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Gastric Cancer in Young People

SUMMARY

Gastric carcinoma occurs in young people as well as old; incidence in various studies of patients from different age groups suggests that incidence varies more according to location than to age—incidence in young people can be up to 3% in some areas. Diaries of two women who were under age 35 at the time of diagnosis of gastric cancer are presented. Because the disease is relatively rare in the young and the symptoms are very similar to benign ulcers, the diagnosis is often made late. Radiological investigation, signs, symptoms and family history must be carefully scrutinized; if medical ulcer therapy has no effect, every attempt must be made to reach a further diagnosis as soon as possible. (Can Fam Physician 1985; 31:1335-1338)

SOMMAIRE

L'adénocarcinome de l'estomac survient aussi bien chez les jeunes que chez les personnes âgées; différentes études de patients d'âges différents suggèrent que l'incidence varie davantage en fonction de la localisation que de l'âge—l'incidence chez les jeunes s'élève jusqu'à 3% dans certaines régions. L'article présente le journal intime de deux femmes de moins de 35 ans chez qui on a diagnostiqué un cancer de l'estomac. Le diagnostic est souvent posé à une phase tardive chez les jeunes parce que la maladie est relativement rare et que les symptômes simulent un ulcère bénin. Il faut examiner minutieusement les investigations radiologiques, les différents signes, symptômes et l'histoire familiale; si le traitement anti-ulcéreux n'est pas efficace, on doit procéder aussitôt que possible à une investigation plus poussée pour préciser le diagnostic.

Key words: Gastric cancer, age, diagnosis

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CANCER OF THE stomach is generally thought to affect the elderly, with the highest incidence after age 60.[1] Gastric cancer under age 35 is unusual enough that neither the patient nor the physician suspect carcinoma, resulting in a late diagnosis. The following 'diaries' of two young women, both of whom succumbed to gastric adenocarcinoma, demonstrate some of the features of the disease as well as the difficulties of diagnosis.

Diary 1

M, a 35-year-old Caucasian female, presented in the spring of 1977 with symptoms suggesting peptic acid disease. M's husband had myasthenia gravis and was an alcoholic. She was employed fulltime in a health profession. M was a stress 'internalizer'. A barium swallow documented a gastric ulcer on the lesser curvature of the stomach. In June 1977, gastroscopy revealed an active lesser curvature gastric ulcer and a healed gastric ulcer adjacent. Biopsies of the active ulcer were reported as benign. M was encouraged to modify her diet (frequent small meals), helped to deal with and alleviate some of her stress, and given biogastrone. Initial response was good; a follow-up barium swallow two months later revealed no gastric ulcer.

A few months later her symptoms recurred. Cimetidine had been recently released, so this new drug was tried. The patient's symptoms initially improved but recurred a few months later.

In January 1978, gastroscopy revealed a lesser curvature gastric ulcer which was benign on biopsy. M's symptoms continued to fluctuate despite therapy, so gastroscopy was repeated in April 1978. This time the gastric ulcer was almost healed and no biopsies were taken.

M's symptoms recurred a few months later and a barium swallow again revealed a gastric ulcer. A conference between the patient, the sur-

geon and the family physician led to the consensus that since a year's medical therapy had made virtually no difference to this ulcer, surgical intervention was indicated.

In June 1978, M underwent partial gastrectomy (Bilroth type 1). Surprisingly, the pathology report indicated adenocarcinoma of the stomach. It was poorly differentiated with extension into the serosa and some intralymphatic spread. No gross evidence of metastatic spread was noted during surgery. On the advice of the Cancer Institute, chemotherapy was instituted in the form of methyl CCNU and 5-fluorouracil.

At gastroscopy in September 1978, the anastomotic site was well healed with no evidence of recurrence. The patient had mild dyspeptic symptoms but was otherwise well. In March 1979, her chorioembryonic antigen (CEA) level had risen, so gastroscopy was repeated; once again no recurrence was noted. Gastric washings at that time were negative for malignant cells.

In February 1980, gastroscopy was negative and M was clinically healthy.

In May 1981, gastroscopy was normal except for a "friable area" near the anastomosis. Biopsies of this area were benign. In June 1981, gastroscopy was repeated: again, the friable area was noted but unfortunately biopsies were not obtained due to M's intolerance of the procedure.

