



# Radio-Diagnostic Evaluation of Carcinoma of the Colon in a 65-Year-Old Man- A Case Report and Review of the Literature

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**Abstract:** Colorectal adenocarcinoma is predominantly a disease of the old; rare in children and those under the age of 40 years and even less than 1% occurs below 20 years. <sup>[3-5]</sup>. The case of a 65-year-old retired civil servant who presented with features of chronic large bowel obstruction and barium enema appearance suggestive of carcinoma of the descending and sigmoid colon is presented to stress the important role of radiological techniques in the diagnosis of colorectal carcinomas. A review of the literature was also done.

**Keywords:** Colorectal carcinoma; large bowel obstruction; trans-abdominal ultrasound scan; barium enema.

## I. INTRODUCTION

Colorectal cancer is the second most common malignancy; accounting for approximately 155,000 newly diagnosed cases each year in the United States <sup>[1]</sup>. It is about the commonest gastrointestinal malignancy in Nigeria <sup>[1]</sup>. The commonest site of involvement is the rectum for both benign and malignant neoplasm accounting for (75% and 63% respectively), followed by the sigmoid colon (11% and 16% respectively) <sup>[2]</sup>. Colorectal adenocarcinoma is predominantly a disease of the old; rare in children and those under the age of 40 years and even less than 1% occurs below 20 years. <sup>[3-5]</sup>. Colorectal malignancies are less common in developing than developed nations because of lower per capita income and higher dietary fibre consumption <sup>[6]</sup>.

A case of carcinoma of the sigmoid colon in an elderly man presenting as chronic large bowel obstruction is hereby presented because of its rare occurrence in a developing country like Nigeria.

## II. CASE REPORT

AA is a 65-year-old-retired civil servant. He first presented to the General Practice Clinic (GPC) of the University of Benin Teaching Hospital (UBTH) in January 2008. His complaints were, lower abdominal pain, difficulty in passing stool and episodes of diarrhoea mixed with mucus and blood of about 2 months' duration prior to presentation. He had also observed progressive fullness in the lower abdomen of about 2 weeks' duration. Other complaints include easy fatigability and weight loss. There was no history of similar illness in any member of the patient's nuclear or extended family. He had indulged in self-medication by using tablets of Bisacodyl 5mg as single dose whenever he was constipated. He sought medical attention at UBTH because his symptoms persisted.

Physical examination showed an ill looking cachectic elderly man. He weighed 54kg and was 1.70m tall with Body Mass Index (BMI) of (18.6 kg/m<sup>2</sup>). Clinically, he was pale but not jaundiced and without any respiratory distress. His pulse and blood pressure (BP) were 86 per minute and 130/85 mmHg respectively.

The heart sounds were normal with the apex beat located in the 5<sup>th</sup> left intercostal space along the mid clavicular line. His chest was clinically clear.

The abdomen was distended with a palpable tender mass in the left lower quadrant. The bowel sounds were excessive. The liver, spleen and kidneys were not enlarged on palpation. A digital rectal examination revealed an empty rectum with normal sphincter tone; however, the gloved finger was stained with blood and mucus. The clinical diagnosis of chronic distal large bowel obstruction, to further evaluate for colorectal tumour. Thus, an abdominal ultrasound scan and plain abdominal radiographs erect and supine views were requested.

The trans-abdominal ultrasound scan showed multiple bowel loops dilated with mixed fluid and solid echoes. There was no ascites. The liver, spleen and both kidneys were normal in position, outline and parenchyma pattern. The plain abdominal radiograph showed peripherally placed dilated large bowel loops with significant faecal residue (Fig. 1). There was no evidence of free intraperitoneal air. Based on the above findings a barium enema examination was done. It showed a short segment narrowed colorectal lumen in the region of the sigmoid colon with mucosal irregularity, shouldering, pre and post stenotic bowel dilatation giving the apple-core deformity, thus suggesting malignancy (Fig. 2). The results of ancillary investigations done were as follows: stool microscopy, culture and sensitivity showed many red blood cells, mucus and no bacterial growth after 48 hours of culture. The haemoglobin concentration (Hb) was 9.4gm/dl and erythrocyte sedimentation rate (ESR) was 7mm per hour (Westergreen method) (Normal value: is less than 20mm) and Mantoux test was 5mm (Test is positive if induration is more than 10mm in diameter)<sup>[7,8]</sup>. He was human immunodeficiency virus (HIV) negative.

The patient was then booked for abdominal computed tomography (CT) examination to evaluate the extent of the sigmoid colon tumour and to document TNM stage of the lesion. However, the patient was lost to follow-up.

