

## Neoplastic Lesions of the Colon and Ano-Rectum in Blacks

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**T**HIS is a review of 394 neoplastic lesions of the colon and ano-rectal region seen in the 16 year period, 1955-1970, at Howard University's Freedmen's Hospital. All patients in this review were black. There were 230 adenocarcinomas occurring in 102 males and 128 females. Nine of

one lymphoid polyp, one lipoma, one leiomyoma, one anal duct adenoma and one carcinoid tumor. The miscellaneous malignant tumors included two cloacogenic transitional cell carcinomas, two epidermoid carcinomas, and one malignant carcinoid. Case reports of the nine patients included in the under 30 age group are presented later.

Table 1 shows the age and sex distribution of the 230 patients with adenocarcinoma while Table

TABLE 1.—AGE AND SEX DISTRIBUTION OF 230 BLACK PATIENTS WITH ADENOCARCINOMA

Age in Yrs.	Male	Female	Total	Percent of Total
0- 10	—	—	—	—
11- 20	—	—	—	—
21- 30	2	7	9	3.9
31- 40	8	7	15	6.5
41- 50	16	23	39	17
51- 60	21	28	49	21.3
61- 70	32	30	62	27
71- 80	14	27	41	17.8
81- 90	8	6	14	6.1
91-100	1	—	1	0.4
<i>Total</i>	102	128	230	100

these (2 males and 7 females) were 30-years-old or younger (3.9%), the youngest being a 23-year-old female. In addition, there were 145 true polyps (127 adenomatous and 18 villous), six pseudopolyps and a miscellaneous group of eight benign and five malignant lesions. The benign lesions comprise three juvenile (retention) polyps,

TABLE 2.—AGE AND SEX DISTRIBUTION IN BLACK AND WHITE POPULATION GROUPS

	<i>Predominantly white patients (R. D. Liechty et al.)</i>	<i>Black patients (Our series)</i>
Total no. of patients	2261	230
Males	1241 (54.89%)	102 (44.35%)
Females	1020 (45.11%)	128 (55.65%)
Peak incidence		
7th decade	716 (31.7 %)	62 (26.96%)
40 years old	84 ( 3.7 %)	24 (10.43%)
50 years old	283 (12.6 %)	63 (27.39%)

2 compares some of the data in Table 1 with those in the review of 2,261 cases of colo-rectal adenocarcinoma by R. D. Liechty et al. of the University of Iowa.<sup>1</sup> The patients in the latter review were predominantly Caucasian. The only point of similarity in these two studies is the peak incidence in the seventh decade. The other points are in

sharp contrast, e.g., the male to female ratio is reversed while the percentage of patients in the under 40 and 50 age group in the predominantly black population is double that in whites. The majority of adenocarcinomas (72%) were located in the sigmoid and rectum, (Table 3). The number of sigmoid and rectal lesions in females is about equal, whereas men possess a preponderance of rectal lesions. Cecal lesions were twice as common in males as in females.

TABLE 3.—ANATOMICAL SITE OF ADENOCARCINOMATA OF THE COLON AND RECTUM

Sites	Male	Female	Total	Percent of Total
Anus	—	—	—	—
Ano-Rectal	—	1	1	0.44
Rectum	51	43	94	40.87
Recto-Sigmoid	3	4	7	3.04
Sigmoid	19	45	64	27.83
Desc. Colon	3	10	13	5.65
Spl. Flex.	3	4	7	3.04
Tr. Colon	2	7	9	3.91
Hep. Flex.	1	4	5	2.17
Asc. Colon	3	3	6	2.61
Caecum	17	7	24	10.44
<i>Total</i>	102	128	230	100

The youngest patient was a 23-year-old female and the oldest, a 91-year-old male. The mean age for males was 60.3 years and for females 59.3 years. These figures are almost identical with those of McSherry, et al. in their review of 1,625 cases of adenocarcinoma of the colon and rectum.<sup>2</sup> They also agree closely with the figures of Kovi and his group in their 20 year review which included autopsy cases.<sup>3</sup>

The history and physical signs in these patients were as expected for colo-rectal lesions. All were symptomatic except a 49-year-old female, whose lesion (an adenomatous polyp of the splenic flexure with malignant changes) was found by barium enema, as part of a complete physical examination. It was adequately removed by polypectomy. It is believed that patients who had symptomatic hemorrhoids prior to the development of colo-rectal neoplasms have their lesions diagnosed later because they continue to ascribe rectal bleeding to hemorrhoids and delay seeking medi-

cal attention. Proctosigmoidoscopy and barium enema were employed in all patients.

