Annals of African Medicine Vol. 9, No. 3; 2010:164-9
DOI: 10.4103/1596-3519.68362

Article

Rectal cancer: Pattern and outcome of management in University of Ilorin teaching hospital, Ilorin, Nigeria

G. A. Rahman

Department of Surgery, College of Medicine King Khalid University/Asir Central Hospital, Abha, Kingdom of Saudi Arabia

Correspondence to: Dr. GA Rahman, Department of Surgery, University of Ilorin Teaching Hospital, Ilorin, Nigeria, E-mail: garahman1@yahoo.com

Abstract

Background: Cancer of the colon and rectum was considered to be rare in Africa three to four decades ago. This is no longer true though it is not as common as in Western Europe and North America. The aim of this study is to determine the incidence of rectal cancer, its pattern of presentation, diagnosis, treatment and outcome of treatment at the University of Ilorin Teaching Hospital (UITH), Ilorin, Nigeria.
Methods: This is a prospective study of all the patients with rectal cancer seen at the UITH from January 1998 to December 2002. Clinical and radiologic findings as well as findings at surgery were recorded and evaluated. They were all histologically confirmed. The data were analyzed using SPSS 10.0.
Results: Thirty-six patients with rectal cancer were seen during the period. The male to female ratio was 1:1. Fourteen (38.9%) of the patients were younger than 40 years. Only three (8.3%) patients presented as emergency. Eighteen patients had resectable lesions at presentation. Ten had abdomino-perineal (A-P) resection and eight had anterior resection. Operative mortality was 5.9%. Ten (60%) of the patients who had A-P resection were alive at 5 years and 62.5% of those who had anterior resection were alive at 5 years. None of the patients who had unresectable tumors was alive at 5 years.
Conclusion: Rectal cancer is not rare in Africans. Surgical therapy still remains as the main treatment. When patients present early, outcome is satisfactory. Since most cases in this environment are accessible to digital rectal examination (DRE), the need for this procedure in patients with lower gastrointestinal symptoms cannot be overemphasized.

Keywords: Nigerians, outcome, rectal cancer, resectability

Résumé

Arrière-plan: Cancer du côlon et rectum était considérée comme rare en Afrique il y a trois ou quatre décennies. Ce n'est plus vrai s'il n'est pas aussi courant que dans l'Europe de l'Ouest et en Amérique du Nord. L'objectif de cette étude est de déterminer l'incidence du cancer rectal, modèle de présentation, de diagnostic, de traitement et de résultats de traitement à l'hôpital d'enseignement Université de Ilorin, Ilorin, Nigeria.
Méthodes: Est une étude prospective de tous les patients atteints de cancer rectal vu à l'hôpital d'enseignement Université de Ilorin de janvier 1998 à décembre 2002. Conclusions cliniques et radiologiques ainsi que les conclusions à la chirurgie ont été enregistrées et évaluées. Ils étaient tous histologiques confirmés. Les données a été analysées à l'aide de SPSS 10.0.
Résultats: Trente-six patients atteints de cancer rectal ont vu au cours de la période. Le mâle à ratio féminin a été de 1: 1. Quatorze (38.9%) des patients ont moins de 40 ans. Seulement trois des patients (8.3%) présentés sous la forme d'urgence. Dix-huit patients avaient des lésions resectable à la présentation. Dix avait une résection A-P et huit avait résection antérieure. Dispositif de mortalité a été de 5.9%. Dix (60%) des patients qui avaient A-P résection étaient vivant à 5 ans et 62.5% de ceux qui avaient une résection antéro étaient vivant à 5 ans. Aucun des patients avec tumeurs unresectable était vivant à 5 ans.
Conclusion: Cancer rectal n'est pas rare chez les africains. Thérapie chirurgicale demeure toujours comme le traitement

principal. Lorsque les patients présentent au début, le résultat est satisfaisant. Étant donné que la plupart des cas dans cet environnement sont accessibles aux numérique toucher rectal affaiblies, la nécessité de cette procédure chez les patients présentant des symptômes gastro-intestinaux inférieurs ne peut pas être plus soulignée.

Mots clé: Cancer rectal, Nigérians, Resectability, résultat

Introduction

In western countries, cancer of the colon and rectum ranks second after cancer of the lung, in incidence and death rates. An estimated 156,000 new cases of colorectal cancer are diagnosed and 65,000 people die of this disease in the USA each year.[1] It accounts for 10% of all cancer-related deaths in the United States.[2] In Africa, the incidence is said to be low. This is attributed to young age of the population, low incidence of precancerous lesions and high intake of fiber diet, resulting in passage of bulky stool with short intestinal transit time.[3] However, the incidence is rising in Africans from an average of 10–20 newly diagnosed colorectal cancer in a tertiary health institution per year to about 50.[3]

The University of Ilorin Teaching Hospital (UITH), Ilorin, Nigeria, is a tertiary health institution in the middle belt of Nigeria. The aim of this study is to determine the incidence of rectal cancer, pattern of presentation, diagnosis and treatment. It is also aimed at evaluating the outcome of treatment.