At this point, the patient moved and direct follow-up was no longer possible. Approximately 18 months after the move, M presented to a surgeon in another city with a history of abdominal pain and weight loss. Laparotomy revealed extensive carcinomatosis with widespread metastasis. Biopsies confirmed the primary as gastric adenocarcinoma.

My last direct contact with M occurred in January 1983 when she was in hospital awaiting surgery to relieve obstruction of her ureters by pelvic infiltration of the malignancy. M died shortly thereafter.

Diary 2

D and her husband emigrated to Canada in September 1979. They were Vietnamese refugees who had survived a war, leaky boats and a Thai refugee camp before arriving in Canada. D was 25 years old and approximately 27 weeks pregnant when I first

met her. D's pregnancy proceeded normally to an uncomplicated vaginal delivery. The six week checkup in December 1979 was also normal. In July 1980, she was pregnant again. This pregnancy was also uncomplicated; delivery and six week checkup in March 1981 were likewise normal.

In November 1981, D presented with crampy abdominal pain and diarrhea. Information was obtained through an interpreter who spoke English only marginally better than D. Clinical examination revealed no abnormalities—in particular, no masses. I suspected infectious diarrhea (probable viral gastroenteritis) and ordered symptomatic treatment. A few days later her symptoms had disappeared and she felt well.

In February 1982, she was seen in an emergency department with a one month history of weakness and weight loss. Clinical exam revealed an emaciated looking woman with a mass in her epigastrium. On admission she underwent gastroscopy and an obvious gastric cancer was seen. At laparotomy the cancer was found to have spread widely to her liver, spleen, peritoneal wall, omentum and pelvis. Biopsies confirmed a poorly differentiated gastric adenocarcinoma. A gastrojejunostomy was done at the time of surgery. Due to the patient's youth, chemotherapy was instituted with 5 fluorouracil, adriamycin and mitomycin G. Some weeks later after completion of chemotherapy, she began to have heavy vaginal bleeding due to infiltration of cancer in her pelvis. Radiation relieved this problem.

In August 1982, D began to have problems with ascitic fluid. Repeat peritoneal taps gave her relief for only a few days so she underwent a Lavine peritoneal-venous shunt which worked very well to control the ascites.

In September 1982, she was discharged home and maintained there with the support of her husband, her physicians and a number of community resources. In January 1983, a year after the cancer was diagnosed, this young woman died peacefully at home in the presence of her husband and her two young sons.

Discussion

Incidence: Japan has the highest incidence of cancer of the stomach, followed by Chile, Austria and Finland.[1] Armijo and Coulson[2] found that Chile has a wide variation of incidence; the higher rates of gastric cancer correlate strongly with the cumulative per capita exposure to nitrogen fertilizers. The incidence of gastric cancer in North America is one of the lowest in the world and continues to decline.

Reports of stomach cancer in young patients vary in incidence, again according to geography. In Japan, Matsusaka et al.[3] found 1166 cases of gastric cancer between 1965 and 1975. Of these, 21 or 1.8% occurred in patients under age 30. In a retrospective study of 1383 patients with stomach cancer in Texas Bloss et al.[4] found that 2.7% were age 35 or younger. Hansen and Hanson[5] state a 1% incidence of gastric carcinoma in patients under age 30 and cite several other studies to support that occurrence rate. In 604 cases of gastric cancer at St. Bartholomew's Hospital in London from 1947 to 1956, Thomas[6] reported incidences of 0.3% in the second decade, 0.9% in the third decade and 2.7% in the fourth decade. The highest incidence was noted by Tamura and Curtiss[7] in a study of 251 patients at Queens Hospital, Honolulu in which 3.2% of patients were less than 31 years old. Table 1 shows the incidence of gastric cancer at the Royal Alexandra Hospital, Edmonton from 1973 to 1982 by age of patient. The incidence in patients aged 35 or younger was 1.4%.

TABLE 1
Incidence of Gastric Cancer in Royal Alexandra Hospital 1973-1982 According to Age

Year	<25	26-30	31-35	36-40	41+	Total
1982	0	2	0	1	37	40
1981	0	0	0	0	57	57
1980	0	0	0	0	40	40
1979	0	1	0	0	61	62
1978	0	2	0	0	40	42
1977	0	0	0	0	38	38
1976	0	0	0	1	38	39
1975	0	0	0	4	28	32
1974	1	0	0	0	38	39
1973	0	0	0	1	34	35
Total	**1**	**5**	**0**	**7**	**411**	**424**

The epidemiological studies of gastric cancer indicate that the male: female ratio is 2-2.5:1. However, in the under 35 age group, most authors[4, 5, 7, 8] noted a reverse of the sex distribution with a male to female ratio of 1:2.

