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**Original Research Article****Colorectal adenocarcinoma in Nigerian Igbos- A clinicopathologic analysis****Nnadi I G\***, Egejuru R O and Ekwunife C N*Department of Histopathology, Federal Medical Centre (FMC), Owerri, Imo State, Nigeria*

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**\*Article History:****Received:** 12/08/2017**Revised:** 24/08/2017**Accepted:** 24/08/2017**DOI:** <https://doi.org/10.7439/ijbr.v8i9.4341>**Abstract**

**Background:** Colorectal carcinoma is becoming a public health issue in black Africans. Its frequency is increasing among people in their active productive years of life.

**Aim:** The aim of this study is to describe the clinic-pathologic characteristics of colorectal carcinoma among the Nigerian Igbos.

**Methodology:** The surgical day book, histology request and report forms of confirmed cases of colorectal carcinoma submitted to the Department of Anatomic Pathology, FMC Owerri between January 1, 2011 and December 31, 2016 were carefully studied for the demographic, clinical and histopathologic characteristics.

**Results:** A total of 84 colonic biopsies were analyzed. The average age was  $52.5 \pm 14.9$  years with a range of 26 to 91 years. The male to female ratio was 1.6:1. The peak age of incidence was in the 41-50 age groups. The average duration of symptoms was 10.5 months with a range of 1 to 60 months. The commonest mode of presentation was abdominal mass 24.13% (28cases), abdominal pain 21.55% (25cases), and rectal bleeding 15.52% (18cases), intestinal obstruction 10.34% (12cases), constipation 8.62% (10cases) and abdominal distension 6.03% (7cases). The commonest sites involved along the length of the colon was the rectum 33 (39.29%) followed by the caecum 26 (30.95%), sigmoid colon 10 (11.9%), ascending colon 7(8.33%), descending colon 5 (5.95%) and transverse colon 3 (3.6%). 92.86% was adenocarcinoma, 1.2% was carcinoid and Alveolar rhabdomyosarcoma respectively. The tumors were metastatic in 19.05% (16) of cases. The distal colon was involved in 54.76% (46) and the proximal colon in 45.24% (38).

**Keywords:** Colorectal carcinoma, Nigerian Igbos, Owerri.

**1. Introduction**

Cancer of the colorectum is one of the leading causes of cancer-related deaths in the Western countries, and colorectal carcinoma (CRC) is the third most common cause of cancer death in the world.[1] The incidence of CRC in Africa is lower than in Europe, North America, and Oceania.[2] This may be due to reduced incidence of adenomatous polyposis syndromes and protective dietary factors in West African sub-region.[3] Though previous reports demonstrated that colorectal carcinoma is rare in Africa, a systematic review of several publications in Nigeria reported that there is increasing incidence as

evidenced by increase in annual frequency from 18.2 per annum in the early years (1954-1969) to 86.8 per annum in the latter years (1991-2007).[4]

The aim of this study is to describe the clinic-pathologic characteristics of CRC among the Nigerian Igbos.

**2. Materials and method**

The surgical day book, histology request forms, histology report forms of confirmed cases of colorectal carcinoma submitted to the Department of Pathology, FMC

Owerri between January 1, 2011 and December 31, 2016 were carefully studied for the demographic, clinical and histopathologic characteristics. The histology reports were reviewed along with the histology slides, the histologic diagnoses, histologic variants of colorectal carcinoma and the presenting symptoms were documented. The samples with complete records and those whose slides can be retrieved from the archives or reproduced by resection of 2-3µm sections from the paraffin embedded tissue blocks and stained with haematoxylin and eosin (H&E) were included in the study. The data was analyzed using SPSS version 20.0

### 3. Results

A total of 84 colonic biopsies were analyzed. This constituted 68.85% Of all intestinal biopsies submitted to the Department of Pathology, Federal Medical Centre, Owerri in the period under review. The average age was 52.5±14.9 years with a range of 26 to 91 years. The male to female ratio was 1.6:1. The youngest was a 26 year old female. The peak age of incidence was in the 41-50 (25%) followed closely by 51-60 (22.16%), 61-70 (19.05%) and 31-40 (17.86%) years age groups.

The average duration of symptoms was 10.5 months with a range of 1 to 60 months. The commonest mode of presentation was abdominal mass 24.13% (28), followed by abdominal pain 21.55% (25), change in bowel habits 17.24% (20), rectal bleeding 15.52% (18), intestinal obstruction 10.34% (12), constipation 8.62% (10) and abdominal distension 6.03% (7). This is shown in table 1.

