Ulcerative colitis in the Chinese population of Vancouver, British Columbia

HUGH CHAUN BM FRCP FRCPC, HUGH J FREEMAN MD FRCPC FACP

H CHAUN, HJ FREEMAN. Ulcerative colitis in the Chinese population of Vancouver, British Columbia. *Can J Gastroenterol* 1994;8(5):303-307. The clinical records of 22 Chinese patients with ulcerative colitis (UC) seen in Vancouver, British Columbia from 1975 to 1989 were reviewed. There was a predominance of males, with a male to female ratio of 1.75:1. The age range at diagnosis was 14 to 67 years (mean 38.9). Eighteen of the 22 patients were immigrants, and one was a visitor from Hong Kong. The age at diagnosis of the three Canadian-born patients (14, 26 and 26 years old) was less than the mean age at diagnosis of the immigrant group. The immigrants had resided in Canada for a mean of 9.3 years before developing symptoms of UC. Despite the rarity of UC in Hong Kong, 59% of the Chinese patients in this series were Hong Kong immigrants. This study demonstrates that UC is not as uncommon a disease in Chinese as had been previously perceived. Adequate time is apparently necessary for exposure to environmental factors in the pathogenesis of UC. The opportunity for continued study of defined ethnic immigrant populations in North America may yield useful information related to environmental factors that may be important in the etiology and pathogenesis of UC.

Key Words: Chinese, Epidemiology, Inflammatory bowel disease, Ulcerative colitis

Colite ulcéreuse dans la population chinoise de Vancouver, en Colombie-Britannique

RÉSUMÉ : Les dossiers cliniques de 22 patients chinois porteurs de colite ulcéreuse (CU) observés à Vancouver en Colombie-Britannique entre 1975 et 1989 ont été passés en revue. On a noté une prédominance des hommes, le ratio homme-femme étant de 1,75:1. Au moment du diagnostic, l'âge variait de 14 à 67 ans (moyenne 38,9). Dix-huit patients sur 22 étaient des immigrants, l'un était un visiteur de Hong-Kong. L'âge, au moment du diagnostic, chez trois patients nés au Canada (14, 26 et 26) était inférieur à l'âge moyen du groupe d'immigrants au moment du diagnostic. Les immigrants avaient résidé au Canada en moyenne 9,3 ans avant l'installation des symptômes de CU. Malgré la rareté de la CU à Hong-Kong, 59 % des patients chinois de cette série étaient originaires de

continuer à la page prochaine

Department of Medicine (Gastroenterology), University Hospital and University of British Columbia, Vancouver, British Columbia

Correspondence and reprints: Dr H Chaun, #601-805 West Broadway, Vancouver, British Columbia V5Z 1K1. Telephone (604) 872-0717

Received for publication December 8, 1993. Accepted February 14, 1994

ULCERATIVE COLITIS (UC) IS GENERALLY assumed to be uncommon in the Chinese. This is suggested by a number of publications. A report from Singapore in 1971 (1) was probably the first literature description of UC in the Chinese. UC was found in only 18 Chinese patients in Hong Kong from 1951 to 1980 (2). There was another review of 23 cases of UC occurring in Hong Kong Chinese between 1986 and 1991 (3). The annual incidence rate of UC in Hong Kong from 1966 to 1980 was estimated to be around 1 per 1,000,000 (2). There were two Chinese among 10 Malaysian patients with UC in Kuala Lumpur during a 10-year period to 1977 (4). Five of 23 cases of UC in the same city from 1982 to 1987 were Chinese (5); at that time, 53% of the population of Kuala Lumpur were Chinese. UC also appears to be rare in Singapore, with an estimated incidence of 0.02 per 100,000 and prevalence of 2 per 100,000 in 1971 (1), and a possible prevalence of 8.6 per 100,000 in 1992 (6). In 1974, the population in Singapore was about 2,000,000 of whom 75% were Chinese (7). Sixty-nine per cent of 61 cases of UC in Singapore seen between 1971 and 1986 were Chinese (8), and 28 of 40 patients (70%) in the same city seen between 1981 and 1990 were Chinese (6). UC has been observed in China (9). In the United States, Mendeloff noted seven cases of inflammatory bowel disease in Chinese