Two male patients were explored for appendicitis but were found to have cecal carcinomas. The younger, aged 35, had a right hemicolectomy in April 1959. He had excision of an adenomatous rectal polyp in August 1960 and in December 1971, a routine chest x-ray revealed a 2 cm. rounded mass in his right upper lobe. A provisional diagnosis of bronchogenic carcinoma was made from bronchoscopic and radiologic examinations. The lesion seems to be regressing under chemotherapy treatment. Otherwise he is asymptomatic and in good health. The other patient, aged 64, also underwent a right hemicolectomy but was lost to follow up.

One patient had synchronous carcinomas—a 54-year-old female with lesions located in the sigmoid and splenic flexure. She had a left hemicolectomy and three of 17 regional lymph nodes were positive—the positive lymph nodes were closest to the sigmoid lesion). She developed a recurrence at the anastomotic site nine months later which was resected for cure but the patient was lost to follow up. Two other females, aged 61 and 90 years, had two metachronous primaries. The younger patient had an abdomino-perineal resection for rectal carcinoma in 1961 and resection of a splenic flexure primary in 1967, followed by chemotherapy. When last seen in May, 1970, she had a metastatic lesion of the anterior abdominal wall. The other patient had a right hemicolectomy for an ascending colon primary in February 1962 and in October 1963, when she presented with another primary in the sigmoid, only a decompressing colostomy could be done because she was in severe heart failure. She survived another 18 months and then was lost to follow up.

In 13 instances, invasive malignancy was observed in grossly benign polyps. The polypoid precursors were 10 villous (papillary) in four males and six females and three adenomatous in one male and two females. One papillary (villous) adenoma and seven adenomatous polyps were found in association with carcinomas in males, while 11 adenomatous and villous polyps were found accompanying carcinomas in females.

Table 4 shows the yearly occurrence of the 230 adenocarcinomas. No consistent pattern was observed.

TABLE 4.—YEARLY INCIDENCE OF COLORECTAL CARCINOMAS

	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	Total
Male	12	12	2	11	7	4	2	6	3	10	1	4	3	11	7	7	102
Female	10	8	3	13	2	6	6	8	6	11	6	6	4	13	13	13	128
<i>Total</i>	22	20	5	24	9	10	8	14	9	21	7	10	7	24	20	20	230

Histologically, the lesions were predominantly adenocarcinomas with different degrees of differentiation and invasion. There were 28 mucinous (colloid) carcinomas—five of these occurred in the 30 years and under age group. This 10% rate is twice the commonly accepted incidence of colloid lesions in adults.<sup>4</sup> Only one of the 10 adults with mucinous carcinomas followed regularly, is alive and well—a 53-year-old female last seen on 3/25/71, two years post-extended right hemicolectomy for a mucinous adenocarcinoma of the hepatic flexure. Most of the remaining nine, all of whom are dead, only lived for two to 10 months. Two lived for about 12 months while the longest survivor lived just 36 months. This confirms the poor prognosis for which the mucinous lesion is notorious.

Table 5 summarizes the major forms of management—189 patients had what was considered curative surgery; 23 had only palliative procedures (two of these had no surgical procedure of any sort, one received chemotherapy only and the other, radiotherapy only); four patients refused surgery and signed out against medical advice. The number of 158 who were lost to follow up, especially in the earlier years of the study, is distressing. Sixty-two patients are known dead—16 of these did not survive surgery while the remaining 46 succumbed after periods varying from two months to 13½ years. The longest survivor (13½ years), a 65-year-old male who had a curative resection of a transverse colon carcinoma in 1955, died in July 1969 of carcinoma of the larynx. Another patient, a 73-year-old female had a radical subtotal gastrectomy for a mucinous gastric carcinoma and segmental sigmoid resection for an adenocarcinoma, both in February 1959. She died nine years post-operatively of an unrelated cause. Although there was a large number lost to follow up, among the 104 patients followed who had curative operations, the overall five year survival approached 50%—being more

favorable in those patients with negative nodes.

