Crohn's disease in Chinese people in Vancouver, British Columbia

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H CHAUN, HJ FREEMAN. Crohn's disease in Chinese people in Vancouver, British Columbia. *Can J Gastroenterol* 1993;7(1):28-32. The clinical records of 21 Chinese patients with Crohn's disease seen in Vancouver, British Columbia from 1975 to 1989 were reviewed. There was a predominance of males, with a male to female ratio of 1.6:1. The age range at diagnosis was 15 to 59 years (mean 33.3). All but two of the patients were immigrants. The age at diagnosis of the two Canadian-born patients was distinctly younger (15 and 21 years old) than the mean age at diagnosis of the immigrant group. The immigrant Chinese patients had resided in Canada from four months to 16 years (mean 6.9 years) prior to the onset of symptoms. Despite the extreme rarity of Crohn's disease in Hong Kong, 62% of the patients in this series were Hong Kong immigrants. This report indicates that Crohn's disease occurs in patients of Chinese extraction more commonly than currently is appreciated and that adequate time apparently is required for exposure to environmental factors in the pathogenesis of Crohn's disease. The continued study of migrating populations, especially from low risk areas to high risk areas of the world, should further define the role of environmental factors in significantly influencing the risk of developing Crohn's disease.

Key Words: Chinese, Crohn's disease, Epidemiology, Inflammatory bowel disease

Maladie de Crohn dans la population chinoise de Vancouver, Colombie-Britannique

RÉSUMÉ: Les dossiers de 21 patients chinois atteints de maladie de Crohn observés à Vancouver, Colombie-Britannique, entre 1975 et 1989 sont passés en revue. Les sujets de sexe masculin étaient plus nombreux que les sujets de sexe féminin, avec un rapport de 1,6:1. Au moment du diagnostic, l'âge variait de 15 à 59 ans (moyenne de 33,3 ans). Tous les patients sauf deux, étaient immigrants. Les deux sujets nés au Canada étaient nettement plus jeunes au moment du diagnostic, soit 15 et 21 ans respectivement, un âge inférieur à l'âge moyen du groupe d'immigrants au moment du diagnostic. Les patients chinois immigrants

CROHN'S DISEASE IS THOUGHT TO be exceedingly rare in Chinese people. At the Queen Mary Hospital in Hong Kong, which served an estimated population of approximately 1,000,000 between 1964 and 1968, Gibson encountered a single case of Crohn's disease in a Chinese patient (1). At the same hospital, during the 30-year period to 1989, Crohn's disease was seen in only five Chinese patients (personal communication). The total population in Hong Kong at the end of 1985 was nearly 5,500,000 of whom 98% were Chinese (2). In Singapore, four of six cases of Crohn's disease seen between 1965 and 1970 were Chinese in this city, the estimated population was approximately 2,000,000 of whom about 75% were Chinese (3). In that report, the extreme rarity of this disease in people of Mongoloid stock was emphasized. Ulcerative colitis has been described in China (4), but there was no mention of Crohn's disease. Although Mendeloff (5) referred to seven Chinese patients with inflammatory bowel disease (IBD), we are not aware of any other information on Crohn's disease in Chinese people living in North America.

Vancouver, with a total metropolitan population of approximately 2,000,000, had a Chinese population in

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résidaient au Canada depuis quatre mois à 16 ans (moyenne 6,9 ans) avant l'apparition des symptômes. Malgré l'extrême rareté de la maladie de Crohn à Hong Kong, 62 % des patients de ce groupe en était originaires. ce rapport suggère que la maladie de Crohn se manifeste plus qu'on ne le croit actuellement chez les patients d'origine chinoise et qu'il faut d'abord qu'il y ait eu exposition suffisante aux facteurs environnementaux dans la pathogenèse de la maladie de Crohn. La poursuite de la recherche sur les populations migrant particulièrement de régions à faible risque vers des régions à risque élevé, contribuera à définir l'importance du rôle des facteurs environnementaux sur le risque souffrir de maladie de Crohn.