Hong-Kong. Cette étude démontre que la CU n'est pas une maladie si rare dans la population chinoise, contrairement à ce que l'on avait pensé jusqu'alors. Il faut apparemment suffisamment de temps d'exposition à des facteurs environnementaux avant d'observer la pathogenèse de la CU. La possibilité de poursuivre l'étude de cette population immigrante nord-américaine bien circonscrite pourrait être une source de renseignements utiles sur les facteurs environnementaux, possiblement incriminés dans l'étiologie et la pathogenèse de la CU.

TABLE 1
Epidemiological data

Patient (sex)	Age at diagnosis	Birth place	Country of origin	Time to symptom onset after arrival in Canada (years)	Time to diagnosis after arrival in Canada (years)
1 (M)	35	Hong Kong	Hong Kong	3	7
2 (M)	56	China	Hong Kong	32	32
3 (M)	29	Hong Kong	Hong Kong	13	15
4 (M)	25	Guangzhou [†]	Hong Kong	12	12
5 (M)	28	Guangzhou [†]	Hong Kong	8	8
6 (F)	61	Guangdong province [†]	Hong Kong	3	3
7* (F)	37	Hong Kong	Hong Kong	18	20
8 (M)	52	Hong Kong	Hong Kong	0 [‡]	0 [‡]
9 (F)	28	Hong Kong	Hong Kong	5	7
10 (M)	46	China	Hong Kong	8	9
11 (M)	52	Guangzhou [†]	Hong Kong	0	0.3
12 (M)	28	Hong Kong	Hong Kong	5	7
13 (M)	52	Beijing [†]	Taiwan	0	0
14 (F)	37	Hong Kong	England	8	10
15 (F)	31	Hong Kong	Hong Kong	5	5
16 (F)	28	Guangzhou [†]	China	0.5	0.5
17 (F)	14	Vancouver	Canada	—	—
18 (M)	26	Vancouver	Canada	—	—
19 (M)	59	Hong Kong	Hong Kong	4	11
20 (M)	26	Canada	Canada	—	—
21 (F)	67	China	India	18	18
22 (M)	39	China	China	25	25

*Father is Portuguese, mother is Chinese; [†]In China; [‡]Visitor from Hong Kong

(10). In 1989, we first presented data on UC occurring in Chinese patients in Vancouver, British Columbia (11). Although it was previously recognized that studies of Asian migrants to Hawaii and/or California would be useful in the investigation of environmental determinants of inflammatory bowel disease (12), there has been no further information on UC in the Chinese populations of North America.

Vancouver has a population of approximately 2,000,000. The Chinese population in 1986 was 100,340 (13), and there were an additional 13,547 Chinese immigrants to British Columbia from 1987 to 1989 (personal com-

munication). In the present report, 22 cases of UC occurring in Chinese patients seen in Vancouver from 1975 to 1989 are reviewed.

PATIENTS AND METHODS

Medical records were sought retrospectively of all patients of Chinese extraction with an established diagnosis of UC seen in the office from 1975 to 1989, and in three teaching hospitals and two community hospitals in Vancouver from 1979 to 1989. The records were then reviewed. The diagnosis of UC was based on a compatible history and characteristic sigmoidoscopic, histological and, when available, barium enema and/or colono-

scopic findings. In all patients, extensive investigations had been undertaken to exclude intestinal bacterial and parasitic infections.