Material and Methods

This is a prospective study of all patients with rectal cancer seen at the UITH, Ilorin, Nigeria, from January 1998 to December 2002. All the patients had detailed clinical assessment [history and physical examination, including digital rectal examination (DRE)], proctoscopy, sigmoidoscopy and transrectal ultrasound (TRUS). Some of them had colonoscopy and/or double contrast barium enema (DCBE). Prospective data recorded included age, sex, clinical presentation, type of presentation (emergency or elective), site of tumor, findings on DRE, TRUS and DCBE findings, findings at surgery, treatment given including extent of extramural local tumor spread to adjacent tissues or organs and type of operation done. A final classification or staging was given using Dukes' classification. Outcome was determined as alive or dead. Patients alive were followed up in the surgical outpatient clinic. Two and five years' survival was estimated. They all had histologic confirmation of adenocarcinoma. The patients had different types of surgical operation and radio (chemo) therapy. They were followed up for a period ranging from days to 6 years.

Results

Between January 1998 and December 2002, 36 patients with rectal cancer were seen at the UITH, Ilorin, Nigeria. Their age range was 20–75 years, with a mean of 46.8 years (SD 15.4). The male/female ratio was 1:1. As shown in [Figure 1], 38.9% of the patients were below the age of 40 years. Only three (8.3%) of the patients presented as emergency, while all the others presented as elective cases.

The clinical presentation included rectal bleeding, weight loss, altered bowel habit (diarrhea, constipation, alternating diarrhea and constipation, tenesmus, and low back and pelvic pain). The duration of symptoms ranged from 4 weeks to 3 years. Twenty-seven (75%) of the patients presented within 6 months of onset and about 25% presented longer than 6 months.

Thirty-three patients (91.7%) had their lesion accessible to DRE, proctoscopy and/or TRUS. TRUS was only feasible in 30 patients. In five patients, the ultrasound probe could not get to the rectal mass either because it was too high or as a result of stenosis. There was no single case of synchronous tumor found on colonoscopy or DCBE, though only 30 patients had DCBE and 6 patients had colonoscopy [including one who had both colonoscopy and computerized tomography (CT)]. Thirty-four (94.4%) had one form of definitive surgical operation or the other; two (5.6%) patients were not fit for surgical operation but had histopathologic confirmation of their rectal lesion on biopsy as adenocarcinoma. One of the

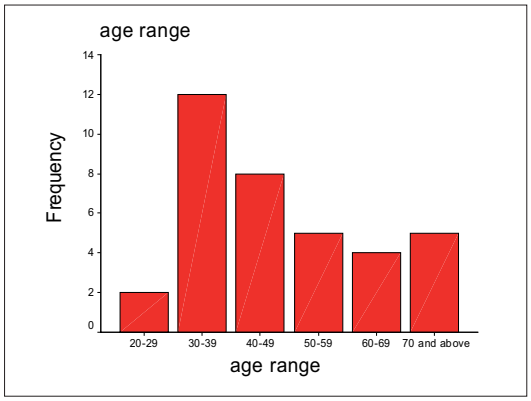

Figure 1: Age distribution of patients with rectal cancer (n=36)

two patients had presented earlier but refused surgical operation then. Of the 34 patients who had definitive operation, 10 had abdomino-perineal (A-P) resection, 8 had anterior resection and 16 had tumors that were not resectable [Figure 2]. A-P resection was used for patients with lesions less than 10 cm from the anal verge, whereas anterior resection was used for patients with lesions 10 cm or more from the anal verge. Two patients had palliative resection while 16 had curative.

Two patients out of the 34 operated died within 30 days giving an operative mortality of 5.9%. The two patients who died within 30 days of operation were young (less than 40 years of age), had emergency presentation and non-resectable tumor.

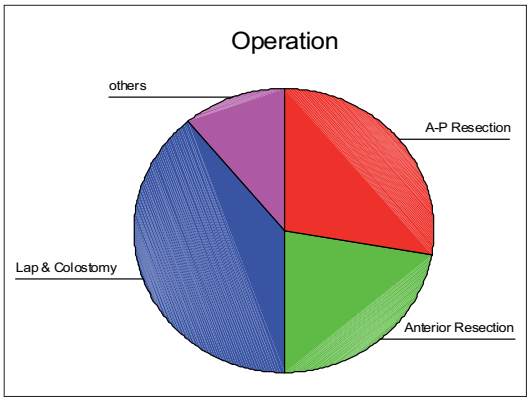

Figure 2: Types of operation for rectal cancer (n=36)