1986 of 100,340 (6), with an additional 13,547 Chinese immigrants to British Columbia from 1987 to 1989 (personal communication). This report describes 21 Chinese patients with Crohn's dis-

ease seen in Vancouver since 1975, and indicates that this disease clearly occurs in patients of Chinese extraction more commonly than currently is appreciated.

TABLE 1
Epidemiological data

Case	Sex	Age at diagnosis (years)	Birth place	Country of origin	Time to symptom onset (years)*	Time to diagnosis (years)†
1	Female	26	Guangzhou, China	Hong Kong	4	5
2	Female	21	Hong Kong	Hong Kong	3.5	4
3	Male	37	Guangdong province, China	Hong Kong	1	4
4	Male	19	Hong Kong	Hong Kong	2	5
5	Male	29	Hong Kong	Hong Kong	10.5	11
6	Female	47	Guangzhou, China	Hong Kong	7.7	9
7	Female	59	Guangdong province, China	Hong Kong	9.3	10
8	Female	59	Guangzhou, China	Thailand/Hong Kong	Unknown	0.5
9	Female	35	Hong Kong	Hong Kong	16‡	16‡
10	Male	35	Singapore	Singapore	7.3	8
11	Male	28	Hong Kong	Hong Kong	9	9
12	Male	26	China	China	0.3	0.3
13	Male	32	Malaysia	Malaysia	4	4
14	Female	35	Guangzhou, China	Hong Kong (one year)	16	17
15	Male	21	British Columbia	Canada	NA	NA
16	Male	39	Unknown	Unknown	Unknown	Unknown
17	Female	40	Guangdong province, China	Hong Kong	8	8
18	Male	21	Unknown	Unknown	Unknown	Unknown
19	Male	31	Hong Kong	Hong Kong	11	12
20	Male	45	Guangdong province, China	Hong Kong	12	12
21	Male	15	British Columbia	Canada	NA	NA

*Interval between arrival in Canada and onset of symptoms (years); †Interval between arrival in Canada and diagnosis of disease (years); ‡Patient lived in Canada for six years and returned to Hong Kong for nine years before coming back to Canada; NA Not applicable

PATIENTS AND METHODS

Chinese patients with a diagnosis of Crohn's disease were sought retrospectively by reviews of accumulated office records from 1975 to 1989, and from a search of the medical records of patients with a discharge diagnosis of Crohn's disease seen in three of the Vancouver teaching hospitals and two community hospitals in Vancouver during the 10-year period 1979-89. The diagnosis of Crohn's disease was based on clinical, radiological, endoscopic and histopathological findings. There was no histological or bacteriological evidence of tuberculosis, and none of the patients had pulmonary tuberculosis. Neither was there evidence of other bacteriological or parasitic infections. In 15 patients followed for one to 13 years, the clinical course was similar to that in Caucasian patients with Crohn's disease.

RESULTS

Twenty-one people of Chinese extraction (13 males and eight females) were diagnosed with Crohn's disease in Vancouver, British Columbia, between 1975 and 1989. The age range at diagnosis was 15 to 59 years (mean 33.3). Table 1 shows epidemiological data for all 21 Chinese patients with Crohn's disease from Vancouver, 1976-89. Nine patients were born in China, six in Hong Kong, two in Canada, and one each in Singapore and Malaysia; the birthplace of two patients was unknown. Thirteen patients had resided in Hong Kong before emigrating to Canada, and one each in China, Thailand, Singapore and Malaysia. The two Canadian-born patients have never resided in a foreign country. The 17 known immigrants had lived in Canada from four months to 16 years (mean 6.9 years) prior to the onset of their initial symptoms.

