to defect in APC gene located on chromosome 5q21. Dietary factors also contribute to carcinogenesis. It has been observed that rectal carcinoma occurs more commonly in population that consumes diets high in animal fat and low in fibres. Role of alcohol intake and cigarette smoking in carcinogenesis is also suggested. The presentation of carcinoma rectum varies from bleeding per rectum, pain and altered bowel habit to intestinal obstruction. The most common symptom is haematochezia. Unfortunately, this is often attributed to haemorrhoids, and the correct diagnosis is consequently delayed until the cancer has reached an advanced stage. This is more common in younger patients, as traditionally carcinoma rectum is considered to be a disease of older age, carcinoma rectum in differential diagnosis of bleeding per rectum in younger people is usually not considered early. Other symptoms include mucus discharge, tenesmus, vague abdominal discomfort etc which often mimics many benign rectal disease. Evaluation of patients begins with history taking and thorough physical examination, including a digital rectal examination. In early cases, general survey or abdominal examination may be negative. In approximately 90% cases the neoplasm can be felt digitally. Digital examination by an experienced surgeon has been a most reliable method for preoperative evaluation of advanced rectal carcinoma. Rigid proctoscopy is also essential to the evaluation of patients because it demonstrates the proximal and distal level of the mass from the dentate line/anal verge, extent of circumferential involvement, orientation within the lumen etc, as well as tissue diagnosis can also be done. Apart from history and clinical examination, a battery of investigative procedures are advocated not only to confirm the diagnosis but to stage the disease and accordingly to plan the treatment protocol. The tests include from complete blood count, electrolytes, liver function tests to abdominal ultrasonography, trans-rectal ultrasonography (TRUS),

contrast enhancing CT scan (CECT)abdomen, serum Carcino Embryonic Antigen (CEA) etc. American society of clinical oncology (ASCO) recommended that serum CEA levels be obtained preoperatively in patients with rectal cancer to aid staging, surgical treatment planning, and assessment of prognosis. Furthermore, CEA is most helpful in identifying recurrent disease with an overall sensitivity rate of 70-80%.

2. Materials and Methods

1) **Study Area**: Hi- Tech Medical College & Hospital, Bhubaneswar
2) **Study Duration**: March 2023 to March 2025
3) **Study Population**: Patients with Ca Rectum meeting all the inclusion criteria.
4) **Study Setting**: This study was conducted in the Department of General Surgery, Hi-Tech Medical College and Hospital, BBSR in collaboration with the Department of Radiotherapy, Medical Oncology and Gastroenterology. Patients attending OPD and meeting the inclusion criteria were included.
5) **Inclusion Criteria:** A) Age- below 40 years patients B)Non pregnant.
6) **Exclusion Criteria:** A) Age- above 40 years B) Patients whose general condition is not stable C) Patients not willing to participate or willing to sign the consent form for proctoscopy / colonoscopy or sigmoidoscopy

Parameters Studied:

- Detailed clinical history and proper clinical examination of patients admitted with the symptoms of rectal carcinoma.
- Per-rectal examination in all patients -site /size /nature/ mobility /extent of growth.
- Proctosigmoidoscopy
- Per vaginal examination in all female patients for any involvement
- Laboratory investigation: blood for hemogram, liver function
- test, sugar, urea, creatinine. Occult blood test for three days, chest x-ray, ecg.
- Non-urgent cases sent to Gastroenterology department for colonoscopy for detection of synchronous tumors, and biopsy. Histopathology in all cases. Transrectal ultrasound in most of the patients.
- CECT abdomen in all of the cases.
- Preoperative CEA in all Cases which are operable were admitted for curative resection -
- bowel preparation in all cases - Resection was either curative or palliative. poloyethyleneglycol and antibiotic regimen.
- All patients referred to radiotherapy for post operative adjuvant radio-chemotherapy.
- Patients selected for preoperative radiotherapy and neoadjuvant chemotherapy

3. Results & Analysis

In this study, a total of 25 cases (n=25) of rectal cancer were studied, all of whom were under the age of 40 years.