Table 1 shows the final Dukes' staging. As shown in [Table 2], 6 of the 10 patients (60%) who had A-P resection were alive at 5 years, 4 died, while 5 out of the 8 who had anterior resection (62.5%) were alive at 5 years. For patients who had non-resectable tumors, two died within 30 days, eight died within 4 months to 1 year of diagnosis. Only 6 out of 16 (37.5%) of non-resectable tumors were alive at 2 years. None of the patients with non-resectable tumors was alive at 5 years. [Table 3] shows type of operation based on site and stage of rectal tumor, while [Table 4] shows 5-year survival versus stage and type of operation. Of the A-P resection patients who died, one of them died after 2 years of hypertensive heart disease and obesity; the other three died between 3 and 4 years after surgery. One of our A-P resection patients developed obstructive uropathy due to Benign Prostatic hypertrophy 4 years after resection, for which he had transurethral resection of the prostate. None of the patients had preoperative radiotherapy but 12 of them had postoperative radiotherapy. All of them had adjuvant chemotherapy (5-fluorouracil) and immunotherapy (levamisole). We do not have facilities for evaluation of Carcinoembryonic Antigen (CEA) in our center; at follow-up, clinical, radiologic and endoscopic assessments were used. They were seen monthly until after 6 months course of cytotoxic drugs, then 3 monthly for 1 year and 6 monthly thereafter until 5 years. Two out of 18 (11%) patients who had resection had recurrence.

Table 1: Final Dukes' staging for rectal cancer (n = 36)

Stage	Frequency
A	9
B	14
C	6
D	7
Total	36

Table 2: Five-year survival of patients with rectal cancer (n = 36)

Survival	A-P resection	Anterior resection	Not resectable
Alive	6	5	–
Dead	4	2	8
Loss to follow up	–	1	10
Total	10	8	18

Table 3: Type of operation based on site and stage of rectal cancer (n = 36)

Stage			Site in the rectum		Total
			<10 cm from anal verge	>10 cm from anal verge	
A	Operation	A-P resection	5		5
		Anterior resection		4	4
	Total		5	4	9
B	Operation	A-P resection	5		5
		Anterior resection		4	4
	Total		5	4	9
C	Operation	Lap and colostomy	10		10
		Others	1		1
	Total		11		11
D	Operation	Lap and colostomy	4		4
		Others	3		3
	Total		7		7

Table 4: Five-year survival based on stage and type operation for rectal cancer (n = 36)

Outcome			Operation				Total
			A-P resection	Anterior resection	Lap and colostomy	Others	
No operation	Stage	Stage D				2	2
	Total					2	2
Operative mortality	Stage	Stage C			2		2
	Total				2		2
Died <5 years	Stage	Stage A	1	1			2
		Stage B	3	2			5
		Stage C			8	1	9
		Stage D			4	1	5
	Total		4	3	12	2	21
Alive at 5 years	Stage	Stage A	4	3			7
		Stage B	2	2			4
	Total		6	5			11

The follow-up is far better in patients with A-P resection; none of them was lost to follow-up at 5 years.

Discussion

Globally, colorectal cancer is the third commonest malignant neoplasm after cancer of the lung and stomach in the male and after cancer of the breast and cervix in the female. It accounts for 8.8% of cancer in males and 9.2% in females. Though it is more common in Western communities like USA, England and Wales, the incidence is known to be gradually increasing in Black Africa from about 10 to 20 in major urban center tertiary institutions to 50 cases annually.[3] The relative infrequency in Black Africa may be attributed to the young age of the population, transit time of feces and fiber diet and rarity of pre-cancerous conditions.

In this study, the age range is 20–75 years (mean 47.8 years); a mean age of 73 years for colorectal cancer was reported in one study with nearly one-fifth over 80 years.[4] As far back as 1865, Steiner reported a case of colon cancer in a 9-year old boy.[5] Since then, there have been sporadic reviews of colorectal carcinoma in young people. Studies of unselected population indicate that 2–6% of large bowel cancers arise in patients aged 40 years or less.[6-8] The youngest patient in this study was 20 years old at presentation, though patients aged 10–18 years have been reported from other tertiary health institutions in Nigeria.[9-11] In westernized countries with high incidence of rectal cancer, 90% are older than 50 years, with only 5% of patients younger than 40 years. This is in contrast with our findings where 38.9% were younger than 40 years of age. Only three (8.3%) of the patients presented as emergency, this is lower than reports from UK and Ghana where emergency presentations were 25 and 31.3%, respectively.[12-15] Though Ajao in Ibadan, Nigeria, found 69% of anorectal cancer within reach of the examining index finger, the finding of 91.7% in our patients is comparable with findings in other studies.[15,16] The importance of this simple procedure (DRE) can therefore not be overemphasized.

