COLORECTAL CANCER IN YOUNG BLACK PATIENTS

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A higher percentage of young black patients are discovered with a more advanced stage of colorectal cancer than is reported for white patients. To evaluate this phenomenon, various prognostic factors in young colorectal cancer patients at Howard University Hospital were studied.

Colorectal cancer is the second most common visceral cancer in the United States, exceeded in incidence and mortality only by lung cancer. In 1987 there will be approximately 140,000 new cases (98,000 colon and 42,000 rectal) with 60,000 deaths.[1] The overall five-year survival is 45 percent but use of current diagnostic modalities including digital rectal examination, fecal occult blood testing, and proctosigmoidoscopy could yield cure rates of 75 to 80 percent. Colorectal carcinoma in young blacks generally runs a rapid course and has a dismal prognosis. The incidence and mortality rates for colorectal cancer show excesses in blacks from childhood until middle life. Several authors report an increased incidence of poorly differentiated and mucinous carcinomas in the young.[2-7] It is also consistently noted that there is a higher percentage of black patients discovered at a more advanced stage of disease than is reported for white patients. To evaluate this phenomenon, various prognostic factors in young colorectal cancer patients at Howard University Hospital were studied.

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MATERIALS AND METHODS

The records of 19 patients, aged 30 years or younger, admitted to the Howard University Surgical Service during a 30-year period, 1955 to 1984, with diagnosed colorectal cancer were reviewed. All patients were black. Patients with familial polyposis were excluded. The average age was 27 years, with an age range of 23 to 30 years. Complete records could not be found for three patients, thus this report concerns 16 patients. Ten (63 percent) were women and six (38 percent) were men. The most common presenting symptom was rectal bleeding (12 patients), usually ignored until other associated symptoms, such as abdominal pain, the second most common symptom (10 patients), weight loss and change in bowel habits, caused the patient to seek medical attention.

RESULTS

Seven of the tumors (44 percent) were located in the rectum and rectosigmoid but only three could be palpated on digital rectal examination (Table 1). No patients had Dukes' A lesions. There was a slight preponderance of Dukes' B tumors (Table 2). The cancers were classified as well differentiated, moderately well differentiated, and poorly differentiated (Tables 3 and 4). Seventy-five percent were moderately differentiated. In addition, the presence of mucin production was determined. Tumors that exhibited a minimal amount of mucin production (less than 25

TABLE 1. LOCATION OF CARCINOMA

Location	Number	Percent
Cecum	4	25
Ascending colon	2	12.5
Descending colon	3	18.75
Rectum and sigmoid	7	43.75

TABLE 2. STAGE USING DUKES' CLASSIFICATION

Stage	Patients	Percent
A	0	0
B	9	56
C	7	44

TABLE 3. LOCATION AND GRADE

Location	WD	MD	PD
Cecum	1	2	1
Ascending colon	0	2	0
Descending colon	0	3	0
Rectum and sigmoid	1	5	1

WD = well differentiated, MD = moderately well differentiated, PD = poorly differentiated.

percent of specimen) were classified as 1+; those with a mild amount of mucin (25 to 50 percent) as 2+; a moderate amount (50 to 75 percent) as 3+; and those with a marked amount of mucinous component as 4+ (Table 4). Twelve of 16 (75 percent) patients had mucin-producing adenocarcinoma (Figures 1 and 2). One half of these met the criteria of mucinous adenocarcinoma. Of the 16 patients evaluated, four were alive and free of disease 19 years, 8 years, 5 years, and 19 months after surgery; nine were dead, and three were lost to follow-up (Table 5).

DISCUSSION

The overall incidence of mucinous carcinoma of the colon compared with all other types is between 10 and 20 percent. In contrast with Anglo-American patients, this variant is six times more frequent in African patients in whom colon cancer is generally rare. Defining mucinous carcinoma as containing at least 60 percent of estimated tumor volume as mucous, Symonds and Vickery[8] observed an overall survival rate of 34 percent compared with 53 percent for patients with stage-matched nonmucinous control tumors.

TABLE 4. LOCATION AND MUCIN PRODUCTION

Location	Less than 50% Mucinous (1+ and 2+)	Greater than 50% Mucinous (3+ and 4+)
Cecum	1	3
Ascending colon	0	2
Descending colon	3	0
Rectum and sigmoid	6	1

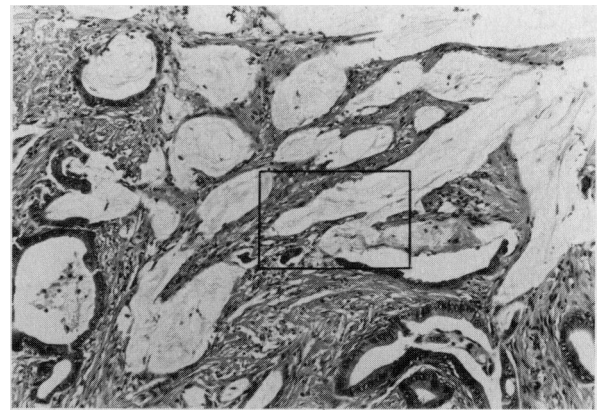

Figure 1. Photomicrograph showing mucinous adenocarcinoma extending into the muscularis propria. Note the pools of mucin dissecting the smooth muscle fibers (H&E, ×125)