Age Distribution (n=25)

Age group (in years)	No. of cases	Percentage
11- 20	4	16
21- 30	12	48
31 - 40	9	36

In this study, most of the young patients with rectal carcinoma were in third decade of life, followed by the fourth decade, whereas it has also affected the second decade of life in 16% of cases.

Sex Distribution (n=25)

Age group	Sex distribution	Percentage/Ratio.
11-20 years	No of male patients:3	Total male pts:16(64%). Total female pts:9(36%). So, Male: Female= 1.78:1
	No of female patients:1	
21-30 years	No of male patients:8	
	No of female patients:4.	
31-40 years	No of male patients:5	
	No of female patients:4	

In this study, the disease affects male and female in the ratio of 1.78:1, affecting male sex in 64% and the female sex in 36% of cases.

Distribution of Site of Rectal Carcinoma (n=25)

Site	No. of cases	Percentage
Upper rectum	3	12
Middle rectum	4	16
Lower rectum	18	72

In this series, lower rectum was found to be the commonest site with 18 out of 25 cases (72%), Middle third of rectum was next common with 4 out of 25 cases (16%). In 12% of cases upper rectum was involved

Diet (n=25)

Diet Habit	Male	Female	Total
Non vegetarian	15	8	92
Vegetarian	1	1	8

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Symptoms (n=25)

Symptoms	Cases	Percentage
Bleeding p/r	23	92
Tenesmus	13	52
Alteration of bowel habit	12	48
Pain abdomen	6	24
Mucous in stool	14	56
Anorexia	10	40
Loss of weight	8	32
Pain lower back	4	16
Jaundice	1	4

Most of the patients presented with more than one of the above symptoms. The most common presenting symptom was bleeding per rectum affecting 92% of cases, next was tenesmus in 52 %, of cases, the other symptoms were alteration of bowel habits, pain abdomen & lower back, mucous in stool, decreased appetite, weight loss and only 1 patient presented with jaundice.

Religion (n=:25)

Religion	Males	Females	Total	Percentage
Hindu	10	5	15	60
Muslim	6	3	9	36
Christian	0	1	1	4

In our study, carcinoma rectum was more commonly found in Hindu males, comprising 60% of all the cases. No great importance can be given to this finding due to variation in population well reference to religion in the different part of the country.

Family History (n:=25)

Cases	Family History	Percentage
25	2	8

In this study, out of 25 cases, only 2 cases (8%) had positive family history.

Modes of Presentation (n=25)

Presentation	No. of Cases	Percentage
Elective	21	84
Emergency	4	16

84% of the cases presented as elective cases where as 16% of the cases presented acutely with the features of intestinal obstruction.

Average Duration of Symptoms (n=25)

Duration (months)	Upper Third	Middle third	Lower third	Percentage
0-3	0	0	1	4
4-6	0	0	2	8
7- 9	1	2	8	44
10- 12	1	1	6	32
13-36	1	1	1	12

In this study, maximum cases were observed in the 7-9 months group (44%) followed by the 10-12 months group (32%). 12% of the cases presented after1year.

Histopathology (n=25)

Histopathology	No. of cases	Percentage
Adenocarcinoma	24	96
Malignant melanoma	1	4
Others	0	0

Pathology	No. of cases mucin secreting	Percentage
Well differentiated Adenocarcinoma	3(1)	12
Moderately differentiated Adenocarcinoma	9(3)	36
Poorly differentiated Adenocarcinoma	12(6)	48
Mucin secreting adenocarcinoma	10	40%
Malignant melanoma	1	4

The most common tumor was poorly differentiating adenocarcinoma affectin1g 48% of cases out of which 50% were mucin secreting. 36% of the cases were moderately differentiated adenocarcinoma out of which 33.33% were mucin secreting. Only 16% of the cases were well differentiated and one of them (25%) was mucin secreting. Totally 40% of the cases were mucin secreting out of which 60% were poorly differentiated and 30% were moderately differentiated. Thus, the most common variety of tumor was poorly, differentiated adenocarcinoma, mucin secreting.