The clinical features of the 21 Chinese patients with Crohn's disease are shown in Table 2. The disease involved the large intestine alone in 10 patients, both the terminal ileum and large intestine in seven, and the terminal ileum alone in two. One had segmental ileal disease and one had isolated perianal disease. Of these,

TABLE 2
Clinical features

Case	Symptoms	Disease site	Perianal involvement	Extraintestinal manifestations	Surgical treatment	Years followed
1	Abdominal pain, diarrhea, weight loss	Terminal ileum, colon, rectum	Anal fissure and abscess	—	Distal ileal resection and colectomy	13
2	Abdominal pain, diarrhea	Terminal ileum, colon, rectum	Anal fissure	Digital clubbing	—	10
3	Abdominal pain, diarrhea, fever	Terminal ileum, colon	Anal fissure	Sacroiliitis	Distal ileal and ascending colon resection	13
4	Abdominal pain, diarrhea	Terminal ileum, rectum	—	—	—	4
5	Diarrhea, weight loss, fever, anemia	Colon	Anal fissure	Arthralgia, erythema nodosum	—	3
6	Diarrhea, weight loss, abdominal pain	Colon, rectum	—	—	—	11
7	Fever, abdominal pain, rectal bleeding, diarrhea	Colon, rectum	—	Myalgias, oral ulcers	Proctocolectomy	3
8	Abdominal pain	Ileum	Large hemorrhoidal tags	—	Segmental small bowel resection	0.3
9	Abdominal pain, diarrhea	Colon	—	Arthralgia	—	0.4
10	Rectal pain	Perianal	Perianal fistula	—	Local surgical excision	4
11	Perianal pain	Ileum, colon	Perianal fistula	—	—	2
12	Diarrhea, abdominal pain, weight loss, rectal bleeding, fever	Colon, rectum	—	—	—	1
13	Abdominal pain, diarrhea, weight loss	Terminal ileum	—	—	—	—
14	Abdominal pain, vomiting, fever, anemia	Colon, rectum, possibly the gastric antrum	—	Peripheral arthritis, erythema nodosum	Subtotal right hemicolectomy	12
15	Diarrhea, rectal bleeding, abdominal pain, anemia	Terminal ileum, possibly ascending colon and rectum	—	—	—	—
16	Diarrhea, abdominal pain, weight loss, anorexia	Colon	—	—	—	—
17	Abdominal pain	Rectum, sigmoid colon	—	—	—	4
18	Anal abscess, diarrhea, weight loss, anorexia	Colon, rectum	Perianal abscess	Arthralgia, oral aphthous ulcers	—	1
19	Anorexia, weight loss, rectal bleeding, anemia	Distal ileum, colon, rectum, possibly the gastric antrum	Perianal abscess, anal tags	Renal stones, digital clubbing	—	3
20	Diarrhea, rectal bleeding, abdominal pain, weight loss	Rectum, sigmoid colon	—	—	—	3
21	Abdominal pain, vomiting, RLQ mass	Terminal ileum, cecum	Perianal abscess	—	Ileocolic resection, perianal abscess	0.6

RLQ Right lower quadrant

seven patients required surgical resections an average of 2.4 years following the onset of their initial symptoms. In this group, extraintestinal features were also recorded. Four patients had peripheral arthritis or arthralgias, one had sacroiliitis, two had erythema nodosum, two had clubbing and one had a kidney stone.

DISCUSSION

IBD is rare in Asia, Africa and South America (7-11), even where allowance is made for the combined effects of sparse medical facilities and the tendency to diagnose infective enteric disease to explain abdominal symptoms (12). The incidence of IBD among the people of these regions is difficult to analyze in statistically meaningful terms (13). Nevertheless, there have been sporadic reports of Crohn's disease in several Asian populations (4, 14-18). In addition, Eskimos and Indians in Canada have an apparently lower susceptibility to Crohn's disease compared with their Caucasian compatriots (19), supporting the suggestion that there are ethnic differences – even within Canada – related to predisposition to Crohn's disease.