The commonest sites involved along the length of the colon were rectum 33(39.29%) followed by the Caecum 26 (30.95%), sigmoid colon 10 (11.9%), ascending colon 7 (8.33%), descending colon 5 (5.95%), transverse colon 3 (3.6%). This is shown in table 2. About Eighty per cent were exophytic tumours obstructing (partial or complete) the colonic lumen some with cauliflower (5.17%) and napkin ring (1.76%) configuration. The diffuse growth pattern presented as thickened colonic wall with ulceration of the colonic mucosa.

33.33% (28), 22.62% (19), 10.7% (9), and 26.9% (22) were well, moderately, poorly differentiated and mucinous adenocarcinoma of the colon respectively. 4.76% (4) were signet ring carcinoma and one (1.2%) case each was carcinoid and Alveolar rhabdomyosarcoma respectively.

The tumors were metastatic in 19.05% (16) of cases. Majority of the spread were through lymphatic channels to the lymph nodes in 15.48% (13), ovaries 2.38% (2) and liver 1.2% (1) of cases. The distal colon was involved in 54.76% (46) and the proximal colon in 45.24% (38).

### 4. Discussion

This study was conducted to highlight the clinicopathologic characteristics of CRC in South-east, Nigerian Igbos. The average age was 52.5±14.9 years with a range of 26 to 91 years. This agreed with reports from Ilorin, Sagamu and Uyo.[7-11] However, several reports demonstrated that colorectal carcinoma can occur at lower age including adolescents and children.[4,12-16] We observed that the male to female ratio was 1.6:1 and the youngest patient was a 26 year old female. This agreed with previous studies.[4,7,12,13,17] Moreover, higher gender disparity in favor of males were reported in Ile-Ife, Benin City, Maiduguri, Kano and Port Harcourt where the male to female ratios ranged from 2:1 to 3:1.[10,12,18-20] Nonetheless, several reports demonstrated that in certain places there are either no gender disparity or a slight female preponderance. For instance, in a multicentre study in Nigeria involving three tertiary healthcare centres there was no gender predilection.[21] Similar reports were made from Ghana, Thailand and Philippines.[22-24] Furthermore, Gado and Wentink *et al*[11,25] reported that there were predilection for the females in South Africa and Egypt respectively.

In this study, the peak age of incidence was in the 41-50 (25%) followed closely by 51-60 (22.16%), 61-70 (19.05%) and 31-40 (17.86%) years age groups. Similar observations were made in Ilorin, Jos, Port Harcourt, Ile-ife and India.[7,17,19,20,26] The peak age of incidence for CRC varies from place to place even within the same country or geographical zones. Though some parts of Nigeria recorded similar reports like ours, the peak age of incidence in Ile-Ife, Lagos and Uyo was 5<sup>th</sup>, 6<sup>th</sup> and 8<sup>th</sup> decades respectively respectively.[9,20,27] Naaeder *et al*[22] reported that the peak age of incidence in Ghana was in the 7<sup>th</sup> and 8<sup>th</sup> decades. Similar reports were made in South Africa, India, Egypt and Yemen. [11,25,28,29]

CRC has markedly diverse clinical characteristics with varied relative frequencies between studies. The commonest symptoms and signs in our study included; abdominal mass 28 (24.13%), abdominal pain 25 (21.55%), changes in bowel habit 20 (17.24%), rectal bleeding 18 (15.52%), intestinal obstruction 12 (10.34%), abdominal distension 7 (6.03%), weight loss 5 (4.31%) and anaemia 2 (1.7%). These findings agreed with observations made in Jos, PH and Ilorin.[30-32] However, intestinal obstruction and rectal bleeding were the commonest presentations in a multicentre study conducted in tertiary hospitals in Maiduguri, Gombe and Yola.[20]

Similar reports were made by Eze and Al-Humadi *et al*[12,32] in Benin City, Nigeria and Iraq respectively. The mean duration of symptoms in our study was 10.5 months with a range of 1 to 60 months. Similarly, Yawe

and Bari et al[10,20] reported average duration of symptoms to be 14.5 and 16 months in Maiduguri with a range of 6 to 48 months for the latter. Rhaman et al[31] reported that the duration of symptoms in Ilorin was between 1 and 36 months.