A genetic predisposition to stomach cancer has not yet been conclusively elucidated. However, in a study of 37 stomach cancer patients under age 35, Bloss et al.[4] noted that "one-fourth of the patients had a family history of carcinoma of various types, and two patients had a family history of carcinoma of the stomach." The Republic of San Marino has a high incidence of gastric cancer. Death certificates were examined and divided into a 'patient' group, all of whom had died of gastric cancer, and a 'control' group of matched age who were also born in San Marino but who had died of non-malignant causes. Twenty-five per cent of the patient group had first degree relatives with gastric cancer, compared to only 5.6% of the control group.[9] Further studies in San Marino and other high incidence areas will more clearly elucidate the hereditary aspects of gastric carcinoma.

Clinical signs and symptoms. The studies reviewed noted no difference in symptoms and signs of gastric cancer in younger or older patients. Three studies[3, 5, 6] noted that the commonest complaint was epigastric pain. Other symptoms were loss of appetite, nausea and vomiting, back pain, dysphagia, melena, hematemesis and weakness. Bedikian et al.[8] noted that younger patients had more severe weight loss than older patients. Signs in younger patients tended to be as non-specific as in older patients, but 30% of young patients in the Bloss[4] study had epigastric tenderness. Epigastric mass, rectal shelves, pelvic masses and supraclavicular nodes have all been noted.

Pathology. In both young and old patients, gastric cancers often have a radiological appearance identical to benign ulcers.[5] Cancer in younger patients tends to locate in distal parts of the stomach, although Matsuska et al.,[3] in a study of 21 Japanese patients under age 30, found that the cancers

tended to locate in relatively proximal regions of the stomach. Bedikian et al.[8] reported that microscopically 75% of the cancers were poorly differentiated adenocarcinomas in both under and over 40 age groups. Bloss et al.[4] studied 37 patients under age 35; all had adenocarcinomas, and in 28 the lesion was either poorly differentiated or linitas plastica. Matsusaka et al.[3] found that 75% of their under 30 age group had poorly differentiated adenocarcinomas; in the older age group only 37% were poorly differentiated. There appear to be no discriminating differences on macro laboratory tests between older and younger patients. Bloss et al.[4] noted frequent elevation of alkaline phosphatase that correlated well with liver metastases. They also noted frequent anemia and Hemoccult positive stools. In most studies, gastric acid studies were done on a few patients. Achlorhydria was noted; the incidence was the same as in older patients with gastric cancer.

Mortality and prognosis. Authors varied in their estimations of mortality rate. Some felt it was no different in younger and older groups, while some felt mortality was higher among the young. Bedikian et al.[8] studied two groups—one under age 30, the other aged 30-39—and found identical 20% five year survival rates. The variation of opinion probably reflects the smaller number of younger patients. A common theme in all the studies was the greater length of time in making the diagnosis in the younger patient. The fact that many patients present with symptoms of ulcer disease, and the rarity of gastric cancer in the young, lulls the clinician and/or the patient into a false sense of security. Tamura and Curtiss[7] also feel that growth and dissemination of gastric cancer is more rapid and widespread in younger patients.

Conclusion

Youth does not protect against gastric carcinoma: up to 3% of these cancers will occur in patients under age 35. It occurs at least as often in young women as young men—and perhaps twice as often. It is generally a more poorly differentiated neoplasm and disseminates widely and rapidly; as demonstrated in the second case. Mortality is at least as high, if not higher, in the under 35 age group in older patients. There is a tendency to late diagnosis of this disease in younger patients.

Physicians must have a high level of suspicion for gastric carcinoma. If a patient presents with ulcer symptoms and any of the signs, symptoms or family history discussed above, radiological evaluation must occur. If the patient with only ulcer symptoms and no other symptoms or signs does not quickly improve on adequate medical therapy, a barium swallow must be done. If symptoms persist with a negative X-ray and adequate therapy, or if a gastric ulcer is diagnosed radiologically, gastroscopy with tissue biopsy must invariably follow. At this point in our knowledge, only early diagnosis may increase the five year survival rate of patients with gastric carcinoma. ◉

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