RESULTS

Twenty-two patients of Chinese extraction (14 males and eight females) were diagnosed with UC in Vancouver between 1975 and 1989. The age range at diagnosis was 14 to 67 years (mean 38.9). Table 1 shows epidemiological data for all 22 patients. Ten patients were born in China, nine in Hong Kong and three in Canada. Thirteen patients had lived in Hong Kong before emigrating to Canada, two in China, and one in each of Taiwan, England and India; one patient was a visitor from Hong Kong. The three Canadian-born patients had never resided in a foreign country. The 18 immigrants had lived in Canada for a mean of 9.3 years before they developed symptoms of UC.

The clinical features of the 22 patients are shown in Table 2. In 16 patients observed for one to 13 years, the course of the disease was similar to that of Caucasian patients. The disease was limited to the rectum or rectosigmoid region in 13 patients. One patient had segmental resection for a sigmoid carcinoma; none of the patients had colectomy for UC. Of the extraintestinal manifestations of the disease, three patients had arthralgias, one had possible arthralgias and iritis, one had ankylosing spondylitis and one had erythema nodosum.

DISCUSSION

In a previous report, we detailed our experience with Crohn's disease in the Chinese population of Vancouver (14). This report further describes our experience with inflammatory bowel disease in Chinese patients from Vancouver, specifically with UC. Some features of our Chinese patients and their disease were intriguing. First, the predominance of males reported here is compatible with that of a previous study of Chinese patients in Hong Kong (2). This contrasts with the Canadian experience in nearby Alberta (since no data are available in British Columbia); in

TABLE 2
Clinical features

Patient	Presenting symptoms	Apparent extent of disease*	Course of disease	Extraintestinal manifestations	Other clinical features of note	Years followed
1	Rectal bleeding with mucus	22 cm	Relapsing	Oral aphthous ulcers		4
2	Rectal bleeding	Distal sigmoid				None
3	Rectal bleeding with mucus	12 cm	Relapsing			7
4	Rectal bleeding with mucus	Beyond 16 cm	Relapsing		Allergy to sulfasalazine	5
5	Rectal bleeding, diarrhea	Rectum	Unknown – short follow-up			0.3
6	Rectal bleeding with mucus	12 cm	Chronic continuous			6
7	Diarrhea, rectal bleeding, abdominal cramps, anemia	Rectum	Relapsing	Arthralgias		3
8	Diarrhea	15 cm	Remission		Resection sigmoid cancer, colonic adenomas	1.2
9	Diarrhea, rectal bleeding, anemia	Beyond splenic flexure	Relapsing		Treatment in hospital	4
10	Rectal bleeding, diarrhea	25 cm	Unknown – short follow-up		Treatment in hospital	0.4
11	Rectal bleeding, abdominal pain	14 cm	Relapsing			2
12	Rectal bleeding, diarrhea, abdominal pain, weight loss	Splenic flexure	Unknown – short follow-up		Allergy to sulfasalazine, treatment in hospital	0.5
13	Diarrhea, blood, mucus	12 cm	Relapsing	Arthralgias	Food fetishes, proprietary medicines	10
14	Rectal bleeding, mucus, diarrhea, abdominal cramps, weight loss	10 cm	Relapsing			10
15	Rectal bleeding with mucus	10 cm	Relapsing	Erythema nodosum, arthralgias		10
16	Rectal bleeding with pus, abdominal pain	9 cm	Unknown – short follow-up			0.1
17	Rectal bleeding	30 cm	Relapsing			13
18	Rectal bleeding, diarrhea, abdominal pain, weight loss, anemia	Beyond 80 cm	Relapsing		Allergy to sulfasalazine	4
19	Rectal bleeding	90 cm	Relapsing	?Iritis, ?arthralgias	<i>Clostridium difficile</i> infection; died from lung cancer	8
20	Diarrhea, rectal bleeding	15 cm	Relapsing	Ankylosing spondylitis		1.2
21	Rectal bleeding	Left colon	Unknown – no follow-up		Treatment in hospital	None
22	Diarrhea with blood, anemia	?Diffuse	Relapsing		Treatment in hospital; <i>Blastocystis hominis</i> infection	8

*Apparent maximum extent of disease from anal verge

both northern and southern Alberta, prevalence rates of UC were similar in males and females (15,16). Our observations in this Oriental population also contrasts with patients of Anglo-Saxon descent worldwide where the disease has a female preponderance (10).