Colorectal tumours are distributed along the entire length of the large bowel. This study showed that the commonest site of the tumour was the rectum 33 (39.29%) followed by the caecum 26(30.95%). These observations were in concordance with reports from Ilorin, Jos, Lagos, PH, Tanzania, Yemen, Iran and Philipines. [1,7,8,13,24,29,30,32] In addition, Abdulkareem et al[4] reported a similar finding in a multicentre study in Nigeria. Though most studies appeared to have the rectum and caecum in a tandem lead, sigmoid colon was reported to be the second most common site in South Africa, Iran and Iraq while descending colon and ascending colon occupy this position in Ile-Ife and India respectively.[20,25,26,34,35] The transverse colon was least affected. This agreed with other previous studies.[19,20] It was also noted that the left-sided tumours in our study constituted 59.52%. This observation was in agreement with reports from Ibadan, Uyo, South Africa, Egypt, Iran and Philipines.[1,9,11,24,25,35] However in Ibadan and Ghana the right colon had the larger burden of the tumour.[2,22,34]

Majority of the tumours had exophytic growth pattern with six (7.14%) being the cauliflower type, 2 (2.38%) was infiltrative with thickening of the wall and mucosa ulceration and 1 (1.2%) having the napkin ring pattern. Similarly, Ibrahim and Abudu et al[7,9] reported that 82.2% of the tumour had exophytic growth and that 60% were of the napkin ring pattern.

The tumours in our series showed that 28 (33.33%), 19 (22.62%) and 9 (10.71%) were well, moderately and poorly differentiated adenocarcinoma respectively. Thus adenocarcinoma constituted 66.67%. These observations are similar to those in Ilorin, Lagos, Uyo and Maiduguri.[7-10] Other histological variants were mucinous, signet ring and a single case of carcinoid and Alveolar rhabdomyosarcoma which constituted 22 (26.9%), 4(4.76%) and 1 (1.2%) respectively. The mean age for mucinous carcinoma was 51.05 years with age range of 30 to 86 years and a peak at 31-40 age groups. These observations did not show any marked difference with the mean age of the patients diagnosed with the conventional colorectal adenocarcinomas in this study. However, the peak age of incidence was lower by a decade than those of the adenocarcinoma. These observations agreed with other studies.[2,7,10,23,29] Moreover, mucinous carcinoma of the colon is rare in Uyo and Yemen.[9,29] Signet ring tumours were very few in this study. Similar observations

were made in Uyo, Ile-Ife, Lagos and Philipines where it constituted 4.4%, 3.7%, 1.2% and 1% respectively.[8,9,20,24] Furthermore, several reports demonstrated that there is very low incidence of carcinoid tumour of the colon in our environment and elsewhere.[8,17,18,20] In this study a single (1.2%) case of carcinoid tumour was observed. Moreover, Abudu and Al-Samawi et al[29,36] reported that 4.5% and 6.86% of colorectal tumours were carcinoid tumour in Uyo and Yemen respectively.

Metastatic carcinoma of the colon occurred in 16 (19.05%) patients. This involved the lymph nodes in 13 cases (15.48%), ovaries in 2 cases (2.38%) and the liver in 1 (1.2%) of cases. Similar findings were reported from Benin City, Jos, Ile-Ife and Thailand.[12,17,20,23] Okonu and Nozoe et al[37,38] reported that mucinous carcinoma of the colorectum have higher tendency for local infiltration, lymph node and peritoneal spread. However there is no difference between mucinous and non-mucinous tumors in hepatic metastasis.

**Table1: Showing the distribution of colorectal carcinoma among the age groups.**

S/N	Age groups	Frequency	%
1.	21-30	3	3.57
2.	31-40	15	17.86
3.	41-50	21	25.00
4.	51-60	19	22.62
5.	61-70	16	19.05
6.	71-80	7	8.33
7.	>80	3	3.57
<b>Total</b>		<b>84</b>	<b>100.</b>

**Table 2: Showing the distribution of colorectal tumors along the large bowel.**

S/N	Segment	Frequency	%
1.	Rectum	33	39.29
2.	Caecum	26	30.95
3.	Sigmoid	10	11.90
4.	Ascending	7	8.33
5.	Descending	5	5.95
6.	Transverse	3	3.57
<b>Total</b>		<b>84</b>	<b>100.</b>

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