

*East African Medical Journal Vol. 90 No. 8 August 2013*

ANATOMICAL SITES OF COLORECTAL CANCER IN A SEMI-URBAN NIGERIAN HOSPITAL: IS THERE A TRUE RIGHTWARD SHIFT

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**ANATOMICAL SITES OF COLORECTAL CANCER IN A SEMI-URBAN NIGERIAN HOSPITAL: IS THERE A TRUE RIGHTWARD SHIFT**

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**ABSTRACT**

**Background:** Recent report on colorectal tumours in Nigeria and Africa sub-region from big urban cities have shown that the incidence of colorectal cancer is rising and with a proportionate right-ward shift.

**Objective:** To assess the sub-site distribution and surgical treatment patterns of colorectal cancer in a semi-urban tertiary Nigerian hospital.

**Design:** A retrospective descriptive study.

**Setting:** Tertiary health institution in a semi-urban (rural) community.

**Subjects:** All consecutive in-patients, admitted and managed for acute intestinal obstruction due to colorectal cancer.

**Main outcome:** The right colon was the site of predilection (60.6%) while the left colon was only (6.06%). Young adults were mostly affected.

**Result:** A total of thirty three (33) cases of colorectal cancer (CRC) were seen during the study period. There were 20(60.6%) males and 13(39.4%) females. The male:female ratio was 1.5:1. The age range was between 22 – 87 years (mean 57.09years). The peak age of occurrence was the 6th decade. All patients' were symptomatic at presentation. The caecum (36.36%) was the predominant site affected; followed by the rectum (24.24%) and the hepatic flexure (21.21%). Of the colonic tumours, 60.6% were on the right colon while only 6.06% were on the left colon. Tumours of the descending and sigmoid colon were conspicuously absent. Fifteen patients (45.5%) had curative resection and 33.3% had palliative surgery. Twenty one point two percent mortality was recorded, while 21.2% refused surgery and opted for alternative care.

**Conclusion:** Colorectal cancers are seen among rural dwellers in Nigeria. Presentations are often late. The right colon is the dominant site affected; this calls for a change in strategy for formulating a preventive policy for the country.

**INTRODUCTION**

Colorectal cancer (CRC) is a disease for which screening and preventive measures have proven effective (1, 3). In the United States of America and Western world, improvement in the pre-operative diagnosis of this condition, has led to increased detection and improved operability rates (1, 3).

Also, improvements in surgical techniques and newer adjuvant drugs have led to significant contribution in reducing morbidity and mortality rates from the disease (1). As early as 1983, studies from two teaching hospitals, the University of South Carolina USA, had shown not only a fall in the incidence and mortality from CRC, but also an

increase in the incidence of proximally located colonic adenocarcinoma (3).

Conversely, recent reports from sub-Saharan Africa and developing would indicate that the incidence of CRC in hitherto low areas of incidence is increasing and with a significant shift to the right colon (5,6,17). We report our experience in the management of large bowel cancer in a tertiary health facility in a semi-urban Nigerian hospital.

**MATERIALS AND METHODS**

This is a retrospective study of all patients admitted and managed for colorectal cancer between January 2006 and December 2012, at the Federal Medical

Centre, Ido –Ekiti South West Nigeria. The records of patients were retrieved and demographic data relating to age, sex, symptom duration, clinical and operative findings, management outcome and follow-up were evaluated.

The diagnostic protocol included, clinical findings, abdominal ultrasound, proctosigmoidoscopy (where indicated) and specimen histology. Plain abdominal, chest, appropriate skeletal X-rays were done to confirm distant organ and bone metastasis.

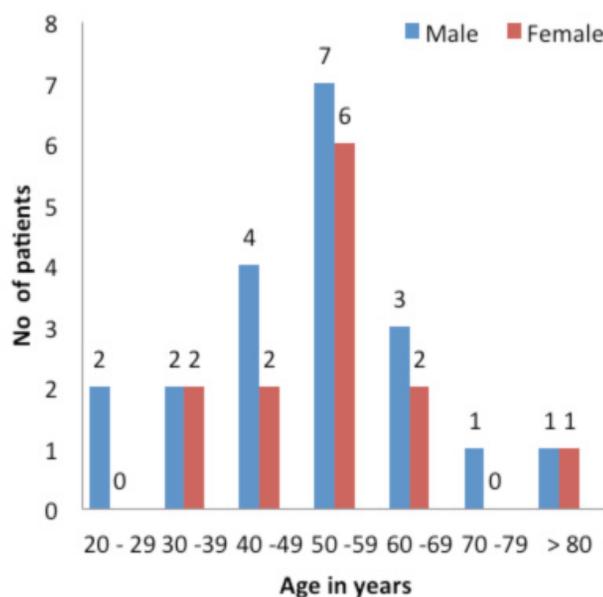
A staging was given using Dukes' classification. Colonoscopy and barium enema are not routinely used in evaluating patients during this period of study. However, all patients whose tumour were clinically assessed to be more proximally placed than the rectum, as well as those whose abdominal ultrasound report were indefinite, were further evaluated with a computed tomography (CT) scan. The site of the primary tumour in the colon or rectum and the presence of metastasis were also evaluated by the above methods. The patients' had different surgical operations, and cyclical chemo/immune therapy. The hospital had no facilities for radiotherapy during the period under consideration. All patients' were followed up. The clinical location of the primary