There were nine patients aged 30 and below with adenocarcinoma—two males and seven females. A brief presentation of each of these cases follows:

#### CASE REPORTS

*Case 1, MEM #231337:* This 23-year-old female presented 11/22/63 with an 18-month history of right upper quadrant pain and intermittent bright rectal bleeding for two months P.T.A. She had a right ovarian cystectomy in May 1962. Exploratory laparotomy revealed a constructing lesion at the hepatic flexure. Widespread dissemination of the tumor was evident in the liver, the greater omentum, peritoneum and pelvic cavity. A palliative right hemicolectomy was done. Histologically, the tumor was a mucinous adenocarcinoma with positive regional nodes. The patient experienced a downhill course and expired during the second post-operative week.

*Case 2, CB #237589:* This 24-year-old female was admitted 9/21/69 with an 18-month history of rectal pain on defecation, rectal bleeding, 26 lb. weight loss and general weakness. She admitted heavy alcoholic intake and liberal cigarette use. There was no relevant family history and no allergies. She had been treated for pulmonary tuberculosis for three years P.T.A., with streptomycin and INH, and was still on the latter at the time of admission.

Physical examination revealed a thin, pale, malnourished and lethargic patient with a polypoid rectal mass, about 7.5 cm. from the anal verge. No other physical abnormalities were found. Sigmoidoscopy revealed a stenosing lesion in the rectum that on biopsy proved to be a mucin-producing adenocarcinoma. At surgery, extensive metastases to the omentum, bowel, peritoneum and bladder were noted, but the liver was free. A sigmoid colostomy was performed 9/26/69 and the patient was returned to surgery 10/29/69 for relief of small bowel obstruction. In the immediate post-operative period the patient suffered circulatory collapse and died after 39 days in the hospital.

*Case 3, KEB #33882:* This male was 26 years old when he had the first resection of a primary adenocarcinoma of the sigmoid at a New Jersey hospital. Three years later, on 12/15/55, he presented at Freedmen's Hospital with a recurrence and underwent a second palliative resection, followed by irradiation. The patient was followed closely until he died in December 1956, i.e.,

TABLE 5—TYPE OF TREATMENT USED FOR COLORECTAL CARCINOMA

	Male	Female	Total
A.P.R. (Abdomino-Perineal Resection)	27	25	52
Anterior Resection	6	12	18
Segmental Resection	24	49	73
Left Hemicolectomy	9	14	23
Right Hemicolectomy	24	13	37
Palliative Procedures (excluding segmental resection)	8	15	23
Chemotherapy only		1	
Radiotherapy only		1	
Transverse Colostomy	3	6	
Ileo-transverse Colostomy	1	1	
Caecostomy	2	3	
Hartmann's Procedure	2	3	
Refused Surgery	3	1	4
<i>Total</i>	102	128	230

four years following the original diagnosis.

*Case 4, HW #294743:* This 27-year-old male presented in the emergency room on 10/17/68 with the chief complaint of crampy epigastric pain with no special radiation that was relieved by Pepto-Bismol, but not by food. The pain was accompanied by nausea and vomiting, first of old food, and later of yellowish material. He also had diarrhea with streaks of blood in his stools. The patient claimed a 5-lb. weight loss. The entire history was of three weeks duration. He underwent a right inguinal herniorrhaphy in 1966 in an Alabama hospital. An uncle had a cancer of the gastrointestinal system (site unknown).

Physical examination revealed abdominal distension; a right inguinal herniorrhaphy scar; guarding and tenderness with rebound in the left infraumbilical area and left lower quadrant. No masses were felt; bowel sounds were hypoactive. Rectal examination was negative. Clinical diagnoses were mechanical small bowel obstruction, perforated peptic ulcer or pancreatitis. Chest x-ray was clear, but abdominal films showed dilated small bowel loops. There were no convincing air-fluid levels and no air in the colon.