Physical Signs (n=25)

Signs	Cases	Percentage
Growth felt on DRE	22	88
Pallor	18	72
Pedal, edema	8	32
Intestinal obstruction	4	16
Jaundice	1	4

The most common sign elicited was a mass on per rectal examination (88%). The next significant finding was pallor (72%). Other signs were pedal oedema, jaundice and acute presentations with acute intestinal obstruction.

Dukes Staging (n=25)

Dukes Stage	No. of Cases	Percentage
A	2	8
B	10	40
C1	7	28
C2	5	20
D	1	4

In this study, most of the patients presented in stage B (40%), 28% in stage C1, 20% in stage C2, 8% in stage A, and 1 case presented with distant metastasis.

Preoperative CEA (n=25)

CEA (ng/ml)	No. of Cases	Percentage
0-5	10	40
5-10	7	28
>10	8	32

The majority of the patients had the CEA level within the normal range i.e.; < 5 ng/ml, (40%).28%, of the cases had the CEA value between 5-10 ng/ml and 32% of the cases had the value above 10 ng /ml, out of which 12% (3 cases) had the values above 15 ng/ml.

Mean Preoperative Cea Level and Grade (n=25)

GRADE	Mean CEA
Well differentiated	4.94 ng/ml
Moderately differentiated	9.22 ng/ml
Poorly differentiated	12.8 ng/ml
Mucin secreting variety	8.79ng/ml

CEA level was highest in poorly differentiated adenocarcinoma and lowest in well differentiated. High level in mucin secreting variety also noted.

Treatment (n=25)

Mode of Treatment	No. of Cases	Percentage
Surgery	25	100
Neoadjuvant chemo radiation	12	48
Neoadjuvant chemotherapy	1	4
Neoadjuvant radiation	3	12
Adjuvant chemotherapy	18	72
Palliative chemo radiation	1	4

The majority of the patients received post-operative chemo radiation, whereas 48% of the cases received preoperative chemo radiotherapy.12% patient received only neoadjuvant

radiotherapy whereas only 1 patient received only preoperative chemotherapy. 72%, of cases received postoperative chemotherapy.

Results of Curative Resection (n=25)

Treatment	Resected Tumours		Pelvic Recurrence	Distant Metastasis	
	No.	%		With PR	Without PR
Curative resection	19	76	3	2	1

76%, of patients underwent curative resection, out of which 12% had recurrence.

Treatment (n=25)

Mode of Treatment	No. of Cases	Percentage
Surgery	25	100
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Neoadjuvant chemotherapy	1	4
Neoadjuvant radiation	3	12
Adjuvant chemotherapy	18	72
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radiotherapy whereas only 1 patient received only preoperative chemotherapy. 72% of cases received postoperative chemotherapy.

Operative Procedures Undertaken (n=25)

Tumour	Operative Procedure	No. of Cases	Percentage
Resectable	a) Curative	19	76
	i.. APR	13	52
	ii. LAR/AR	5	20
	iii. Total Proctocolectomy	1	4
	b) Palliative	4	16
Unresectable	Colostomy with Mucusfistula	2	8

All of the patients in our study underwent surgery either palliative or curative, and maximum number of cases underwent abdominoperineal resection with permanent colostomy but those were the patients either with the involvement of sphincter or compromised distal margin and usually were the patients in the early part of our study. The patients admitted later in the study underwent more of low anterior resection because of the availability of the contour and the circular staplers. One patient underwent laparoscopic anterior resection with open perineal resection and permanent colostomy.