Second, a limited form of colitis was generally seen in our Chinese patients.

In 13 of the 22 patients (59%) surveyed in this study, the disease was localized to the rectum or extended to the distal few centimetres of the sigmoid colon. Although the duration of the follow-up in our report is less than 10 years in most of the patients, this limited form of disease appears to be more common in the Chinese than that usually re-

ported (17). Moreover, only one patient in our population group had a history of a segmental resection for sigmoid carcinoma and, to date, none of the 22 patients has required a colectomy for UC. The limited extent of disease observed, rarity of complications such as cancer and the limited requirement for early surgical intervention

suggest that UC may be a milder disease in the Chinese population. Although a longer period of follow-up may help to confirm this initial clinical impression, patients with few symptoms or 'sub-clinical' disease may not be presenting to subspecialty physicians. As a result, UC may be even more common in the Chinese population of Vancouver than is suggested here.

The causes of UC remain unknown. Epidemiological studies have shown marked regional variations in disease distribution. It is most frequent in North America and northwestern Europe, and less common in southern and eastern Europe (18-21). It is infrequent in Asia, Africa and South America (19,20), even allowing for the difficulties in diagnosis due to a scarcity of medical resources and possible confusion with the infective dysenteries that are prevalent in underdeveloped regions (22). Nevertheless, there have been reports of UC in several Asian populations (1-6,8,9,23-27). There have also been reports of inflammatory bowel disease occurring in Asian immigrant populations in Canada (11,14, 28) and Great Britain (29-31). However, apart from our initial presentation (11) there has been no other report of UC in the Chinese populations of North America and Europe, areas with the highest incidence rates of the disease in the world.

The variability in the incidence of UC among different ethnic groups from the same geographical regions suggests a genetic predisposition to the disease. UC is three to five times more common in Jewish people compared with Anglo-Saxon populations living in western

communities (18). UC is rare in the Black population in South Africa (32) and in the Maoris in New Zealand (33), in contrast to the Caucasian populations residing in those countries. In Israel, the incidence and prevalence in the Arab population were markedly lower than those in the Jewish population (34,35). In India, UC occurs more frequently in Hindus than in Muslims, Christians or Parsees (21). In Malaysia, Indians (especially Sikhs) appeared to be more prone to the disease than Chinese and Malays (5). Similarly, in Vancouver, the disease seems to be more common in Asian Indians than Chinese (28).

As in the series of patients with Crohn's disease (14), the majority of patients (14 of 22) in this study immigrated from Hong Kong. In the 1986 national population census from Statistics Canada (13), Hong Kong was listed as the birthplace among 22,275 Chinese living in Vancouver. This represented 22% of the total Chinese population of 100,340 in metropolitan Vancouver. The high proportion of Hong Kong immigrants in the present series of patients suggests that, within the Vancouver Chinese community, there is an apparently increased predisposition to develop UC. The reason for this susceptibility is unknown. It is also of interest that in the Vancouver Chinese population, our previously reported experience with Crohn's disease (14) is similar to that with UC.

There are epidemiological data of UC in Canada reported from northern and southern Alberta (15,16,36) but the incidence and prevalence of the disease in British Columbia have not

yet been determined. The mean prevalence rate of UC in northern Alberta was 37.2 per 100,000 (15) and in southern Alberta was 21.7 per 100,000 (16). Although precise data for British Columbia are not available, these data from Alberta compare with the estimated prevalence rate of 22 per 100,000 in our Chinese population and indicate that UC is not as rare in Chinese as had been previously perceived.