Conservative treatment was instituted for a few hours but abdominal distension and tenderness increased and the patient was explored. A 4 cm. cecal mass was found with several enlarged, soft lymph nodes 0.5-0.9 cm. in diameter, in the nearby mesentery. A right hemicolectomy was done. The histological report was infiltrating, mucinous, partly calcified adenocarcinoma with metastasis in one of five lymph nodes; the others exhibited reactive hyperplasia. The surgical margins were free of tumor. He was discharged on the 12th post-operative day. Unofficially he was reported dead a few months later but the details and official confirmation were lacking.

*Case 5, F.L.J. #59499:* This 28-year-old female, mother of six, presented on 12/31/57 with a two-year history of hemorrhoids, active rectal bleeding and rectal pain for two weeks P.T.A. The family history was negative.

Physical examination was normal. A fungating mass was seen on sigmoidoscopy at 15 cm. A biopsy revealed invasive adenocarcinoma of the rectosigmoid. Many small adenomatous polyps (confirmed histologically) were found in the vicinity of the tumor. A one-stage abdomino-perineal resection was undertaken on 1/11/58. The post-operative course was uneventful and the patient was discharged, in good condition, on 1/24/58 and has been lost to follow-up since then.

*Case 6, P.S.P. #192344:* This 28-year-old female presented on 10/3/61 with a one-week history of grossly bloody stools with no associated pain. A rectal polyp, seen on proctosigmoidoscopy and biopsied, was reported as a well-differentiated, mucin producing adenocarcinoma. The patient was subjected to abdomino-perineal resection without any untoward effect. She is lost to follow up.

*Case 7, G. J. T. #24173:* This 29-year-old female presented on 4/28/68 with a painful right reducible inguinal lump, lethargy and nervousness for three months associated with rectal pain, and bloody stools five weeks prior to admission. There was no weight loss. The past history included congenital syphilis, tubal ligation in 1962 and a recent kidney infection. The family history was negative for cancer.

A Grade 2 apical systolic murmur and a small reducible right inguinal hernia were the only positive physical signs. Rectal examination was normal. Occult blood was negative.

Lab data were normal. Oral cholecystography revealed gallstones. Sigmoidoscopy revealed a stenosing lesion 15 cm. from the anal outlet that proved to be invasive adenocarcinoma. A low anterior resection was performed on 5/8/68. The neoplasm extended into the pericolic fatty tissue. The accompanying regional lymph nodes showed benign hyperplasia. Irradiation of 2,000 rads was followed by a course of 5-F.U.

Subsequently, the patient had several admissions, presenting on different occasions with signs and symptoms of cholecystitis, diarrhea, vaginal and rectal bleeding.

TABLE 6—AGE AND SEX DISTRIBUTION OF ADENOMATOUS AND VILLOUS (PAPILLARY) POLYPS OF COLON AND RECTUM

Age	Adenomatous Polyps		Papillary Adenomas		Grand Total	Percent of Grand Total
	M	F	M	F		
0- 10	3	—	—	—	3	2.07
11- 20	1	2	—	—	3	2.07
21- 30	3	3	1	—	7	4.83
31- 40	12	8	1	—	21	14.48
41- 50	9	11	2	1	23	15.86
51- 60	16	15	3	3	37	25.52
61- 70	14	11	1	1	27	18.62
71- 80	12	5	1	2	20	13.79
81- 90	1	1	—	2	4	2.76
91-100	—	—	—	—	—	—
<i>Total</i>	71	56	9	9	145	100

She underwent a right inguinal herniorrhaphy, subtotal hysterectomy, right hemicolectomy (May 1968) and cholecystectomy (Oct. 1968). She was palliated with methadone and demerol until she expired on 6/3/70. Autopsy revealed widespread abdominal metastases.

*Case 8, A.B. #325005:* This 30-year-old female presented on 4/2/64 with a two-week history of constipation which lasted four days, during which she only passed small amounts of frank blood in response to an urge to defecate. The urge was never satisfied and she had a sense of incomplete evacuation. The constipation was followed by loose blood mucoid stools starting five days prior to admission associated with low back pain. The family and past histories were negative. Rectal examination revealed a 4 cm. ulcerated mass on the posterior rectal wall, occupying two-thirds of the lumen circumference, 7.5 cm. from the anal margin. The rest of the P.E. was normal. The patient is free of disease now some seven years after abdominoperineal resection.