Study of Pelvic Recurrence (n=25)

Serial no.	Treatment of Primary	Symptoms	Diagnosis	Distant Metastasis	Completion of treatment
5	ER COLOS-TOMY+RT+ AR+CT	Bleeding p/r	Colonoscopic Biopsy	No	12 months
18	NACT+APR +CT	Swelling at Perinea I wound	Biopsy of the Mass	No	9months
22	AR	Bleeding p/r	Colonoscopic biopsy	No	6 months

3 patients in our study had recurrences, all local, out of which 2 presented with bleeding per rectum and were diagnosed by Colonoscopic biopsy of the suspected lesion. All the three cases recurred within 12 months of the primary treatment. One of the patients who underwent decompression colostomy for acute obstruction received radiotherapy prior to definitive surgery. Only 1 patient received neoadjuvant chemotherapy. AR was done in 2 cases. .1 patient died after 11 months of primary treatment and 6 months after detection of recurrence.

4. Discussion

Age Incidence

In general, cancer of large bowel, including rectum is a disease of old age, with more than 90% of new cases being diagnosed in patients older than 50 years. So, risk of developing invasive rectal cancer increases with age. Although carcinoma rectum occurs predominantly in older adults, it does affect young adults (below 40 years of age) with an incidence of 2-6% (Griffin et al. Gastroenterology 1991). The proportion, of young patients is 30% in a Chinese report. Most series reveal that it is commonest in the 6th -7th decade of life [Dukes 1940, Goligher 1941]. The mean age of diagnosis of rectal cancer in patients with FAP is 39 years. In our series, an attempt was made to study the clinicopathological aspect (presentation, role of various investigative procedure, treatment modalities, pathological variant and outcome of treatment) of rectal carcinoma in all patients below 40 years of age, admitted in our institution with rectal carcinoma. We found that the peak incidence of rectal carcinoma in this young population was the 3rd decade [48%]. Next was the 4th decade [36%]. The youngest patient in our study was of 15 years.

Sex Incidence:

All auth1ors have found rectal malignancy to be more common in males than in females. According to study by Paymaster, male: female ratio for rectal carcinoma in India is 2.9:1,43 while Glen & McSherry [1966] recorded a ratio on 1.5:1. In younger age group, rectal cancer is more common in males, while colonic cancer involved the two sexes equally. (Singh JP, Maini VK. Dis Colon Rectum; 1984). In one recent study, it was mentioned that gender was not a prognostic factor (Liang et al. WJG 2006). But according to Cu1sak, prognosis of female rectal cancer patients was better than that of male rectal cancers (Cusack et al. JACS 1996). In our series we found that male: female ratio was 1.78:1. This suggests that it is more common in males and it well corresponds to the study of Paymaster.

Sites of Distribution:

Recto sigmoid junction is the commonest site for colorectal cancer, though for the rest of the rectum growths are almost equally distributed in the upper, middle and distal third. In Dukes 1940 series on rectal carcinoma, 36.6% was in lower third, 32.6 % in middle and 30.85% in upper third. In our series, the commonest site was in lower third [72%], next was middle third [16%] and lastly proximal third [12%]. This was in sharp contrast to the usual distribution of rectal carcinoma among the overall population.

Epidemiology:
Approximately 80% of colorectal cancer occurs sporadically, while 20% arises in patient with known family history of colorectal cancer. So genetic risk factors also have been implicated. Although we were expecting a higher incidence of positive family history, but in our study, only 2 patients (8%) had history of family members affected with colorectal carcinoma. In one study it has been said that family history is not a risk factor (Lin et al. JGH 2005). Hereditary colorectal tumors [hereditary nonpolyposis colorectal cancer (HNPCC), adenomatosis coli, and suspected HNPCC] occur in 38.4% of patien1ts younger than 40 years old and in only 3.5% of individuals older than 55 (Fante et al. Am J Gastroenterol. 1997). Hereditary colorectal tumors are detected more, often in young individuals, demonstrating hereditary factors rather than, dietary & life-style (Domergue et al. Ann Chir. 1989). Familial adenomatous polyposis (FAP), an autosomal dominant syndrome, with 100% risk of developing cancer, due to defect in APC gene located on chromosome 5q21. The average lifetime risk for an individual to develop colorectal cancer is approximately 6%. The risk increases two to fourfold if the patient has a personal history of or a first degree relative with colorectal cancer. Other risk factors include inflammatory bowel disease (IBD), genetic factors, old age, dietary habits etc.