Three of the 22 patients in the present study were born and raised in Canada. Their age at diagnosis of UC was distinctly younger than the mean age at diagnosis of the immigrant group. Immigrants had lived in Canada for a mean of 9.3 years before first developing symptoms of the disease. One patient was a visitor from Hong Kong and was not included in this group. These observations suggest that a time factor may be important in the exposure to one or more exogenous risk factors that could influence the pathogenesis of UC. Moreover, the disparity between the prevalence of UC in the Chinese in Hong Kong and Vancouver strongly supports the influential role of environmental determinants in the pathogenesis of UC.

In the past decade, there has been substantial migration of Chinese people from Hong Kong, Taiwan and China to North America, particularly Vancouver. This offers a continuing opportunity to explore possible environmental factors, such as dietary habits (37) and other life patterns, in a defined ethnic immigrant population that may provide clues to the etiology and pathogenesis of UC.

REFERENCES

1. Fung WP, Monteiro EH, Murugasu JJ, Ng KC, Kho KM, Lee SK. Non-specific ulcerative colitis in Chinese and Indians in Singapore. *Med J Aust* 1971;2:361-5.
2. Lai CL, Wu PC, Wong KL, Lok ASF. Clinical features of ulcerative proctocolitis in Hong Kong Chinese: A review of three decades. *Am J Proctol Gastroenterol Colon Rectal Surg* 1985;1:14-9.
3. Sung JY, Chan KL, Hsu R, Liew CT, Lawton JWM. Ulcerative colitis and antineutrophil cytoplasmic antibodies in Hong Kong Chinese. *Am J Gastroenterol* 1993;88:864-9.
4. Ti TK. Inflammatory diseases of the bowel: A Malaysian experience. *Aust N Z J Surg* 1979;49:428-31.
5. Thein-Htut, Kudva MV. Ulcerative colitis in Malaysians: A review of 23 patients. *Sing Med J* 1989;30:385-7.
6. Tan CC, Kang JY, Guan R, Yap I, Tay HH. Inflammatory bowel disease: An uncommon problem in Singapore. *J Gastroenterol Hepatol* 1992;7:360-2.
7. Lee SK. Crohn's disease in Singapore. *Med J Aust* 1974;1:266-9.
8. Ng HS. Chronic inflammatory bowel diseases in Singapore. *Sing Med J* 1989;30:32-3.
9. Song G. Clinical analysis of 60 cases of ulcerative colitis treated with Chinese traditional medicinal herbs. *Chin J Integrated Traditional West Med* 1985;5:451.
10. Mendeloff AI. Epidemiologic aspects of inflammatory bowel disease. In: Berk JE, ed. *Bockus Gastroenterology*, 4th edn. Philadelphia: WB Saunders Company, 1985:2127-36.
11. Chaun H, Freeman HJ. Ulcerative colitis in Chinese in Vancouver, Canada. *J Gastroenterol Hepatol* 1989;4(Suppl 3):43. (Abst 86)