### III. DISCUSSION

Colorectal cancers are the most common gastrointestinal (GI) cancer and the second most common cause of death in the developed countries<sup>[7]</sup> and about the most common GI malignancy in Nigeria<sup>[1]</sup>. The commonest site of involvement is the rectum for both benign and malignant neoplasms accounting for (75% and 63% respectively), followed by the sigmoid colon (11% and 16% respectively)<sup>[2]</sup>. The prevalence rate per 100,000 for all ages is 53.5 per 100,000 for men and 36.7 per 100,000 for women. The incidence increases with age, the average age at diagnosis being 60 – 65 years<sup>[8]</sup>. However, a rare case of a 9-year-old boy with colorectal carcinoma has been reported in Ogun state Nigeria by Musa *et al*<sup>[3]</sup>. The highest incidence rates of occurrence are in the developed western countries while the lowest are in the developing countries<sup>[8]</sup>. Studies have suggested that the low fibre diet of the western countries is responsible for the wide variation in incidence between developed and developing nations<sup>[8,9]</sup>.

Several factors have been identified by different authors<sup>[7-9]</sup> which is believed to increase the risk of developing colorectal cancer. These include: high fat; low fibre diet; age greater than 50 years; personal history of colorectal adenoma (3-fold greater risk); and first-degree relative with colorectal cancer (3-fold greater risk). Other risk factors are: Juvenile polyposis syndrome, familial polyposis coli and inflammatory bowel disease. This patient is a 65-year-old-retired civil servant who had lived all his life in Nigeria and claimed he had not adopted western countries' life style. His age was the only risk factor. The issue of whether cases of colorectal carcinoma are probably under-reported in developing countries might be due to limited-availability of radio-diagnostic facilities.

Some outstanding symptoms frequently prevail in all types of colorectal carcinoma like chronic obstruction and blood streaks in the stool; however, other diseases of the large bowel like tuberculosis, schistosomiasis, amoebiasis and lymphogranuloma venerum may mimic colorectal carcinoma. Thus, radio diagnostic evaluation of the patient and CT guided tissue biopsy are necessary to make a definitive diagnosis<sup>[10]</sup>. Macroscopically, there are four pathological types of colorectal carcinoma. These are the annular, tubular, ulcer and cauliflower varieties. The annular type appears as narrowing of the bowel lumen on barium enema

examination and gives rise to early obstructive symptom<sup>[10]</sup>. The patient presented appears to be in this category, though a conclusive histo-pathological diagnosis could have been made from a guided tissue biopsy if patient was not lost to follow-up. Other associated symptoms include colicky intestinal pain, alteration in bowel habit, palpable lump, and lower abdominal distension. Bladder symptoms may be due to colo-vesical fistula<sup>[10]</sup>. Occasionally, a papilliferous colonic carcinoma growth may result in an intussusception<sup>[10]</sup>.

A suspected case of carcinoma of the colon can be evaluated by using various imaging modalities. Endoscopic sigmoidoscopy or colonoscopy allows good intraluminal visualization of the bowel and can be used for guided biopsy; however, this is an invasive procedure with the risk of perforation of the bowel and haemorrhage<sup>[5]</sup>. Barium enema (BE), is equally a good examination of the large bowel in conjunction with endoscopic colonoscopy. It is able to evaluate the mucosal pattern, bowel movement and make an inferred diagnosis of intramural or extra luminal tumours. However, the possible complications from the procedure may include bowel perforation (from increased intra-luminal pressure), transient bacteraemia and barium impaction<sup>[6,7]</sup>. Our patient did not manifest any of these.

Computed Tomography (CT) scanning of the abdomen and pelvis is used in tumour staging and may show the extension of the tumour to the pericolic fat and possible metastases to adjacent structures. The use of CT has evolved to CT colonoscopy with the added advantage of being less invasive thus, making the procedure a single examination of choice in evaluation of carcinoma of the colon<sup>[7,11]</sup>. CT is however expensive and this may explain why this patient failed to show up for the examination though he belongs to the middle socio-economic class in Nigeria. Furthermore, CT colonography, also referred to as virtual colonoscopy is an evolving, non-invasive computed tomography technique<sup>[12,13]</sup>. With the introduction of multi-detector row computed tomography (MD-CT), CT colonography is able to achieve early detection of colonic pathologies by acquiring volumetric data of the abdomen<sup>[7,14-17]</sup>.

Magnetic resonance imaging (MRI) is comparable to CT in the evaluation of metastases and extension of tumour to the pericolic fat, which is better demonstrated when the fat suppression sequence is used. It also has better soft differentiation and multi-planar capability, but is limited in function by bowel movement and air<sup>[7,11]</sup>. Trans-rectal ultrasound is also able to evaluate rectal tumour spread within the wall of the bowel but transmission of ultrasound wave is limited by air and bone. Intra-abdominal metastases to the liver and ascites can be demonstrated by transabdominal ultrasound, CT and MRI. Radionuclide study, can be used to demonstrated early distant metastases<sup>[7,11]</sup>.