Literature suggests that colorectal cancers are more common in affluent society regardless of race or nationality. But in our series, all the patients attending this hospital belonged to lower socioeconomic status. As they were not a uniform representation of our society, we could not conclusively confirm this finding. According to Copeland and Ranson (1974), increased dietary meat augments the risk of large bowel cancer. Role of alcohol intake and cigarette smoking in carcinogenesis is also suggested.

In our series 92% of the patients were non-vegetarian. As most of the local population were nonvegetarians, much attention could not be given to this data. It was however of significance that it was out of this population that 25 patients were admitted in our hospital in last two years with rectal cancer. High rates of rectal cancers in young Indians could suggest a different etiopathogenesis, which is neither inherited nor traditional diet-related.

Pathology:
According to various literatures, the usual histological variety of rectal malignancy is moderately differentiated adenocarcinoma. These findings well simulate those reported by Dukes according to which 56.7% are moderately differentiated, 36.65 are poorly differentiated & 6.7% are well differentiated. Younes & kalikaneni et al 1993 found mucinous carcinoma comprising 15% of rectal carcinoma. In our series of 25 cases of rectal cancer 48% were poorly differentiated, 36% were moderately differentiated, 12% were well differentiated. 1 patient (4%) had malignant melanoma.40% patient had mu1cin-secreting tumor, of which 60% were associated with poorly differentiated variety. Our series revealed increased preponderance of poorly differentiated and mucin secreting carcinoma in this younger age group. Results of our study well simulated with many of the recent studies. According to one study, poorly differentiated and mucinous tumors represent 51% of all tumors in younger population (Lin et al. JGH 2005). Incidence of poorly differentiated (-v25%) and mucinous tumors (-v25%) are similar to various series (Lin et al. JGH. 2005, Atkins et al. Ann Surg. 1987, Bedikian et al. South Med J. 1981). Poor survival rate has been shown in patients with mucinous and poorly differentiated carcinoma in young patients (Umpleby et al. Dis Colon Rectum. 1984).

Staging:
We found 8% of cases in stage A, 40% in stage B, 48% in stage C, 4% in stage D. Dukes found 15% in stage A, 35% in B and 5% in stage C in commoner older population. But one of the recent studies shows 90% of patients present with Dukes' C or D at the time of diagnosis in patients of younger age (Lin et al. JGH. 2005). Stage Dukes' C & D patients have poorer prognosis as compared with patients with stage B (Lin et al. JGH 2005). About 60-67% of young patients with colorectal cancer have a later stage (Ill/IV) disease (Bedikian et al. Sou1th J Med.1981 & Minardi et al. Am Surg. 1988) and greater proportion of infiltrating tumor edge, venous, lymphatic, perineural invasion has also been noted in this group (Cusack ,et al.. JACS 1996).

Modes of Presentation
Approximately 3% of patients with colorectal cancer presents for treatment after the development of life- threatening complication as an emergency e.g. intestinal obstruction. In rectal growth however frequency of intestinal obstruction would be less than in the colon because of the distensibility of the rectum which allows the growth to attain a large size before causing obstruction. In our series, 4 out of 25 patients presented with acute intestinal obstruction representing 16% of all the cases. The remaining presented as elective cases.

Symptoms
Because of the rarity of the disease in this age group, the diagnosis is, often delayed (Adloff et al. Dis Colon Rectum.1986). Delayed diagnosis is common because of the similarity between early signs and symptoms of colorectal cancer and functional gastrointestinal complaints often experienced by pts. Blood loss as an initial symptom & short duration of symptoms are associated with a better prognosis (Wiggers, et al. Dis Colon Rectum. 1988). The average duration of symptoms varied according to the site of the lesion. In the upper third it was 7-36 months. For middle third it was 7- 36 months and for the lower third it was 3-36 months. In this study, carcinoma of lower rectum presented early. As a whole this duration of symptoms is somewhat longer than is seen in most western literature. Symptom duration of up to 1 year before presentation did not affect the survival rate (Polissar et al. Dis Colon Rectum. 1982)

This longer duration is partly due to:
1) Negligence on the part of the patient
2) Treatment by quacks as piles or fissures.
3) Reluctance of most general practitioners to carry out a per rectal examination.
4) The rarity of the disease in this age group.

