Gastric carcinoma in Durban's Indian population

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Summary

Histologically proven gastric carcinoma was studied to establish the incidence and pattern of the disease in the Indian population of Durban. The incidence in this population was found to be low, 6.9/100 000/year. Over a 7-year period (1980 - 1986) 115 patients were treated for gastric carcinoma at R. K. Khan Hospital. There was a male preponderance, and the average age at presentation was 56 years. The commonest presenting symptoms were dyspepsia and vomiting, and the majority of patients presented with advanced disease. Only a third underwent resection, a third had no treatment, and a third underwent palliative bypass or laparotomy only. The majority of patients who had a palliative bypass or no treatment died within 9 months. The 5-year survival rate for patients undergoing curative resection was 38% and for palliative resection 9%. To improve survival, emphasis must be on early diagnosis and it is recommended that any patient with dyspepsia who is over the age of 30 years should have an endoscopic investigation.

Gastric carcinoma in South Africa has a definite pattern of distribution. It is most frequent in the coloured population of the western Cape, with an annual incidence among males of 49.9/100 000. The group has the fourth highest incidence of carcinoma of the stomach in the world. Gastric carcinoma is uncommon in blacks, whereas the incidence among whites is 22.1/100 000 for men and 10.6/100 000 for women. The reported incidence among Indians is 20.9/100 000 for men and 10.9/100 000 for women, these figures being derived from death certificate notifications. This, however, may be an overestimate since not all these notifications represent histologically proven cases. Furthermore, the incidence of carcinoma of the stomach in all population groups is said to be lower in Natal than elsewhere in the RSA. The incidence in India for a population resident in Bombay is 20/100 000 per year. Ti has shown a low incidence of gastric carcinoma in Singaporeans of Indian origin, as have Raju et al. in West Indians of Indian origin. Carcinoma of the stomach has not so far been studied in the Indian population of South Africa.

The purpose of this study was to establish the incidence and review the pattern of gastric carcinoma in the Durban Indian population.

Patients and methods

To establish the incidence of gastric carcinoma, information relating to all histologically proven cases in the greater Durban area was obtained from all local hospitals and pathologists for the period 1984 - 1986.

Results

During the 3-year period 1984 - 1986, there were 101 histologically proven cases of gastric carcinoma in the greater Durban Indian population of 490 800. This gives an annual incidence of 6.9/100 000.

Over the 7-year period 1980 - 1986, 115 patients at R. K. Khan Hospital had a histologically proven diagnosis of gastric carcinoma. Sixty-four per cent of the patients were males, with a male/female ratio of 1.7:1. The highest incidence was in the 6th and 7th decades of life, with the average age at presentation being 56.3 years (range 27 - 88 years).

The majority of patients presented with a combination of symptoms (Fig. 1), the commonest being dyspepsia (epigastric pain, fullness, discomfort or heartburn). Fifty per cent of patients also complained of vomiting or nausea, which usually denoted advanced disease. Four patients were asymptomatic and were found to be anaemic on routine examination. A small group of patients presented as surgical emergencies with peritonitis or bleeding. The duration of symptoms before presentation ranged from 3 to 12 months. In 64 cases (56%) the presentation was considered to be delayed and in half of these the delay in referral for treatment was due to the attending practitioner. Physical examination revealed signs commonly associated with a malignant gastric lesion (Fig. 2), although no abnormality was discovered in 30% of patients.

The commonest diagnostic investigation was gastroscopy, with complementary barium studies. Fifty-six patients (49%) were anaemic; of these 2 had macrocytic anaemia, while the rest were iron-deficient. Histological examination revealed adenocarcinoma in all 115 patients; in the majority of cases the tumour was either poorly differentiated or mucus-secreting (Table I).
Fig. 2. Signs at presentation of 115 patients with gastric carcinoma.

![Graph showing signs at presentation of 115 patients with gastric carcinoma.]

The site of involvement was the antral region in 61 patients (53%), the body in 26 patients (22.6%), and the cardia in 11 patients (9.6%); the whole stomach was involved in 8 patients (6.9%). In 9 patients the site of involvement was not documented. In 90% of cases the lesions were advanced, only 11 patients having a T1 - T3 lesion with no positive lymph nodes. Staging was based on the UICC TNM system.6

Management
Fifty-two per cent of patients underwent some form of therapeutic or palliative procedure. Of these patients, 15 had a ‘curative’ resection and 24 had a non-curative resection (Table II). Resection was considered to be ‘curative’ if the surgeon was confident that all macroscopic tumour had been removed. All patients who underwent resection were subjected to a course of radiation and chemotherapy.

![Graph showing life tables for patients with gastric carcinoma undergoing curative resection and palliative resection.]

The numbers of patients still alive and under observation at entry and annually thereafter were: curative resection 15, 10, 9, 9, 8, 5; and palliative resection 24, 9, 6, 2, 2, 2.

Discussion
Patients presenting at R. K. Khan Hospital with carcinoma of the stomach usually have advanced disease, and most die within 9 months, following a palliative procedure. The age, presenting symptoms and signs, and male predominance of Indian patients with cancer of the stomach are similar to findings among South Africans of other race groups and Indians resident in India.5-11 We have found the incidence of cancer of the stomach among Indians in Durban to be 6.9/100,000 per year, which is far lower than the reported incidence based on death certification.1,2 This is similar to the incidence of 7.5/100,000 in Madras and Bangalore11,12 and lower than that in Bombay, 20/100,000.2

The high proportion of patients with antral disease is in keeping with other studies. As in the coloured population of Cape Town, many patients had poorly differentiated adenocarcinoma, and the incidence of operative intervention for palliation or cure of 56%, the low rate of resectability and the associated poor 5-year survival rate are in keeping with experience elsewhere.8

There is usually a considerable delay before patients with dyspepsia seek medical attention. Furthermore, some patients with dyspepsia are treated with antacids for long periods without undergoing endoscopy. It is recommended that any patient who has dyspepsia and is over the age of 30 years should have an endoscopic investigation. A considerable amount of patient and doctor education is needed to facilitate early diagnosis so that resectable lesions can be dealt with promptly.