*Case 9, C.K. #244101:* This 30-year-old female, mother of five, presented on 3/13/69 with a three-week history of progressive diminution of stool size and a two-week history of diarrhea with streaks of blood accompanied by rectal heaviness and a sensation of incomplete evacuation. These gave way to absolute constipation one week P.T.A. There was no weight loss, nausea or vomiting and no relevant family history. A cauliflower-like, sessile, firm nodular mass, about 3 cm. in diameter, was palpated on the right antero-lateral rectal wall, about 6 cm. from the anal outlet. The mass was also felt vaginally, otherwise bimanual pelvic examination was normal. The rest of the physical examination was normal. Biopsy of the rectal mass was reported as infiltrating mucinous adenocarcinoma, and following abdominoperineal resection, 3/25/69, six of 14 regional lymph nodes were found to contain tumor. A few adenomatous polyps were also found in the recto-sigmoid area. Pa-

tient had a smooth post-operative course and was discharged in good condition after four weeks stay in hospital. She developed a cutaneous fistula of the mid-abdominal scar and a tender skin nodule near the same location was biopsied in July 1971 and was reported as skin ulceration and secondary granulation tissue. When the patient was last seen 11/23/71 she was in satisfactory condition and tumor free.

#### DISCUSSION

The nine young patients constitute 3.9% of the total 230 adenocarcinomas. This is the same incidence recorded by Sessions et al. in their large series of 7,313 cases.<sup>5</sup> The youngest patient in the series was 23-years-old. There is nothing unusual about this, since the youngest patient with cancer of the colon reported so far was nine months old.<sup>6</sup> The male to female ratio was 2:7. Most other writers have observed about equal sex distribution.<sup>7-9</sup> The symptoms were not consistent: rectal bleeding, rectal pain and bloody diarrhea each occurred in four patients; abdominal pain and constipation in three patients while diarrhea, small stool, bloody stool and weight loss each occurred just once. Earlier observers have noted that abdominal pain is the most common presenting symptom of colon cancer.<sup>1, 4, 7-10</sup> The duration of symptoms varied from one week to 18 months, with the majority having a duration of three weeks. Sessions' patients symptoms varied from one month to 3½ years<sup>5</sup> while Rosato et al. observed this to vary between two weeks and 36 months.<sup>9</sup>

TABLE 7—ADENOMATOUS AND VILLOUS (PAPILLARY) POLYPS OF COLON, RECTUM AND ANORECTUM

<i>Sites</i>		<i>Anus</i>	<i>Ano-Rectal</i>	<i>Rectum</i>	<i>Recto-Sigmoid</i>	<i>Sigmoid</i>	<i>Desc. Colon</i>	<i>Spl. Flex.</i>	<i>Tr. Colon</i>	<i>Hep. Flex.</i>	<i>Asc. Colon</i>	<i>Caecum</i>	<i>Total</i>
Adenomatous Polyps	M	—	—	46	3	18	2	—	1	—	—	1	71
	F	—	1	35	3	10	4	—	3	—	—	—	56
Papillary Adenomas	M	—	—	7	—	1	—	1	—	—	—	—	9
	F	—	1	5	—	2	—	—	—	—	1	—	9
Total	M	—	—	53	3	19	2	1	1	—	—	1	80
	F	—	2	40	3	12	4	—	3	—	1	—	65
<i>Grand Total</i>		—	2	93	6	31	6	1	4	—	1	1	145
<i>Percent Grand Total</i>		—	1.4	64.1	4.1	21.4	4.1	0.7	2.8	—	0.7	0.7	100%

One of our two patients (M.M.) with a duration of symptoms for 18 months had right upper quadrant pain for 18 months and rectal bleeding for only two months. Her lesion showed up on BCE as a constricting calcified lesion in the hepatic flexure. Another patient (H.W.) also showed calcification histologically but not on B.C.E. The patient with a calcified adenocarcinoma of the colon reported by Fletcher et al. also displayed right upper quadrant tenderness.<sup>11</sup> They drew attention to the fact that nine of the total calcified adenocarcinomas reported at the time of their report were of colloid histological picture, while the other was a papillary adenocarcinoma. Our two patients also had colloid lesions.