The most common presenting symptom was bleeding per rectum (92%), followed by mucus in stool (56%), tenesmus (52%) and alteration of bowel habits (48%), pain lower

abdomen (24%). Anorexia, weight loss and jaundice were the other presenting symptoms.

These above findings compared well with other series. (Chaudhuri & Ray's 196,3, Johnson, Judd & Dahlin 1959, Floyd et al 1966).

Physical Signs:
The commonest physical finding in this series was a palpable mass on digital rectal examination (80%). This is slightly lower than that reported by Zeighler 1972,126 who found this in 84.2% of rectal cancer cases, while according to Norman S. Wiliams, 90% of rectal neoplasms can be felt digitally on per rectal examination. Pallor was the next common finding (72%) while Johnson et al found 50% of their patients to be anaemic. Signs of intestinal obstruction were noted in 16 % of cases, which compares well with the finding of Philips et al (1985), 129 Waldron & Donovan {1986). 130 kylloner LEJ (1987) 135 too found rectal carcinoma causing obstruction in 10% of cases. Other significant findings were pedal edema (32%), abdominal lump (8%) and jau1ndice (4%).

Treatment:
In our series all 25 cases were operated, radical resection was always attempted and even in advanced cases, palliative resection was tried to reduce tumor burden.

Out of 25 patients, 2 cases were foun1d to be irresectable, which comprised 8% of total cases while 92% (23 cases) were resectable. Curative resection was done in 19 cases (76%), in 4 cases palliative resection was done. Lower resectability rates were obtained by Johnson et al (1959), 42.8%. While much higher resectability rates were reported by Glenn and Mischery (1966) 92.3%, which compares best with our series. We did not loose any patient during or immediately after primary surgery. We had 3 recurrences (12%). We lost only 1 patient after 11 months of primary treatment due to recurrence of th1e tumour. Preoperative radiotherapy has been shown to improve local control and improve survival. Neoadjuvant radiochemotherapy is well tolerated an1d bears no high risk of postoperative morbidity. Perioperative radiotherapy has been widely used in addition to surgery in an attempt to decrease local recurrence following surgical resection. Currently different groups follow different approaches with some routinely administering 1 week preoperative radiotherapy to all cases of operable mobile, carcinoma with others favouring post operative chemo- radiation for selected high risk groups. Surgery with total mesorectal excision is standard therapy for carcinoma of middle and low rectum in stages T1/T2, NO. Adjuvant chemoradiation and short course preoperative radiotherapy are both feasible approaches for the treatment of stage II and stage Ill rectal, carcinoma. Patients with T4 rectal carcinoma should undergo long-term neoadjuvant chemoradiation with consecutive oncological resection. Local excision should be restricted to patients with well-differentiated less than semi-circumferential T1 carcinoma. Pre-operative radiotherapy is really effective in reducing the number of undifferentiated cells and in diminishing the carcinomatous infiltration of rectaI waII. Long-term survival is unaffected but long-term local recurrence rate is reduced by short course radiotherapy to surgery. Preoperative radiotherapy has no impact on postoperative mortality or the occurrence of anastomotic dehiscence but significantly more patients with perineal wound sepsis after an AP'R was found in patients receiving preoperative radiotherapy. Preoperative CEA levels combined with intraoperative radiotherapy and total mesorectal excision (TME) decreases the local recurrence rate and increased survival in T3 rectal carcinoma compared with TME alone. In our study 48% of the patien1ts (12 cases) got preoperative chemoradiation, 12% cases only preoperative radiotherapy,4% of cases received preoperative chemotherapy and 18cases [72%] received post operative chemotherapy. Only one of the patients who had recurrence, received preoperative radiotherapy, this suggests definitely its role in reducing recurrence. Adjuvant chemotherapy should be considered if the primary lesion is of unfavourable histology or has invaded the muscularis mucosae or has involved perirectal tissue or has lymph node metastasis. Unfavourable histology means poorly differentiated lesions, mucin production and signet ring cells. National Surgical Adjuvant Breast and Bowel Project [NSABP C-07] report suggests 5-flourouracil with leucovorin is advantageous in advanced case and a current multiple institutional report suggests possible long term survival and decreased local recurrence by the use of levamisole + 5-FU and leucovorin in patients with Duke's C lesions (Ruo L, Party BB, Wong W Dann of Surg Oncology 2003).Douillard JY et al.(Lancet 2000) has stated, in disseminated cancer, the addition of lrinotecan to 5FU, has been demonstrated to increase survival duration. MOSAIC (Multicenter International Study of Oxaliplatin/5-FU/LV in the Adjuvant Treatment of Colon Cancer) trial has shown advantages of Oxaliplatin in advanced disease and as second line of drug. There is no evidence that the susceptibility of colorectal cancer to chemotherapy differs in younger and older patients. Current treatment modalities for young patients with advanced colorectal cancer might not be effective and better therapeutic regimens might be needed. Higher survival rate were achieved in patients given adjuvant chemotherapy with 5-FU as compared to surgery alone. If palliative resection is not possible because the primary lesion is incurable, aggressive management of liver and lung should not be undertaken. In such cases systematic chemotherapy may alleviate symptoms but survival rate is not changed. Unresectable hepatic secondaries may be considered for arterial perfu1sion with 5-FU. The combination of chemotherapy as a radio sensitizer results in an increased incidence of R0 resection by 20%. In our study, one patient received only neoadjuvant chemotherapy .72% of our patients received post-operative chemotherapy and only 3 patients out of that had recurrence (12%).

