Ulcerative colitis in a multiracial Asian country: Racial differences and clinical presentation among Malaysian patients

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INTRODUCTION
Ulcerative colitis (UC) is a common disease in the Western population. It is well recognized that the incidence of inflammatory bowel disease is among the highest in individuals of Anglo-Saxon descent and from the Scandinavian countries[1-3] and there is a suggestion that the incidence of UC may be on a rising trend[4,5]. The disease is also prevalent in Ashkenazi Jews[6]. There is a relative paucity of epidemiological studies from this region as compared to the West. Studies from Hong Kong and Singapore[7-12] suggest that this disease is uncommon in Asian countries. There have been only two published papers on the prevalence of UC in Malaysian patients[13,14]. Both are old papers reporting on a relatively small number of patients.

Malaysia epitomizes the multiraciality of an Asian country, where three major Asian races Malay, Chinese, and Indian co-exist. Of the three major races in Malaysia, there appears to be a predisposition towards the Indian race. A more recent study by Lee et al.14 in neighboring Singapore reported similar findings with an estimated prevalence among the Indians of 16.2/100 000 as compared to 6/100 000 among the Chinese and 7/100 000 among the Malay. The overall prevalence was 6/100 000. These figures are low in comparison to that of the West, where more than 10-fold excess in prevalence rates is reached. Observations of racial differences in the prevalence of upper gastrointestinal as well as liver diseases have been a major interest in Malaysia where three major Asian races co-exist[15,16].

The aim of this study was firstly to determine the prevalence of UC and the existence of ethnic differences in the prevalence of UC and secondly, to establish the spectrum of disease seen in Malaysian patients.

MATERIALS AND METHODS
Retrospective data were obtained from the careful review of the medical records of all patients who attended the outpatient clinics or were admitted to University Hospital, Kuala Lumpur between 1985 and 1998, and had the International Classification coding for UC (ICD-556). The diagnosis of UC was established based on a combination of clinical, radiographic, endoscopic, and histopathological evidence. A infective colitis is common in the tropics and can mimic the features of UC, this was routinely sought for and excluded. Stools were sent for microscopy and culture. Blood tests included serology for Entamoeba histolytica and the Widal-Weil-Felix test.

The following information was obtained: demographic characteristics, age at presentation, clinical presentation,
The anatomical extent of the disease as determined by colonoscopy was classified as follows: distal colitis (i.e., limited to the rectum and sigmoid colon), left-sided colitis (i.e., disease distal to the mid-transverse colon) or “extensive” colitis (i.e., extending proximal to the mid-transverse colon).

**Statistical analysis**

The prevalence of UC for the three major ethnic groups was calculated per 100,000 hospital admissions of the respective racial group. The statistical significance of the difference in UC prevalence between the ethnic groups was assessed using the Yate's-corrected \( \chi^2 \) test, the measure of association quoted as odd ratios (OR) with a 95% confidence interval (CI).

**RESULTS**

There were 45 confirmed cases of UC, of which 30 patients were diagnosed during the study period. All but three (6.7%) patients (an Albanian and two Pakistanis) were born in Malaysia. The non-Malaysians were excluded from analysis. There were 19 males and 23 females giving a male:female ratio of 0.81. The age distribution at presentation is shown in Figure 1. The mean age at presentation was 33.0 ± 10.0 years.

The prevalence of UC by ethnic origin is shown in Table 1. The highest prevalence of UC was 17.9/100,000 hospital admissions in the Indians, followed by 11.2/100,000 hospital admissions in the Chinese. The lowest prevalence was 3.7/100,000 hospital admissions in the Malays. The prevalence of UC was significantly higher in the Indians and the Chinese when compared with the Malays with an OR of 4.89 (CI = 2.02–12.24; \( \chi^2 = 15.45, P < 0.001 \)) and 3.06 (CI = 1.24–7.78; \( \chi^2 = 6.30, P = 0.012 \)) respectively.

**Clinical presentation**

Thirty-four (81.0%) patients presented with bloody diarrhea, 5 (11.9%) presented with rectal bleeding only and 3 (7.1%) had diarrhea without rectal bleeding. Other associated complaints were the passage of mucus (66.7%) and abdominal pain (54.8%).