Among immigrant populations, data are also very limited. The occurrence of Crohn's disease has been noted among Asian immigrants to Great Britain (20), but the patients in that study were all from India and Pakistan. In 1989, we first presented our data on 11 Chinese immigrants in Vancouver with Crohn's disease (21,22). Since that time, no other reports have appeared documenting disease occurrence in Chinese people in North America, Great Britain or other western countries which are known to have the highest recorded incidence rates of Crohn's disease in the world.

In view of the high incidence of tuberculosis in Hong Kong, the problem of making a diagnosis of Crohn's disease in immigrants from Hong Kong is well recognized (23,24). In the present study, tuberculosis was excluded by the absence of caseation necrosis in the histopathological findings, negative Ziehl-Nielsen stains and cultures, absence of pulmonary tuber-

culosis and prolonged follow-up for one to 13 years in 15 of the 19 immigrants. Similar documentation was performed in the Canadian-born Chinese patients described in this series.

The male to female ratio of 1.6:1 reported here contrasts with the predominance of females in other Canadian studies (25-28). The majority of patients with disease involving the large intestine alone (47%) and the small number having distal ileal involvement alone (10%) are unusual compared with the frequently reported patterns of ileocolic disease in approximately 40%, small intestinal disease only in approximately 30% and large intestinal disease only in about 25% (29).

Although the lack of personnel and diagnostic facilities might result in an absence of reported cases of Crohn's disease in China, this consideration would not account for the apparent rarity of this disorder in Hong Kong. Yet, 13 of the 21 patients in the present series were immigrants from Hong Kong. In the 1986 national population census from Statistics Canada (6), there were 22,275 Chinese people in Vancouver who listed Hong Kong as their birthplace. This represents 22% of the total Chinese population of 100,340 in metropolitan Vancouver. The high proportion of Hong Kong immigrants in this series suggests that, among the Vancouver Chinese community, they have an apparent susceptibility to develop Crohn's disease.

Epidemiological studies of Crohn's disease in Canada have been reported from northern and southern Alberta as well as from southwestern Ontario (25-28). To date, the incidence and prevalence of Crohn's disease in British Columbia have not been determined. Interestingly, the overall prevalence reported in northern Alberta was 44 per 100,000 compared with the estimated prevalence rate in the Chinese patients in this series of 21 per 100,000. As the medical records of one remaining teaching hospital in Vancouver as well as some other community hospitals could not be surveyed, there were probably a few Chinese patients with Crohn's disease from Vancouver who have not been included in the present

report. Thus, the precise incidence and prevalence of Crohn's disease in the Chinese population may be even higher than the estimated numbers suggested in this series.

The age at diagnosis of the two Canadian-born patients was distinctly younger than the mean age of the immigrant group. Among the immigrants, there was a mean interval of 6.9 years between their arrival in Canada and the symptom onset. Despite the recognized difficulty in dating the onset of Crohn's disease, it is tempting for us to speculate that adequate time is required for exposure to one or more critical factors that may play a role in the pathogenesis of this disease. Indeed, the vulnerability of all ethnic groups to Crohn's disease and the etiological importance of environmental factors have been previously emphasized by Kirsner (22).

The progressive disappearance of differences in disease prevalence between original and migrant groups with duration of residence in a common environment is a classical finding that points to the effects of environmental factors in the pathogenesis of the disease (30). Indeed, this effect of environmental factors in the pathogenesis of Crohn's disease was convincingly demonstrated in the epidemiological study of Jewish immigrants from Europe-America and from Asia-Africa in a defined area of central Israel (31). The study of migrating populations, especially from low risk areas of lower latitudes to high risk areas of North America and northern Europe, may provide further evidence that the risk of developing Crohn's disease is influenced significantly by environmental causes. The increasing influx of Chinese people to Vancouver from the Far East, particularly Hong Kong, will offer a continued opportunity to explore the development of Crohn's disease in a specific North American immigrant population.

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