Carcinoembryonic Antigen (CEA):
In this study we considered 5 ng/ml or less to be normal. Those with the level above 10 ng/ml (in smoker) are considered elevated. In our series 60 % of cases were found to have elevated level of CEA. Mean preoperative CEA level was 1.66, 8.89, 15.48, 6.9 and 16.9 ng/ml in Dukes stage A, B, C1, C2 and D respectively. Beugert & Rustin (1989) found CEA level to be elevated in fewer than 5% of A,25% of B, 44%C and 65% D. In our series 0% of A, 60% of B,67 of C and 100%of D had elevated CEA levels. Mean CEA levels were highest in poorly differentiated tumors with a level of 12.8 ng/ml while well differentiated tumors showed lowest levels of CEA-4.94 ng/ml. This finding corroborates well

with that of Martin (1977),132 who found a correlation between the degree of differentiation and serum CEA while Mayers (1978) 136 did not find any correlation. So, CEA may be useful in the preoperative staging & postoperative follow up of patients but has a low predictive value for screening asymptomatic, large population (Byrd JC et al. Gastroenterology 2004).

Local Recurrence and Metastasis:
In this study, a total of 25 patients of rectal carcinoma took part. Out of these 60% were treated by preoperative external beam radiotherapy followed by surgery. Some of them (48%) also received preoperative chemotherapy. Recurrence and metastasis were studied in those who had curative resections. At post treatment evaluation or follow up (12 months), local i.e. pelvic recurrence was seen in 3 patients (12%). 1 patient at the time of initial surgery was found to have solitary liver metastasis.

The incidence of local failure and distant metastasis in patients receiving preoperative radiotherapy was reported by Ronanet et alto be 8% & 12% respectively. (Mean duration of follow up-24 months).

Mohiuddin et al 1979 reported 5- year survival local failure rates for patients receiving preoperative radiotherapy to be between 8% for stage I to 34% for stage IV tumor.

