

Cancer of the alimentary tract in a West Indian population: a Trinidad study

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630 cases of primary malignant tumours of the alimentary tract in a West Indian population in Trinidad were analysed for frequency, age, sex and clinicopathological presentations. In a population predominantly Negro and Indian in origin, alimentary tract cancers comprised 13% of the total malignancies. The alimentary tract tumours were commonest in the sixth and seventh decades; there was a slight male preponderance. Stomach and colon were the common sites of malignancy. The clinical and pathological features were not different from other reported series.

Cancer of the alimentary tract (CAT) is the commonest cause of death from malignancy in Trinidad and Tobago¹, yet there has been no report on gut cancer from this country. Trinidad and Tobago is the most cosmopolitan of the West Indian group of islands, with a population of 1.2 million, comprising blacks of African descent (41%), East Indians (40%), people of mixed race (16%), whites (1%), Chinese (1%) and others (1%). It lies wholly within the Tropics covering an area of 1980 square miles. There are two major hospitals with histopathological services: Port-of-Spain General Hospital situated in North Trinidad covers approximately 60% of the population and San Fernando General Hospital caters for the rest. This paper reports an analysis of cases of gastro-intestinal cancer diagnosed over a period of 10 years at Port-of-Spain General Hospital.

Materials and methods

The surgical pathology register of the Port-of-Spain General Hospital, Trinidad was reviewed over the years 1975–1984 and all cases diagnosed as cancer of the alimentary tract formed the basis of this study. The clinical, morbid anatomical and histological data were obtained from the biopsy request forms, case notes and histology reports. All cases included in this study were histologically confirmed.

Cancers of the liver (10 cases), gall bladder (8 cases) and the pancreas (6 cases) were excluded as the number of these available was too small for useful analysis.

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Results

In Trinidad, as in most developing countries, there is at present no reliable statistical information on absolute cancer rates. The inherent shortcomings of biopsy material in general are well known and do not represent the true incidence of the disease; and in this study one can only refer to relative frequency rates of CAT and not to absolute incidence rates.

General frequency

During the study period, 61,770 surgical specimens were examined at Port-of-Spain General Hospital, Trinidad, of which 4,856 (7.8%) were diagnosed as malignant from different organ systems. The alimentary tract cancers accounted for 13% (630 cases) of all malignancies diagnosed.

Age distribution

As expected, the tumours were more frequent in the older age groups (Table 1).

Sex ratio

There was a slight male preponderance (Table 2).

Histological type

Adenocarcinomas constituted the majority (Table 3).

Site

Oesophagus

There were 48 cases, a frequency of 7.6% of CAT and 1% of all malignancies. 37 were males and 11 females. The maximum incidence was in the sixth and seventh decades.

These patients presented with dysphagia, cachexia and dehydration. The tumours were ulcerative in type with varying degrees of infiltration. Histologically, 46 were squamous cell carcinomas, and 2 were adenocarcinomas involving the lower end of the oesophagus separate from the cardiac end of the stomach.

Stomach

There were 203 cases, *ie* 32.2% of CAT and 4.1% of all malignancies. 124 were males and 79 females. Most of the patients were in their fifth and sixth decades of life.

The clinical features included weight loss, anorexia, vomiting, epigastric pain and a palpable mass. Most of the tumours were in the pyloric antrum (65%) and

TABLE 1
Age distribution of CAT in Trinidad

Age group (years)	Oesophagus	Stomach	Small intestine	Colon	Rectum	Anal canal	Total	%
20-24	-	1	-	1	1	-	3	0.47
25-29	-	5	-	5	1	-	11	1.74
30-34	-	3	-	4	3	-	10	1.58
35-39	-	3	1	1	4	-	9	1.42
40-44	1	12	2	8	1	1	25	3.96
45-49	2	8	0	15	9	1	35	5.04
50-54	4	24	2	16	9	3	58	9.04
55-59	6	22	2	24	9	4	67	10.31
60-64	16	59	4	49	31	8	167	26.19
65-69	8	30	4	26	21	6	95	14.76
70-74	8	19	0	39	21	3	90	14.28
75+	3	17	2	14	20	4	60	11.11
Total	48	203	17	202	130	30	630	100.00

TABLE 2
Sex ratio of CAT in Trinidad

Site	Cases	Male	Female	Ratio
Oesophagus	48	37	11	3.3/1
Stomach	203	124	79	1.5/1
Intestine	17	7	10	0.7/1
Colon	202	112	90	1.2/1
Rectum	130	62	58	1.1/1
Anal canal	30	18	12	1.5/1
Total	630	370	260	1.4/1

polypoidal growth was the commonest type (56%). Histologically 194 cases were adenocarcinomas of varying degree of differentiation, and 2 were squamous cell carcinomas primarily arising in the stomach. There were 4 malignant lymphomas; 2 Hodgkin's and 2 non-Hodgkin's lymphocytic type. Leiomyosarcoma was seen in 2 cases and carcinoid tumour in one.