TRUS was found useful in local preoperative staging, but only 30 out of the 36 patients had their lesions accessible to TRUS. At the time of this study, we were still trying to test the reliability of TRUS for preoperative staging in our center since CT and magnetic resonance imaging (MRI) were not readily available. TRUS was found useful in preoperative staging with regard to wall invasion, visualization of peri-rectal tissue and pelvic organ and to a reasonable extent in detecting peri-rectal lymph nodes.[17] DCBE and colonoscopy were used to assess the presence of synchronous tumor. There was none found in this study. This is in contrast to findings of synchronous colonic tumor in 1.6–7.5%.[18-21] This difference may be as a result of low incidence of precancerous lesion (which predisposes to tumors at multiple sites) or may be because majority of the patients had DCBE, which is known to fail to demonstrate synchronous tumors in some reported instances.[22,23]

Patients were deemed to have undergone a curative resection if the surgeon considered that there was no macroscopic residual tumor once resection had been completed. Resection was considered palliative if it was carried out in the presence of distant metastases or where inadequate local clearance was achieved.

Eighteen out of 34 patients (52.9%) were resectable at surgery. This is low in contrast to those of western societies but similar to reports from other West African centers.[15,24-26] Between 1928 and 1932 at St. Mark's Hospital, the overall resectability rate for rectal cancer was only 47%, of which 2% was palliative. Some 20 years later, between 1952 and 1957, the resectability rate had increased to

93% and now 16% was palliative.[27] However, this experience was at a tertiary referral center and should be compared with a 1971 report where almost half of the 5800 cases of rectal cancer from the whole of the Birmingham area were considered inoperable.[28] The relative lower resection rate in our patients may be as a result of delayed presentation which is because of ignorance and the usual practice of seeking alternative method of treatment before turning to orthodox medical care. Health education with easily accessible, acceptable and affordable health care could help ameliorate this situation. Operative mortality of 5.9% is comparable with other published series.[26]

When a patient with no macroscopic evidence of spread is operated upon with the intention to cure, he or she may fall into one of three categories: (1) truly local disease, (2) spread to the liver along the portal venous drainage and (3) distant spread beyond the hepatic trap with or without concurrent liver metastases. Patients in category (1) are cured. But it has been postulated, although never established beyond doubt, that patients in category (1) may be converted to category (2) by cells dislodged into the tumor. Appropriate surgical technique such as early vascular ligation to prevent this portal embolization or use of adjuvant chemotherapeutic agents can prevent the implantation of embolic cells.[29]

All the patients in this study had postoperative chemotherapy and some had postoperative radiotherapy. The use of levamisole and 5-fluorouracil in the adjuvant setting after "curative" surgery for Dukes' C colorectal cancer, has been known to reduce recurrence by 41% and the probability of death by 33%.[30]

Though in patients with T3, T4 or any T plus node enlargement the preferred treatment is preoperative chemo-radiotherapy, radical resection and adjuvant chemotherapy; radical resection, postoperative radiotherapy and adjuvant chemotherapy is an acceptable treatment. In this study, the later was used since radiotherapy was not readily available during the period of the study.

Though follow-up is poor as in other centers in the subregion,[11,15] it is better in patients who had A-P resection and permanent colostomy. This may be attributed to the occasional complaints or questions about their colostomy with a likelihood of longer survival.

For many patients in this series presented with advanced tumor, the best they were offered was palliative treatment. As described by Lockhart-Mummery[31] in 1958, palliative treatment is required "when to the surgeon's knowledge or belief growth has been left in the body, whether this is in the lungs, liver, posterior abdominal wall, pelvic or inguinal glands".

Only two of our patients did not have laparatomy because they were very ill as a result of the advanced nature of the tumor. It would seem rational to try and avoid unnecessary laparatomy, although not all agree to this. In a recent German report,[32] the authors proposed laparatomy and bimanual palpation for all patients to assess operability, before proceeding to defunctioning colostomy and downstaging radiotherapy for those with inoperable tumors. Baigrie and Berry believe that the use of CT, examination under anesthesia, incorporating transrectal ultrasonography and laparoscopy should reduce the need for laparotomy with its attendant morbidity.[33] Large bowel cancer is a disease where surgery can play a major curative role. About half of those treated with an intention to cure can be expected to survive for 5 years, as seen in this study. Approximately 80% of these survivors may then be presumed safe from recurrent disease, although there is a small risk (2–3%) of the later development of metachronous tumor.[29]

The incidence of local recurrence following curative surgery has been reported to range from 3.7 to 50%, depending on the length of follow-up, number of patients studied and tumor factors.[34-36] In this study, 2 out of 18 (11%) of the patients who had resection had recurrence.

The overriding challenge is to discover these neoplasms when curative resection is possible, preferably when they are still adenomatous polyps. Each death is a preventable strategy which is slow in coming.

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Source of Support: Nil, **Conflict of Interest:** None declared.