tumour in the colon or rectum, investigative, surgical treatment, intra-operative findings, staging of the disease (Dukes') and histological results were all evaluated. The results were analysed using simple arithmetic means and group percentages.

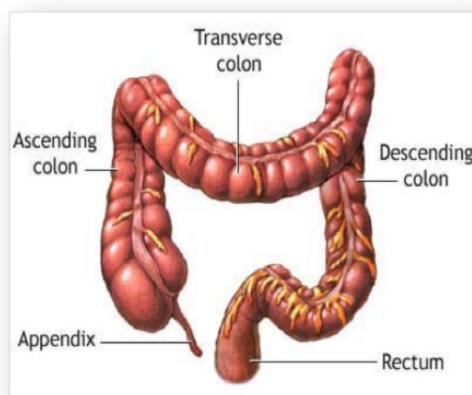
## RESULTS

A total of thirty (33) patients' with Colorectal Cancer were seen during this period of study. The average annual incidence was 5.5 patients' per annum. Twenty (60.6%) of the patients were males and thirteen (39.4%) were females (M:F=1.5:1). Their age range was 22 – 87 years (mean 57.09 years). Figure 1, shows the age and sex distribution, with the modal age being the 6<sup>th</sup> decade. Twelve (36.36%) of the patients' were below 50 years, while six (18.2%) were below 40 years. Twenty (60.6%) of the patients presented as emergency with acute intestinal obstruction and abdominal distension; the rest presented as elective cases. Notable clinical features included, abdominal pains, weight loss, abdominal mass, altered bowel habit and haematochezia. The duration of symptoms ranged from six weeks to 24 months.

**Figure 1**  
*Colorectal carcinoma at FMC Ido-Ekiti, 2007-2012, age and sex distribution*



**Figure 2**  
Colorectal carcinoma at FMC Ido-Ekiti, 2007-2012, site distribution



The distribution of the tumours (Figure 2) showed the predominant site was the Caecum, 36.4%, followed by the rectum, 24.4%, and the hepatic flexure 21.4%. Of the colonic tumours 60.6% were on the right colon, while only 6.06% were on the left colon. The descending and sigmoid colons were not affected. Fifteen (45.4%) patients had curative resection, eleven (33.3%) had palliative surgical treatment (bypass surgery / colostomy). Seven (21.2%) of the operated patients died some weeks after surgery. The rest; 21.2%, refused surgery, opted for alternative care and were subsequently discharged. None of the patients operated were found to be in Duke's stage A. A few were in Duke's B, and most were in C and D stages.

Adenocarcinoma was the most common histological variant and rhabdomyosarcoma was recorded in one patient with disseminated intra-peritoneal tumours with an eye proptosis. All the operated cases had bolus intravenous injection of five-fluorouracil, administered over five days every four weeks with oral levamisole daily for three days; cyclically for six cycles, until lost to follow-up or death.

## DISCUSSION

The medical literature is replete with accounts of colorectal cancer (CRC) from both the developed and developing countries. Though, it is more common in the Western World and the United State of America, where it is the leading cause of death after lung cancer (1,8,9). It's incidence which hitherto was low in the African continent is reported to be increasing from about ten to twenty cases in major urban centre tertiary institutions, to about 50 cases annually (4). The relative infrequency of CRC in Africa has been attributed variously to the young age of the population, short transit time of faeces, fibre diet and the rarity of pre-cancerous lesions (4,7).

Our study demonstrated a low annual hospital

incidence of 5.5 cases per annum. This compared with studies from other centres in Nigeria (2, 5, 7, 10). This is however in sharp contrast with over 55 cases per annum, seen in a single institution, University of South Carolina USA<sup>3</sup> and 76 per annum in United Kingdom (11). This also agrees with earlier observations that large bowel cancer have a lower incidence in the continent of Africa (12, 13). In this study, the age range is 22-87 years (mean age 57 years) and the 6<sup>th</sup> decade was the peak modal age of incidence. This compares with other workers who reported a modal age rise in the incidence of CRC and a peak incidence of 6<sup>th</sup> decade (5, 6, 14). This may suggest that there is an increasing occurrence in older patients with colorectal cancer in our centre. This may be partly explained by the steady increase in life expectancy in Nigerians, even amongst rural dwellers as seen in the past five decades.