Outcome
The majority of patients who had no treatment or underwent a bypass procedure died within 9 months.

Table I. Histological Grading of Gastric Adenocarcinoma in 115 Patients

<table>
<thead>
<tr>
<th>Type</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well differentiated</td>
<td>20</td>
<td>17.4</td>
</tr>
<tr>
<td>Moderately differentiated</td>
<td>15</td>
<td>13.0</td>
</tr>
<tr>
<td>Poorly differentiated</td>
<td>27</td>
<td>23.5</td>
</tr>
<tr>
<td>Signet ring</td>
<td>7</td>
<td>6.1</td>
</tr>
<tr>
<td>Mucus-secreting</td>
<td>43</td>
<td>37.4</td>
</tr>
<tr>
<td>Not available</td>
<td>3</td>
<td>2.6</td>
</tr>
</tbody>
</table>

Table II. Management of Patients with Gastric Adenocarcinoma

<table>
<thead>
<tr>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resection, curative</td>
<td>15</td>
</tr>
<tr>
<td>Resection, non-curative</td>
<td>24</td>
</tr>
<tr>
<td>Bypass gastrojejunotomy</td>
<td>19</td>
</tr>
<tr>
<td>Celestin intubation</td>
<td>2</td>
</tr>
<tr>
<td>Laparotomy only</td>
<td>15</td>
</tr>
<tr>
<td>No operation</td>
<td>32</td>
</tr>
<tr>
<td>Refused treatment</td>
<td>8</td>
</tr>
</tbody>
</table>

Of the 39 patients who had a resection 4 died in the perioperative period, 1 from pulmonary embolism and 3 from septic complications secondary to the presenting disease. The 5-year survival rate based on life-table analysis (Fig. 3) was 38% for curative resections and 9% for non-curative resections, the difference being significant ($P < 0.025$) (log-rank test).7

References
The practical significance of lactose maldigestion in institutionalised black children

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Summary

A study was carried out to determine the practical significance of a high prevalence of lactose maldigestion in institutionalised children whose diet included 500 ml milk daily.

Thirty of 34 children at a child welfare home were found to be lactose maldigesters as judged by a 2-hour rise in breath hydrogen of 20 parts per million or more after an oral load of lactose.

Breath hydrogen tests were also performed on the same group of children, before and up to 150 minutes after the routine mid-morning cup of milk. Sixteen of the 30 lactose-maldigesting children did not show increased breath hydrogen up to 2.5 hours after milk. No children were clinically intolerant of either the lactose or the milk.

In these children the degree of lactose digestion was much improved in the non-fasting state when measured by the breath hydrogen response to milk lactose. Lactose mal-digestion per se is not a contraindication to institutional feeding routines, including regular moderate milk intake.


Intestinal lactase deficiency develops progressively during childhood in genetically predisposed individuals. It is very common among black children, who can be shown to have lactose maldigestion from 3 years of age.

In the vast majority of cases, this is not considered to be of clinical significance. In North American studies, it was shown that the inggestion of 240 ml milk daily was tolerated well by lactose malabsorbers. In addition, most children in communities with a high prevalence of lactose maldigestion do not drink significant quantities of non-human fresh milk. In Africa, fermented milk products with a low lactose content are usually preferred by the majority of the population. This may be due as much to difficulties in storage of fresh milk as to milk intolerance.

Institutional routines of child feeding in hospitals, school hostels and children's homes often include a fairly large intake of milk. In children with lactose maldigestion, this could potentially lead to bloating and jeopardise the nutritional state through its osmotic effect of increased intestinal motility and decreased carbohydrate absorption. On the other hand, practical experience indicates that milk can be used very successfully in most children.

A study was therefore performed on a group of institutionalised children with a previously documented high prevalence of lactose maldigestion, to determine any clinical consequences of a daily intake of approximately 500 ml milk and to compare the breath hydrogen response to a standard fasting lactose of 1 g/kg with that to a 200 ml cup of fresh dairy milk, given 2 hours after a normal breakfast.

Subjects and methods

The study was conducted at a children's home under the direction of the Durban African Child Welfare Society. For ethical reasons concerned with research on institutionalised children only totally non-invasive tests were considered, and appropriate ethics committee consent was obtained as well as permission from the agency controlling the institution.

The diet at this home is strictly controlled and includes approximately 500 ml of fresh milk daily, given with breakfast cereals and as a mid-morning and late afternoon drink of 200 ml. Children over the age of 2 years were studied when they were clinically well and had not suffered from diarrhoea or been on antibiotic treatment for the preceding 4 weeks. They were weighed barefoot in light indoor clothing on a superior-type bathroom scale. A portable measuring board was used to measure height to the nearest 0.5 cm. The values were compared with the National Center for Health Statistics (NCHS) tables and expressed as standard deviation scores (SDSs), calculated by the equation

\[ SDS = \frac{\text{actual measure} - \text{NCHS measure}}{\text{NCHS SD}} \]

In an attempt to obtain a measure of relative abdominal bloating, the ratio of chest circumference at the nipple line to abdominal circumference at the umbilicus was determined.