Two of the patients had many adenomatous polyps in the vicinity of their tumors, otherwise there was no clear cut premalignant condition or relevant family history. The 24-year-old patient (C.D.) suffered with poorly controlled pulmonary tuberculosis for three years prior to admission. She presented with signs of intestinal obstruction and carcinomatosis was found on exploration.

Five of the nine patients had mucinous lesions histologically (55.5%). Ferguson et al. had 66% colloid lesions in their series,<sup>4</sup> Miller and Liechty noted an incidence of 40 to 50%,<sup>12</sup> while Chappell and Fenwick had an incidence of 43%.<sup>13</sup> The remaining four patients had their lesions reported as moderately well differentiated adenocarcinoma (three patients) and anaplastic adenocarcinoma (one patient).

Three of the nine patients were lost to follow up and presumed dead, judging from their poor condition when last seen. Only two patients are alive and tumor free. These are the oldest in the series and both had rectal lesions. Ferguson et al. believe that those with rectal lesions tend to live longer, probably because the symptoms manifest relatively earlier and inspire more fear.<sup>4</sup>

None of the four patients known to be dead lived beyond four years. Mucinous adenocarcinoma in this series seems to carry an equally gloomy outlook in both young and old. The ordinary adenocarcinoma of various grades also seems to run a similar course in all age groups, though it is compatible with a longer survival than the colloid lesion. Most of the earlier observers believe that adenocarcinoma in the young (30 and under) carries a poorer prognosis than in the adults.<sup>4, 10, 12, 13</sup> The results of Hughes' study did not persuade him to subscribe to this view.<sup>14</sup> Most of our patients had relatively short symptoms and yet were subsequently found to have far advanced lesions. This supports the conclusion made by those who said that symptoms become manifest late in the young patients.<sup>4, 10, 12</sup>

There were 145 true polyps, 127 adenomatous and 18 villous in the review. The age incidence and pattern of distribution are similar to the adenocarcinomas as shown in Tables 1, 3, 6 and 7. Most of these patients disappeared following initial removal of these lesions so there was no opportunity to observe recurrence or eventual de-

velopment of malignancy at or near the sites of their original locations. The six pseudopolyps in the series were all inflammatory in nature and were all located in the rectum; two in males and four females.

The next group of patients made up of five cases: two cloacogenic transitional cell carcinomas of the anal canal (one male and one female); two epidermoid carcinomas located in the anus (one male and one female); and a malignant carcinoid tumor of the rectum in a 62-year-old female.

The miscellaneous benign group of eight cases is made up of three retention (juvenile) polyps, one anal duct adenoma, one lymphoid polyp, one leiomyoma, one benign carcinoid rectal tumor and one lipomatous polyp of the ascending colon. All of these patients were lost to follow up.

#### SUMMARY

The 394 neoplastic lesions of the colon and ano-rectal regions in black patients encountered at Freedmen's Hospital, Howard University, in the 16 year period, 1955-1970, have been reviewed. The clinical presentations is identical with those in among whites. However, the incidence of adenocarcinoma in the young age group seems higher than that reported in whites. Young black females seem more prone to develop these lesions than males. A ratio of 3.5:1 female to male is observed in the 30 and under age group. The mean ages for adenocarcinoma in male and females are similar to those observed in a predominantly white patient population. The incidence of mucinous adenocarcinoma, in adults, is double that commonly observed in white populations. This colloid histological variety appears uniformly devastating to old and young alike. The incidence of adenocarcinoma in the under 30 age group constitutes 3.9% of the total number of adenocarcinomas in the series. The symptomatology in this young group is similar to that of adults, though it is not of any distinctive pattern.

One patient had two synchronous primaries while two patients had two metachronous primaries. Two patients had carcinomas of other organs in addition to their colon lesions. Thirteen polyps, 10 villous and three adenomatous had malignant changes noted histologically. Nineteen patients had polyps accompanying their carcinomas. The five year survival rate for followed patients who underwent curative surgery was 50%. An overall

five year survival rate could not be obtained because of the distressingly high number of patients lost to follow up.

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