

Adenocarcinoma of the Large Bowel in Nigerians:

A Clinicopathologic Study*

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Adekunle OO, Abioye AA. Adenocarcinoma of the large bowel in Nigerians: a clinicopathologic study. *Dis Colon Rectum* 1980;23:559-563. This paper analyzes 320 cases of colorectal adenocarcinoma at the University College Hospital, Ibadan, Nigeria over a period of 18 years. The sex ratio was 1.5: 1 in favor of males; the average age when first seen was 44 years. The symptom complex was weight loss, bloody mucoid stool, altered bowel habit, and abdominal mass. Eighty per cent of rectal cases were in the lower third of the rectum. Most cases were very advanced at the time they were first seen. The association of infective granuloma, notably schistosomiasis and amebiasis, occurred in 11 cases. This probably had diagnostic and prognostic significance but the etiologic significance is still conjectural. Eighty per cent of the tumors were well-differentiated adenocarcinoma, while 20 per cent were of other histologic variants. In spite of advanced disease, resection was possible in 66 per cent of colonic and 45 per cent of rectal cases. Although the number of cases of colorectal cancers treated yearly in the hospital has increased significantly in the last few years, it is suggested that the hitherto low treatment rate may be attributable to social unacceptability of a permanent colostomy. [Key words: Adenocarcinoma, colorectal; Colorectum, adenocarcinoma; Epidemiology, adenocarcinoma, Nigeria]

EARLIER REPORTS OF CARCINOMA of the colon and rectum in Africans have stressed the relative rarity of the disease as compared with Europeans.¹⁻³ Reasons for this apparent rarity in Africans have been attributed to diet or rarity of premalignant conditions like colonic and rectal polyps, diverticulosis, and familial polyposis.^{4,5} In addition there may be the factor of age, since carcinoma of the colon tends to occur more commonly in the older age group and the average length of life in Africans is less than 50 years. Also specialized centers for diagnosis and treatment of malignant diseases are few and not every patient has access to sophisticated medical facilities. However, in the last few years there has been a steadily increasing number of patients with colorectal cancer being treated in this hospital.

Nigeria is in a period of rapid socioeconomic transition with changes in the mode and standard of living

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and acquisition of western dietary habits. It seems appropriate at this time to document the clinicopathologic manifestation of this disease in the light of our experience over the last 18 years in the University College Hospital, Ibadan, Nigeria.

Materials and Methods

All patients who have been managed in this hospital and have had their tumors histologically proven to be adenocarcinoma of the colon and rectum were studied. The period of study covered the 18 years between 1960 and 1978. Information collected included sex, age, presenting symptoms, histologic findings, treatment, and follow up. Patients with carcinoma of the anal canal were excluded and also patients with lymphoma, carcinoid tumor, and leiomyosarcoma of the large bowel. Also excluded were patients whose biopsy specimens were referred to the hospital for confirmation of diagnosis only. Between 1960 and 1978, 320 patients were treated for adenocarcinoma of the large bowels. Of these, 125 were for carcinoma of the colon and 195 for carcinoma of the rectum. All the patients except three were black Africans.

Results

Age and Sex: Table 1 summarizes the distribution of the 185 male and 135 female patients showing a male:female ratio of 1.5:1. The youngest patient was 15 years old and the oldest 81. The majority of patients were between the ages of 30 and 60 years and the average age when first seen was about 44 years.