Colorectal cancer has been described in all aged groups. This study has identified 36.4% of patients below 50 years, 18.8% patients less than 40 years and the youngest was a 22 years old male patient. Patients aged 10-18 years have been reported from other tertiary health institution in Nigeria (10,15,16). Some series from Asia and Africa had observed rates of 20% and above amongst colorectals who are below 40 years (7). In contrast, Western countries with high incidence of CRC, 90% are older than 50 years; with only 5% of patients younger than 40 years (7). This study has clearly shown that even in the rural community, the bulk of the patients affected by CRC are below 50 years. Also, as the population ages, older people become equally affected – no age group is exempted. The implication of this is that the aetiopathogenesis of the tumour amongst Nigerians / sub-Sahara Africans may not yet be fully understood.

We may suggest that our diet which is largely unrefined could contain significant traces of carcinogenic agents. Couple with this, is the poor food hygiene and poor food storage which working synergistically

leads to early exposure to these agents; irrespective of the age group that partakes of the diet, with disastrous consequences. The caecum 36.4%, was the predominant site followed by the rectum 24.4% and the hepatic flexure 21.4%.

Of the colonic cancers, 60.6% was on the right colon, while only 6.06% was on the left colon. The descending and the sigmoid colons, were conspicuously absent. This right colonic neoplasm predominance agrees with earlier works of Iliyasus *et al* (6); who in 1996, wrote from the cancer registry in Ibadan South West Nigeria, showed that colonic cancers in their series were predominantly right sided. Duduyemi *et al* (17) writing from the same centre a decade and half later corroborated this earlier work. Some workers in the field, notably from the eastern part of Nigeria, have noticed a right colonic predominance in their series (5). The implication of this increasing incidence of proximally located colonic cancers, is that colonoscopy will be a better and preferred screening tool, compared to proctosigmoidoscopy in our environment.

The ideal treatment for colorectal cancer is curative resection (18, 19). Fifteen, 45.4%, of our patients' had curative resection. This is low in contrast to what obtains in the western world, but compares favourably with reports from other centres in the continent (20-22). Between 1928 and 1932, at St. Mark's Hospital, United Kingdom, the overall respectability rate for CRC was only 47%, in which 2% was palliative. Some two decades later between 1972 and 1957, the respectability rate had increased to 93% and 16% palliative (22, 23). The relative low resection rate in our series may be due primarily to late presentation, resulting from seeking alternative care. Health Education with easily acceptable and affordable healthcare could help ameliorate this situation.

The range of palliative surgical operation (bypass/colostomy) offered patients' in our centre agrees with what obtains in other centres in Nigeria (2, 10, 13). Eleven (33.3%) patients' had palliative surgery. Colostomy, either performed alone, or as part of other procedures was therefore imperative in those cases with fixed in operable lesions. Most patients' with fixed-recto sigmoid in operable lesions (21.2%) declined surgery and sought for alternative treatment, when the need for a permanent colostomy was explained to them. This finding is in keeping with other workers in the field that colostomy is generally not accepted by many patients' in Nigeria (2,5,23); even among rural dwellers, for socio-cultural reasons.

The 21.2% post-operative mortality from our study is at variance with published works of 0.5-4.2% from series on CRC from developed world where the overall five year survival also exceeds 50% (24,25). In these reports over 40% of their patients' presented

with localised lesions (Dukes' A & B). Studies have shown that when screen-detected premalignant and early lesions (Dukes A & B) are promptly resected, morbidity is minimal, survival is enhanced and in most cases cure is achieved (18, 19).

Remarkable successes had been reported with the use of intra-operative radiotherapy and external beam irradiation for treatment of locally advanced inoperable CRC and anal cancer (26). Most of our patients' came with advanced diseases – (Dukes C & D) and the availability of this facility in our centre could have been of great advantage.

## CONCLUSION

Large bowel and rectal cancer are common amongst urban and rural communities in Nigeria. Though the rectum was still significantly affected, this study has identified a major shift to the right colon in the distribution of the colonic cancers. As no national preventive policy is yet in place in Nigeria, more efforts should be directed to the institution of preventive measures, such as emphasis on dietary health education, digital rectal examination and colonoscopy. It is by this, that early lesions could be identified and curative treatment achieved.

Also, we suggest that further work needs to be done on regional basis, so that an all encompassing sub-Saharan Africa result can be obtained.

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