An effective use of radio-diagnostic modalities in the proper evaluation of colonic lesions as in this case of carcinoma of the sigmoid colon provides the surgeon with a useful guide for an effective surgical management of the lesion. These include; radical resection, radiotherapy and chemotherapy. In cases of advanced carcinoma with distant metastasis, chemotherapy and radiotherapy are used as palliative means of management of the patient. Other methods of treatment include the use of Interventional radiology techniques in the placement of expandable stents across obstructing carcinoma of the colon as temporary measure to reduce the need for emergency colectomy with external colostomy and colostomy-faecal bag attached<sup>[17,18]</sup>.

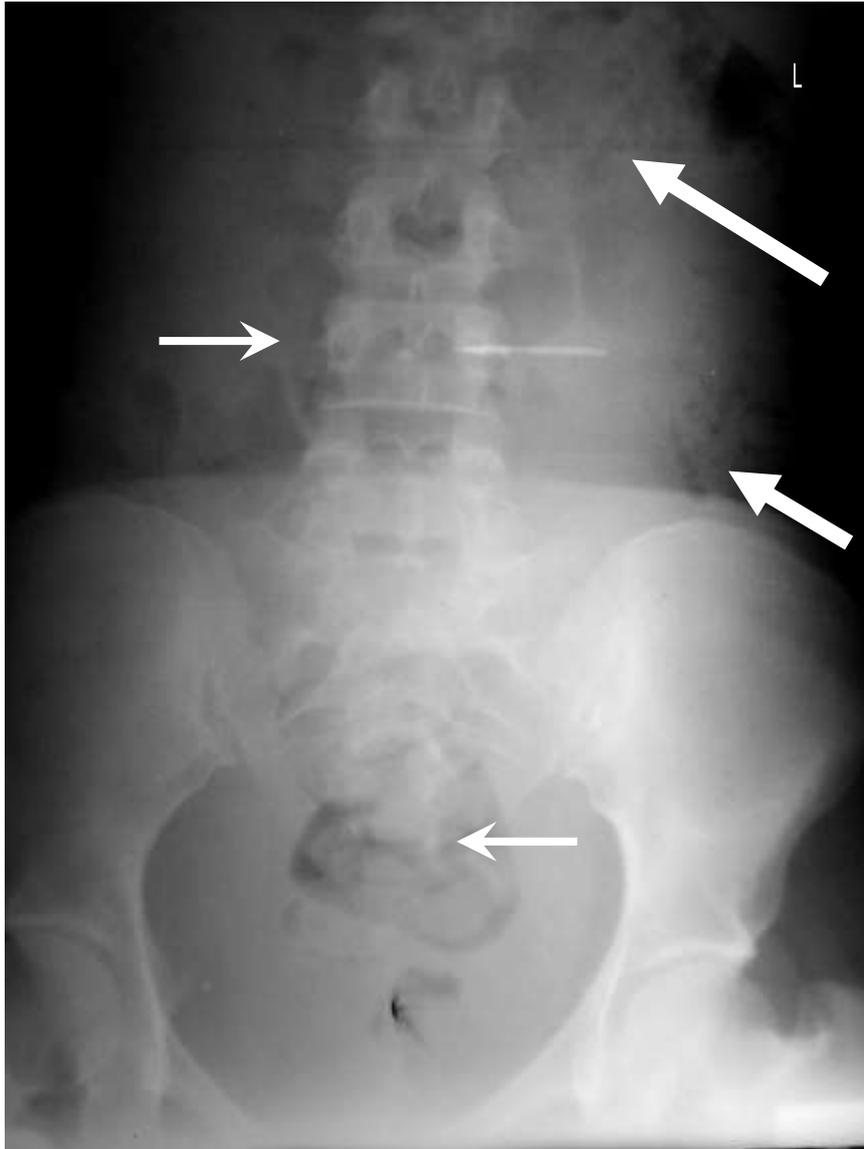
#### IV. SUMMARY

The case of a 65-year-old man who presented with features of chronic large bowel obstruction and in whom barium enema examination demonstrated an appearance suggestive of carcinoma of the descending and sigmoid colon has been presented. A review of the literature on the important role of radio-diagnosis of colorectal carcinoma was highlighted.

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**Fig. 1:** Plain abdominal radiograph showing mottled faecal loading (white arrows) in the large bowel



**Fig. 2:** Antero-Posterior abdominal view of barium enema study showing short segment narrowing of the lumen (white arrow) in the region of the descending colon, shouldering, pre and post stenotic dilatation giving the apple core deformity appearance.



**Fig. 3:** Left lateral pelvis of the same patient in Fig. 2 showing short segment narrowing of the colonic lumen (arrow), shouldering in the region of the sigmoid colon, pre and post stenotic dilatation giving the apple core deformity appearance.