Clinical Features: The duration of symptoms (Table 2) before admission varied from two months to over 24 months, the mean duration being about seven months. Roughly half of the patients reported in hos-

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TABLE 1. *Age and Sex Distribution*

Age (years)	Patients		Total
	Male	Female	
11-20	10		10
21-30	22	26	48
31-40	45	32	77
41-50	44	25	69
51-60	43	41	84
61-70	20	5	25
71-80	1	5	6
81-90		1	1
	185	135	320
	Ratio 1.5:1		

TABLE 2. *Duration of Symptoms*

Duration (months)	Per Cent of Patients
2	17.6
4	20
6	12.5
8	9.5
10	4.2
12	18.8
14	0.6
16	1.2
18	1.2
20	2.4
22	3.6
24	4.2
24+	4.2

TABLE 3. *Symptoms and signs*

	Number of Patients
Bleeding	109
Weight loss	107
Rectal mass	94
Diarrhea	90
Abdominal pain	82
Mucoid stool	74
Constipation	62
Pallor	60
Abdominal mass	54
Emaciation	40
Anorexia	35
Vomiting	35
Tenesmus	30
Feeling of incomplete evacuation of the bowel	25
Hepatomegaly	23
Abdominal distention	18
Back pain	17
Ascites	11
Incontinence	9

pital within six months of onset of symptoms. The commonest initial complaints were bleeding, weight loss, and constipation alternating with diarrhea (Table 3). A rectal mass with ulceration or stricture was found in 80 per cent of rectal cases and an abdominal mass in 70 per cent of colonic cases. Other common symptoms included passage of mucoid stool and abdominal pain. Many patients were seen with features of carcinomatosis, *viz.* pallor, gross emaciation, massive ascites, and hepatomegaly. Seven patients were admitted with acute intestinal obstruction, and 20 patients with carcinoma of the rectum had lymph node metastasis in the groin. Diagnosis was based on clinical manifestation, sigmoidoscopy, and biopsy, barium enema or diagnostic laparotomy, and confirmed by histologic examination.

Site of Neoplasm: As stated, there were 195 cases of carcinoma of the rectum and 125 cases of carcinoma of the colon (Table 4). Unfortunately adequate documentation to determine the exact site of the tumor was not available in 20 cases of carcinoma of the colon. In cases of carcinoma of the rectum, 80 per cent were in the lower third.

Pathological Features: The tumors included in this series appeared, on gross examination, to be of one of three forms, namely ulcerating, fungating, or flat infiltrating masses. The common orientation was that of an annular growth with invasion of the gut wall circumferentially, forming a ring structure in some cases. Most of our cases showed little or no comparative lengthwise extension. Although the cases being considered in this report were of one histologic variant, *i.e.* adenocarcinoma, there was little distinguishing feature apart from occasional slimy feel of a few specimens on gross examination to identify the histologic variant being studied.

Miscroscopic Appearance: Histologically, the tumors in this series were mainly of columnar-cell adenocarcinoma. They showed various degrees of differentiation (Table 5). Thus 242 (81.5 per cent) were well-differentiated adenocarcinomas with glandular acini lined with mucin-secreting epithelium which was not greatly dissimilar from the normal. Thirty-two (10.8 per cent) were poorly differentiated adenocarcinoma, while 14 (4.7 per cent) were mucoid carcinoma. Colloid and papillary adenocarcinoma occurred in three cases each.

Extent of Tumor: The operative findings in respect of extent of disease, especially nodal involvement, was documented adequately in only 64 cases. Four were Dukes' Class C₁ and 60 were Dukes' Class C₂.⁶

It is relevant to point out that 10 patients with carcinoma of the colon and 12 with carcinoma of the

rectum were too ill for surgery, while 31 patients with carcinoma of the rectum refused surgery because a permanent colostomy was not acceptable.

Apart from these exceptions all other patients were subjected to laparotomy. In spite of the extent of tumor in the vast majority, resection was possible in 66 per cent of colonic and 45 per cent of rectal cases while a few others had their tumors by-passed and the rest derived no benefit from surgery.

Follow Up: Reliable data about follow up were available in only 100 of our patients. Of these, 10 failed to report in the hospital after being discharged while 80 were still attending at six months. Most of those who failed to turn up or absconded within six months were with very advanced disease. Forty-eight patients were attending at the end of one year and 28 at the end of two years. At the end of the third year, the number attending had dropped to 18; to 12 at the end of the fourth year and eight after five years.