**Extent of UC, requirement for surgery and extraintestinal manifestations**

Eighteen (42.9%) patients had the disease confined to the distal colon, 8 (19.0%) had left-sided colitis and 16 (38.1%) had the disease extending beyond the mid-transverse colon. The extent of colonic involvement in the different ethnic groups is shown in Table 2. The extent of the disease was similar in the Malay and Indian patients. In contrast, distal or left-sided colitis predominated in the Chinese with an OR of 8.17 (95% CI = 1.31–64.87; \( \chi^2 = 5.53, P = 0.02 \)). No case of toxic megacolon was reported, but five (11.9%) patients required surgical intervention. These included two (4.8%) patients with intestinal perforation and one (2.4%) with massive rectal bleeding. Total colectomy was also required in two (4.8%) patients who developed colorectal cancer.

**Discussion**

This study is in agreement with previous studies around this region that UC is an uncommon entity in populations of Asian origin. Only 30 new cases were diagnosed in a 13-year span in a large public hospital. The majority of patients presented during young adulthood. Among the three major ethnic groups in Malaysia, UC was most prevalent in the Indians with an OR of 4.89 (CI = 2.02–12.24; \( \chi^2 = 15.45, P < 0.001 \)) and 3.06 (CI = 1.24–7.78; \( \chi^2 = 6.30, P = 0.012 \)) respectively.

Extraintestinal manifestations occurred in only five (11.9%) patients. Three (7.1%) patients had arthropathy including one (2.4%) patient with sacroiliitis. Erythema nodosum occurred in two (4.8%) and pyoderma gangrenosum in one (2.4%).

**Table 1**

| Ethnic origin | Total number of hospital admissions by race | Number with UC | Prevalence per 100,000 | Odds ratio (95% CI) (Malay as reference group) | \( P \) |
|---------------|------------------------------------------|---------------|------------------------|-----------------------------------------------|-------|
| Malay         | 218,019                                  | 8             | 3.7                    | 1.00                                          | -     |
| Chinese       | 142,575                                  | 16            | 11.2                   | 3.06 (1.24–7.78)                               | 0.012 |
| Indian        | 100,250                                  | 18            | 17.9                   | 4.89 (2.02–12.24)                              | <0.001|
observed previously\(^{[11,14]}\).

It has been thought that the reason for the disparity of UC prevalence among Malaysians is largely due to genetic factors and seems to reflect the prevalence of the disease of their original native countries. There are very limited data of UC in the indigenous population (Malay), suggesting that the disease must be very rare in this race. Among the people of Mongolid stock, UC is also uncommon. Morita et al.\(^{[22]}\), reported an incidence and prevalence per 100,000 population per annum of 1.95 and 18.12, respectively in Japan. Studies from the Indian subcontinent have confirmed that UC is not uncommon in Indians, who are ethnically related to Caucasian stock\(^{[23,24]}\). However, there is growing evidence that environmental factors play an important role in the pathogenesis of the disease. An epidemiological study of Indian migrants to Leicestershire showed a significantly higher incidence of UC in the immigrant population than the local Europeans\(^{[27]}\). Montgomery et al.\(^{[28]}\), reported that young Asians (ethnic origins in India and Pakistan) who were born in Britain were at a significantly higher risk of developing inflammatory bowel disease than the indigenous European population and suggested the role of environmental factors in uncovering the genetic predisposition to disease.

The extent of UC was similar in the Indian and Malay populations and not considerably different from those in Western countries. The Chinese on the other hand showed a significantly marked predominance of distal UC with an OR of 8.17 (CI = 1.31-64.87). The predominance of distal UC with a significantly marked predominance of distal UC in the indigenous population (Malay), suggesting the role of environmental factors and seems to reflect the prevalence of the disease and the paucity of extraintestinal complications of UC or the development of colorectal carcinoma of Asian origin\(^{[29]}\).

In our experience, treatment of UC was mainly medical (88.1%) with surgical intervention required because of complications of UC or the development of colorectal cancer. The remarkable features of the disease in our population are the relatively mild severity, indolent course of the disease and the paucity of extraintestinal manifestations. These observations are similar to those previously reported from the Asian region\(^{[11,12,29]}\).

Time trend studies would be important to determine whether there would be an increase in the incidence of UC in our part of the world as has been observed in other gastrointestinal diseases such as gastroesophageal reflux disease\(^{[21,30]}\). If environmental factors predominate in the etiology of the disease, with the rapid Westernization and socio-economic development sweeping through the whole continent, an increase in the incidence of the disease would be inevitable.

In summary, UC remains uncommon despite greater awareness of the disease and better diagnostic facilities that distinguish UC from other diseases such as infective colitis, which is prevalent in developing countries. Among the three major ethnic groups in Malaysia, the Indians have the highest prevalence of UC and the Chinese demonstrate a lesser extensive disease. As Malaysia undergoes a transition to become a developed society in time, it remains to be seen if a shift in emphasis from racial factors to specific environmental factors in the etiology of UC is uncovered.

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