12. Calkins BM, Mendeloff AI. Epidemiology of inflammatory bowel disease. *Epidemiol Rev* 1986;8:60-91.
13. Statistics Canada. 1986;Catalogue no. 93-156.
14. Chaun H, Freeman HJ. Crohn's disease in Chinese people in Vancouver, British Columbia. *Can J Gastroenterol* 1993;7:28-32.
15. Pinchbeck BR, Kirdeikis J, Thomson ABR. Epidemiology of ulcerative colitis and Crohn's disease. In: Freeman HJ, ed. *Inflammatory Bowel Disease*, vol 1. Boca Raton: CRC Press Inc, 1989:9-35.
16. Davis FG, Grace MG, Hershfield N. Inflammatory bowel disease incidence and prevalence in southern Alberta. *Can J Gastroenterol* 1990;4:187-92.
17. Roth JLA. Ulcerative colitis. In: Bockus HL, ed. *Gastroenterology*, vol II, 3rd edn. Philadelphia: WB Saunders Company, 1976:645-749.
18. Mayberry JF. Some aspects of the epidemiology of ulcerative colitis. *Gut* 1985;26:968-74.
19. Mendeloff AI, Calkins BM. The epidemiology of idiopathic inflammatory bowel disease. In: Kirsner JB, Shorter RG, eds. *Inflammatory Bowel Disease*, 3rd edn. Philadelphia: Lea and Febiger, 1988:3-34.
20. Whelan G. Epidemiology of inflammatory bowel disease. *Med Clin North Am* 1990;74:1-12.
21. Mayberry JF. Recent epidemiology of ulcerative colitis and Crohn's disease. *Int J Colorectal Dis* 1989;4:59-66.
22. Chuttani HK, Nigam SP, Sama SK, Dhanda PC, Gupta PS. Ulcerative colitis in the tropics. *Br Med J* 1967;4:204-7.
23. Yoshida Y, Murata Y. Inflammatory bowel disease in Japan: Studies of epidemiology and etiopathogenesis. *Med Clin North Am* 1990;74:67-90.
24. Tandon BN, Mathur AK, Mohapatra LN, Tandon HD, Wig KL. A study of the prevalence and clinical pattern of non-specific ulcerative colitis in northern India. *Gut* 1965;6:448-53.
25. Probert CSJ, Mayberry JF, Mann R. Inflammatory bowel disease in the rural Indian subcontinent: a survey of patients attending mission hospitals. *Digestion* 1990;47:276-80.
26. Kochar R, Ayyagari A, Goenka MK, Dhali GK, Aggarwal R, Mehta SK. Role of infectious agents in exacerbations of ulcerative colitis in India. A study of *Clostridium difficile*. *J Clin Gastroenterol* 1993;16:26-30.
27. Quereshi H, Zuberi SJ, Banatwala N, Anwar A, Shamsi Z, Khan MN. Ulcerative colitis in Karachi. *J Gastroenterol Hepatol* 1989;4:313-6.
28. Chaun H, Freeman HJ, Owen DA. Idiopathic inflammatory bowel disease in patients of Asian Indian ancestry in Vancouver, Canada. The World Congress of Gastroenterology, Sydney, Australia. Abstracts I. 1990:717. (Abst)
29. Das SK, Montgomery RD. Chronic inflammatory bowel disease in Asian immigrants. *Practitioner* 1978;221:747-9.
30. Benfield GFA, Montgomery RD, Asquith P. Ulcerative colitis in Asian immigrants. *Postgrad Med J* 1987;63:629-35.
31. Probert CSJ, Jayanthi V, Pinder D, Wicks AC, Mayberry JF. Epidemiological study of ulcerative proctocolitis in Indian immigrants and the indigenous population of Leicestershire. *Gut* 1992;33:687-93.
32. Segal I, Tim LO, Hamilton DG, Walker ARP. The rarity of ulcerative colitis in South African Blacks. *Am J Gastroenterol* 1980;74:332-6.
33. Wigley RD, MacLaurin BP. A study of ulcerative colitis in New Zealand showing a low incidence in Maoris. *Br Med J* 1962;2:228-31.
34. Odes HS, Fraser D, Krugliak P, Fenyves D, Fraser GM, Sperber AD. Inflammatory bowel disease in the Bedouin Arabs of southern Israel: rarity of diagnosis and clinical features. *Gut* 1991;32:1024-6.
35. Niv Y, Torten D, Tamir A, Epstein L. Incidence and prevalence of ulcerative colitis in the Upper Galilee, Northern Israel, 1967-1986. *Am J Gastroenterol* 1990;85:1580-3.
36. Pinchbeck BR, Kirdeikis J, Thomson ABR. Inflammatory bowel disease in northern Alberta. An epidemiologic study. *J Clin Gastroenterol* 1988;10:505-15.
37. O'Morain C, Tobin A, Suzuki Y, O'Riordan T. Risk factors in inflammatory bowel disease. *Scand J Gastroenterol* 1989;24:58-60.