Discussion

The absence of reliable vital statistics, the fact that only a portion of the entire population seek western medical treatment, and because of limited diagnostic facilities, the study of most diseases including cancer is difficult in many developing countries. Until recently, carcinoma of the lower gastrointestinal tract has not featured in the study of disease patterns in Nigerians. In fact the first review was carried out in 1968.¹ The study was limited to pathologic aspects. Later Grillo *et al.*⁷ compared colonic carcinoma in Nigerians with that in North Americans. Elsewhere in Africa, the incidence and clinicopathologic features in Africans have been infrequently reported.^{3,8,9}

All reports from Africa indicate that the disease is rare. In this hospital, carcinoma of the colon and rectum accounts for only 3 per cent of all malignant tumors, while the incidence in Zaire is 4.8 per cent, and in Sudan 4.04 per cent.⁹ Epidemiologic data indicate that environmental rather than genetic or racial factors are responsible for the very high incidence among Europeans and North Americans, the low incidence among Africans, and the not so low incidence among the increasingly industrialized nations of Asia and South America.

Variation in dietary habit may explain the geographic differences. The food of persons in developing countries contains high fibre which enhances rapid intestinal transit and, therefore, little interaction with other intestinal components which may predispose to cancer. A study of bowel habits of rural and urban Nigerian population revealed that 91 per cent have daily bowel action while 60 per cent have two or

TABLE 4. *Site of Neoplasm*

	Patients	
	Number	Per Cent
Cecum	33	10.3
Ascending colon	22	6.9
Hepatic flexure	8	2.5
Transverse colon	7	2.2
Splenic flexure	7	2.2
Descending colon	8	2.5
Sigmoid colon	20	6.2
Rectum	195	60.9
Unknown (colon)	20	6.2
	320	

more motions a day.^{10,11} Apart from diet, circumstances that are known to predispose to cancer-like isolated polyps, familia polyposis, and chronic ulcerative colitis are also rare in Africans.¹²⁻¹⁵

The age when first seen follows the general pattern that has been identified for other types of malignancies in Africa.¹ Only 10 per cent of patients in this series are above the age of 60 years. This contrasts vary sharply with the age incidence among Caucasians. It may be tempting to infer that increased length of life, as will be inevitable with improved health services, will lead to a rise in incidence. This must, however, await future studies.

The average duration of symptoms before hospitalization was seven months. Most patients were admitted with advanced disease, and this may indicate that colorectal tumors grow very rapidly in Nigerians. One would be inclined to think that most patients being illiterate, their estimation of time interval could be faulty. Recent experience has shown that these tumors are slowly growing. For instance, a patient who had an early rectal lesion diagnosed four months after the onset of symptoms but who refused surgery, died 36 months later from carcinomatosis.

TABLE 5. *Histologic Variants*

	Patients	
	Number	Per Cent
Well differentiated	242	81.5
Poorly differentiated (anaplastic)	32	10.8
Mucoid	14	4.7
Colloid	3	1.0
Papillary	3	1.0
Signet ring	1	0.4
Adenosquamous	1	0.4
Adenocystic	1	0.4
	297	