Small intestine

There were 17 cases, *ie* 2.7% of CAT and 0.3% of all

cancers. The male : female ratio was 0.7 : 1 and most of the cases were in the sixth decade.

These patients presented with intestinal obstruction or an abdominal mass or both. 12 were adenocarcinomas (4 arising in the peri-ampullary region or duodenum). There were 3 carcinoid tumours, one non-Hodgkin's lymphocytic lymphoma and one malignant fibrous histiocytoma.

Colon

There were 202 cases, *ie* 32% of CAT and 4.1% of all cancers. The male : female ratio was 1.2 : 1 and the majority occurred in the sixth and seventh decades.

Clinically, these patients presented with varying degrees of obstruction and the cancers were distributed throughout the colon, with equal frequency in the right (49%) and left colon (51%). Grossly, the appearance of tumours followed the usual presentation of polypoidal and ulcerative types. Histologically, all were adenocarcinomas of varying degree of differentiation and mucin production.

Rectum

There were 130 cases accounting for 20% of CAT and 2.6% of all malignancies. There were 62 males and 58

TABLE 3
Histological type of CAT in Trinidad

Histology	Oesophagus	Stomach	Intestine	Colon	Rectum	Anal canal	Total	%
Adenocarcinoma	2	194	12	202	129	6	545	86.5
Squamous cell carcinoma	46	2	-	-	-	24	72	11.4
Lymphoma	-	4	1	-	-	-	5	0.8
Sarcoma	-	2	1	-	-	-	3	0.5
Carcinoid tumour	-	1	3	-	-	-	5	0.8

females. The commonest presenting features were rectal bleeding and increasing constipation. The majority were ulcerative in type. Histologically, 129 were adenocarcinomas and one was a carcinoid tumour.

Anal canal

30 carcinomas were diagnosed from anal canal, a frequency of 4.7% of CAT and 0.6% of all cancers. 18 were males and 12 females. Histologically, 24 were squamous cell carcinomas of varying degree of differentiation and 6 were adenocarcinomas.

Discussion

Cancer of the alimentary tract is common in our population being exceeded only by cancer of the cervix and breast. Though this may in part be a reflection of the accessibility for biopsy, under-representation of a deep-seated neoplasm is unlikely to be the entire explanation. The frequency of CAT in African countries is lower than in European countries and the USA². In African countries where both African and European communities are found, the frequency of CAT is much lower in the former than in the latter. It is also higher in American Negroes than in Africans³. These differences suggest an aetiology which is environmental, (perhaps dietary) rather than racial or genetic.

Gastric and colonic cancers accounted for nearly two-thirds of CAT, the next most common site being the ano-rectal area. Small intestinal cancer was the least common site in our survey, a finding which correlates well with other reports. The overall sex ratio, age distribution, clinical features and histological type of tumours seen in our study accord in general with the world literature.

The frequency of oesophageal cancer is considerably greater in non-whites than whites; in South Africa, it is

extremely common among Bantu⁴ and the frequency is very high in Indians of India^{5,6}. However, in West Africa, it is rare⁷. In Trinidad, with a population of both African and Indian descent, cancer of the oesophagus is uncommon. The frequency of gastric cancer is fairly high in India and Africa^{2,5}. In our population histologically confirmed gastric cancer is very low because of the low resectability rate and the fact that few specimens are referred to the laboratory. This we believe is due to the low resectability rate. There is no doubt, however, that we see the disease when it is very far advanced.

There are remarkable differences in the occurrence of colon and rectal cancers throughout the world^{8,9}. Regardless of race or national origin, cancer of the colon tends to occur often in upper socio-economic groups, although this relationship is less apparent for rectal cancers¹⁰. Differences in prevalence of colon cancer appear to be related to environmental rather than genetic factors⁸.

Various pre-existing conditions in the bowel, such as adenomas and inflammatory bowel disease have been suspected of leading to or actually becoming malignant¹¹. Although we do not have statistical evidence about the prevalence of adenoma of the colon, inflammatory bowel disease is not rare in our population¹². Diverticular disease as a possible precursor of colon cancer has been suggested, indicating a common cause, a low dietary fibre⁷. This condition is prevalent in our population as our recent survey of barium enemas has shown 25% of diverticular disease¹³.

This country, with its different ethnic groups and cultures, offers an excellent opportunity for epidemiological study of cancer of the alimentary tract and we hope this retrospective study might help future investigators to embark on more useful prospective research on CAT in Trinidad and Tobago to identify possible aetiological factors.

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