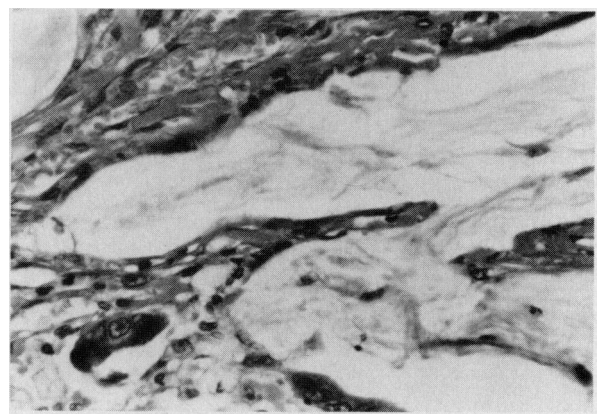

Figure 2. Higher power view of the area outlined in Figure 1. Note the neoplastic epithelial cells in and about the mucin pools (H&E, ×500)

TABLE 5. SUMMARY OF 16 PATIENTS AND SURVIVAL DATA

Sex	Age	Site	Stage	Grade	Mucin	Survival
M	30	Descending colon	B	MW	1+	1 year, NED, then lost to follow-up
F	30	Ascending colon	C	MW	3+	13 months
F	29	Descending colon	B	MW	1+	Lost to follow-up
F	26	Descending colon	B	MW	2+	44 months
M	28	Ascending colon	B	MW	4+	8 years, NED
F	28	Rectum	C	W	2+	26 months
F	26	Rectum	B	MW	2+	23 months
M	23	Cecum	B	W	4+	14 months
F	24	Sigmoid	B	MW	2+	1 month
F	30	Sigmoid	C	MW	1+	5 years, NED
M	27	Cecum	C	MW	4+	32 months
F	30	Rectum	C	MW	2+	3 months
F	30	Sigmoid	B	P	3+	19 months, NED
F	23	Cecum	C	P	4+	0 months (postoperative death)
M	26	Cecum	B	MW	2+	lost to follow-up
M	26	Rectum	C	MW	1+	19 months, NED

MD—moderately well differentiated; W—well differentiated; P—poorly differentiated; NED—no evidence of disease

The relationship between mucin production and increased virulence is poorly understood, but a few ideas have recently been considered. It has been suggested that mucin separates tissue planes and acts as a dissection wedge, thereby permitting the dispersion of neoplastic cells. It might also play a role in acting as a protective coating of tumor cells interfering with the host's immunologic reactions. The increased virulence of mucoid carcinoma may, therefore, be the result of the combined factors of low cell cohesiveness and the production of abundant mucin that facilitates dissemination.

Moore et al[3] noted an incidence of 32 percent of mucinous carcinoma in 62 patients under 40 years of age with colorectal carcinoma. They believe that the poorer survival in the young patients is not on the basis of delay in diagnosis, premalignant status, or distribution of lesion, but rather is related to an inherently more virulent lesion—the mucinous adenocarcinoma. Walton and associates[7] noted that of the 1,400 reported instances of colorectal carcinoma in patients under 40 years of age, one third are of the mucinous type. The incidence of this histologic variant is about 5 percent in those series not segregated by age, suggesting that young patients may be predisposed to this more aggressive type of colonic cancer.

Gardner et al[9] stated that mucinous carcinoma occurs in 15 percent of adult patients with carcinoma of the colon and is associated with a survival time approximately one half that of all survivals from carcinoma of the colon. Beckman et al[10] also described the presence of mucinous carcinoma as an unfavorable prognostic feature. Six out of 16 (38 percent) of the specimens in the series reported here demonstrated either a moderate or a marked amount of mucin production (more than 50 percent of the neoplasm producing mucin).

Petrek et al[5] reported that 50 patients under 40 years of age (8.2 percent black) from a socioeconomically disadvantaged population had an increased five-year survival (36 percent) compared with their older counterparts (24 percent over 40 years), and young women had significantly better survival than young men. They noted that advanced stages, distribution of primary sites, precancerous conditions, and the higher incidence of extracellular mucin production in cancers from younger patients had no adverse effect on survival. This was not true of the patients reported here.

Odone et al[4] reported on 24 patients under 20 years of age (13 black) who had an eight-month median survival from diagnosis. Twenty-one of the 24 had poorly differentiated mucin adenocarcinoma. The

most common presenting symptom was abdominal pain—observed in all 24 patients—followed in frequency by weight loss, nausea, vomiting, constipation, diarrhea, anemia, and anorexia. The most common symptom in the study patients was rectal bleeding followed closely by abdominal pain.

Pitluk and Poticha[6] stated that abdominal pain, usually localized to the areas of the underlying tumor, was found almost twice as often as the other three important symptoms—rectal bleeding, change in bowel habits, and weight loss with anorexia. They reported an average interval of four to six months between the onset of symptoms and histopathologic diagnosis. However, 45 percent of the patients had delays in diagnosis greater than six months, and 32 percent, greater than one year. There was a 23 percent incidence of mucinous adenocarcinoma. Studies by Lundy and Welch[2] revealed that in young patients with more advanced disease, the prognosis was dependent upon the stage of the disease, and that survival of patients with rectal disease was dismal.

Overall five-year survival is significantly worse in black patients than in white patients for both colon cancer (47 vs 53 percent) and for rectal cancer (37 vs 49 percent, respectively).[11] Five-year survival for colorectal cancer in curative resection approaches 70 percent. This becomes significant when considering the advanced cancers present in the black patient population. Having no patients with Dukes' A lesion is unfortunate and reflects a grave trend found in the population of low socioeconomic status, ie, delay in detection and treatment with late stage at diagnosis. The finding that these patients demonstrate a predilection for the aggressive mucinous cancers, which show a poor host response, suggests the possibility that biological factors may play a role.

In this series two factors correlated with the observed low survival rate: (1) histologic type of mucinous adenocarcinoma (37 percent) and (2) delay in diagnosis associated with an advanced stage of disease at operation. A high index of suspicion for colorectal cancer should be maintained in young patients with either rectal bleeding or abdominal pain. Only in this way can the poor survival rate be improved.

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