In the study of Minsky et a/the local failure rate was 13%. The incidence of local failure following surgery alone has been reported to be from 5% to 40% (Marsh et al 1947). Based on a compilation of series, the incidence of local failure is between 10% and 65%. (For stage I to stage IV). The large bowel cancer project in U.K, estimated local recurrence after curative surgery alone to be about 15%. The incidence of distant metastasis has been reported by Gilbersten (1960) to be 19.7% following surgery alone.

5. Conclusion

In this clinicopathological study of rectal carcinoma, we studied 25 cases of rectal carcinoma in patients who were below 40 years of age. It has been clearly seen that a major percentage of patients with rectal carcinoma were from this younger population. In this study, the peak incidence of rectal carcinoma in this younger age group was found in the third decade of life (48%). The male : female ratio was found 1.78:1. Two patients had positive family history (8%). About 9·2% of patients in the study were non vegetarian. Among these 25 cases, 4 cases (12%) presented in the emergency department with features of intestinal obstruction. Rest of the cases attended the out patients department with variable symptoms. The average duration of symptoms was found to be 7 - 12 months. Carcinoma arising in lower part of rectum presented early. Many of the cases were detected late with advanced disease. The most common presenting symptom was bleeding per rectum, seen in 92 % of patients. Other common presenting symptoms were tenesmus (52%) and mucous in stool (56%). The most common physical finding was a palpable mass on digital rectal examination, found in 80% of patients. Among all these cases of rectal carcinoma, 12 % were well differentiated adenocarcinoma, 36 % were moderately differentiated, 48% were poorly differentiated adenocarcinoma and only 1 case (4%) was malignant melanoma. Among the adenocarcinoma, 40% was mucin producing. Among this mucin producing tumors, 60% were associated with poorly differentiated type of adenocarcinoma. 8 %, 40 %, 48%, and 4 % of cases were found in Dukes stage A, B, C and D respectively. An increased incidence of poorly differentiated and mucin producing tumor was well noted. More tumors presented at an advanced stage with fewer tumor being resectable. Surgery was the main modality of treatment.100% patients were operated. Curative resection was done in 76 % of cases, palliative resection was done in 16 % of cases and 8% were found unresectable, operated only to relieve obstruction. Preoperative (neo adjuvant) external beam radiotherapy was found to increase the resectability, probably by down staging the tumor and in our series it was given to 60%of patients, many of them received combination of chemo radiation. Neo adjuvant radiotherapy followed by surgery was associated with much lower local and distant recurrence rate than1surgery alone. The appropriate selection criterion for radiotherapy or chemo radiation was depended on local extent of tumor. Findings on TRUS and CECT study of abdomen1an1d pelvis were helpful in this regard. With proper usage of neo adjuvant therapy, as well as availability of stapling devices was helpful in doing more and more sphincter saving surgery. In this series, 12% cases were presented with recurrence of the disease. All had local, perineal or pelvic recurrence and were associated with persistent local pain and other debilitating symptoms. Post operative CEA level was found a good investigative tool for early determination of recurrence of the disease. Preoperative CEA level was found higher in advanced stage and in bad pathological variant of tumor. It appears that the combination of earlier diagnosis and better systemic adjuvant therapy will be required to alter the survival statistics in these patients under 40 years of age with rectal carcinoma. A greater awareness of the potential for colorectal cancer in young people must be emphasized to all physicians. To conclude, the following featu1res of carcinoma rectum in the young were revealed in our study:

- A substantial portion of rectal carcinoma patients were from younger population with peak incidence in third decade of life.
- Mild male preponderance of the disease.
- No specific food habit was associated.
- In many cases there was delay in diagnosis of the disease.
- Advanced stage at presentation.
- Association of prognostically bad pathological variant of tumor.
- Serum CEA was useful in preoperative staging & postoperative follow up, early detection of recurrence.
- CECT abdomen and TRUS were very useful investigative procedure.
- Disease is best managed by multidisciplinary team.

As this study was quite limited in scope and done within a short period of time, it was not possible to arrive at any definite idea regarding optimum management protocol and survival figures. A wider randomized study spreading over a longer period of time including genetic studies is recommended as a continuation of this study.

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