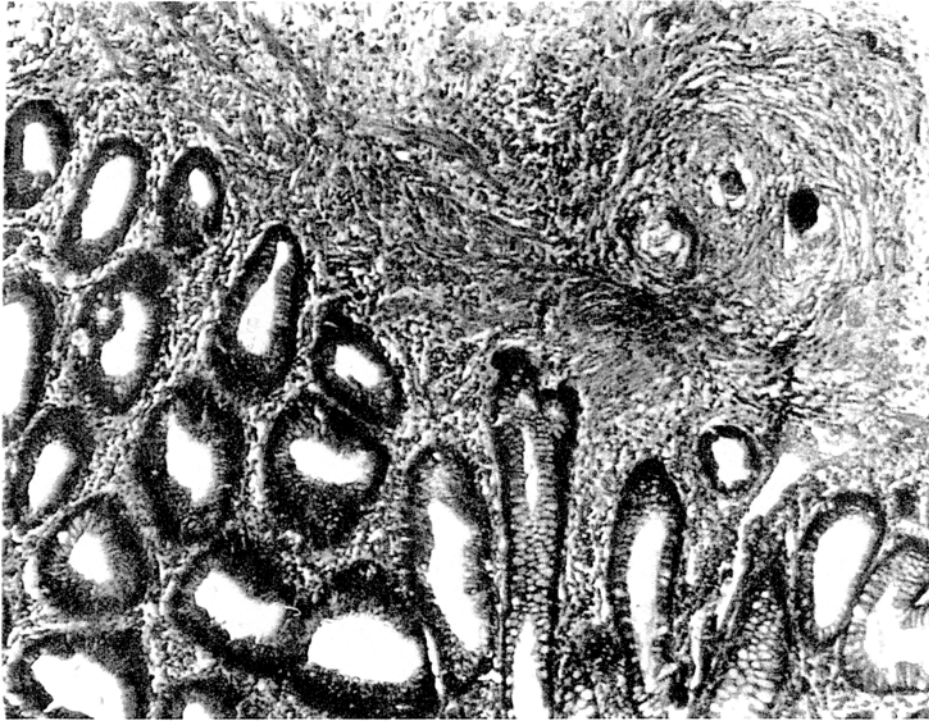


FIG. 1. Features of schistosoma granuloma in the rectum (hematoxylin and eosin; $\times 100$).

In countries where infective granulomas, *viz.* tuberculosis, amebiasis and schistosomiasis, are prevalent, there have been reports of association with colorectal cancer.^{7,9,16-18} There has also been speculation that colonic and rectal schistosomiasis may be

precancerous. In this series there were six cases of associated amebiasis and five with schistosoma granuloma. In one of our patients rectal biopsy showed histologic features of rectal schistosomiasis (Fig. 1) and cancer (Fig. 2) in the same specimen and



FIG. 2. Features of adenocarcinoma of the rectum (hematoxylin and eosin; $\times 100$).

in another, features of rectal amebiasis as well as those of cancer. The former patient had the tumor locally excised and has not had a recurrence for three years. The latter patient, unfortunately, also had carcinoma of the kidney with metastases to the lungs and died from the latter illness. There is no doubt that colorectal cancer and infective granuloma can coexist and that the granuloma may mask the initial diagnosis of cancer. However, that untreated infective granuloma may undergo malignant change requires further study.

In spite of advanced disease in the vast majority of patients, it is the treatment policy in this hospital to subject all patients, if fit, to laparotomy. Liver metastasis, ascites or infiltration to adjoining organs did not always preclude a resection. Experience has shown that even palliative resection generally improves the quality of life postoperatively.

In cases of carcinoma of the rectum, since 80 per cent are in the lower third, and a permanent colostomy is inevitable, there is widespread reluctance to have treatment. A permanent colostomy poses social and psychologic problems for most of our patients and the stigma attached to it in the traditional African society makes it unacceptable. Patients have been known to commit suicide when left with a permanent colostomy.

Attendance at follow-up clinics by our patients is poor mainly because many come from afar and easy transportation and communication pose serious problems. Besides, terminal cases may be too ill to be transported. Others tend to seek other forms of treatment from native doctors or faith healers. The problem is further compounded by the absence of routine registration of births and deaths.

Over the years, there has been a progressive increase in the number of cases of carcinoma of the colon and rectum treated in our hospital. This may indicate a true rise in incidence or just increased hospital awareness and improved access. Burkitt¹⁹ suggested that a rise in the incidence of colonic cancer is usually preceded by a rise in appendicitis. The rise in the incidence of acute appendicitis is now well es-

tablished as it has surpassed strangulated inguinal hernia as the commonest abdominal emergency in this hospital. It seems likely therefore that the next decade or two will bring in its wake a marked upsurge in colorectal cancer in Nigerians.

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