

## Present characteristics of symptomatic *Entamoeba histolytica* infection in the big cities of Japan

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### SUMMARY

Medical records, for 2000 and 2001, of symptomatic amoebic patients who were treated at our hospitals in Tokyo, Yokohama and Osaka were studied retrospectively for the purpose of gathering epidemiological data on symptomatic *Entamoeba histolytica* infection. A total of 58 patients were treated. Fifty-five of them were male, and 96% of the male patients were Japanese. The mean age of patients was 44·9 years old, and 91% of patients contracted the disease in Japan. Fifty-six per cent of the male patients indicated that they were practising homosexuals, and 44% of the male patients denied these practices or left the question unanswered. The serum *Treponema pallidum* haemagglutination test was positive in 45% of the patients, and antibody to human immunodeficiency virus (HIV) was positive in 45%. Our study revealed that recent symptomatic *E. histolytica* infection almost exclusively afflicted middle-aged males in the big cities of Japan, that a majority of the patients were probably exposed to the causative organism during homosexual activity, and that an increasing number of patients will be co-infected with HIV.

### INTRODUCTION

While amoebiasis due to *Entamoeba histolytica* is distributed worldwide, it poses an especially serious health threat in tropical and subtropical developing areas. There have been few patients with amoebiasis due to *E. histolytica* in Japan, hence, Japanese physicians have paid scant attention to this protozoan disease and know little about amoebiasis. An *E. histolytica* infection causes colitis and extra-intestinal amoebiasis, and the most frequent form of extra-intestinal amoebiasis is liver abscess. Some forms of

amoebiasis are life-threatening if not rapidly detected and properly managed, and fatal cases are still occasionally reported in Japan [1, 2]. While symptomatic amoebiasis is known to be common among Japanese homosexual men [3, 4], little is known about the present features of this disease in Japan. In the interest of public health, it is therefore important to gather epidemiological data on amoebiasis. To investigate the present features of amoebiasis in the big cities of Japan, we reviewed our experiences with symptomatic patients infected with *E. histolytica* treated at our hospitals in Tokyo, Yokohama and Osaka between 2000 and 2001. Herein we report the features of symptomatic *E. histolytica* infections in these big Japanese cities.

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## PATIENTS AND METHODS

We retrospectively reviewed all medical records on symptomatic patients infected with *E. histolytica* who received treatment at four hospitals in Tokyo (Tokyo Metropolitan Bokutoh General Hospital, Tokyo Metropolitan Komagome General Hospital, Tokyo Metropolitan Toshima General Hospital, and Tokyo Metropolitan Ebara General Hospital), one hospital in Yokohama (Yokohama Municipal Citizens' Hospital), and one hospital in Osaka (Infectious Disease Centre, Osaka City General Hospital) from 1 January 2000 to 31 December 2001. All six of these hospitals have infectious disease departments and have treated more patients with amoebiasis than neighbouring hospitals.

Amoebiasis in colitis patients was diagnosed by detecting trophozoites from stool or colonic lesions taken by colonofibrescopic biopsy in 42 patients, by detecting small ulcerative or erosive lesions with areas of normal mucosa interspersed by colonofibrescopy (CFS) and a positive serological test in 3 patients, by a positive serological test in 2 patients, and by detecting small ulcerative or erosive lesions with areas of normal mucosa interspersed by CFS in 1 patient.

Amoebiasis in liver abscesses was diagnosed by detecting a liver abscess using ultrasonography (US) or computed tomography (CT) and a positive serological test in 19 patients, by detecting a liver abscess using US or CT and a positive serological test with the detection of amoebic trophozoites in the abscesses in 4 patients, and by detecting round-shaped liver abscesses using US or CT in 2 patients.

## RESULTS

The total number of patients with symptomatic amoebiasis was 58, and the number of patients and disease categories were as follows: amoebic colitis, 33 (19 in Tokyo, 10 in Yokohama, 4 in Osaka), liver abscess, 10 (4 in Tokyo, 3 in Yokohama, 3 in Osaka), amoebic colitis with amoebic liver abscess, 15 (9 in Tokyo, 3 in Yokohama, 3 in Osaka), and amoebic liver abscess with amoebic subcutaneous abscess was 1 in Osaka. The age distribution of the patients was as follows: the colitis cases included 1 patient in his teens, 7 in their twenties, 7 in their thirties, 7 in their forties, 7 in their fifties, and 4 in their sixties; the liver abscess cases included 2 patients in their thirties, 3 in their forties, 3 in their fifties, and 2 in their sixties; the cases of colitis with liver abscess included

Table 1. Profiles of patients with symptomatic amoebiasis treated at hospitals in Tokyo, Yokohama and Osaka between 2000 and 2001

	No. of patients	Age (years) mean	Sex*	
			Male	Female
Colitis	33	18–65 42·5	31 (29)	2 (2)
Liver abscess	10	32–62 48·6	9 (9)	1 (1)
Colitis with liver abscess	15	36–62 47·7	15 (15)	0 (0)
Total	58	18–65 44·9	55 (53)	3 (3)

\* Figures within parentheses indicate number of Japanese.

Table 2. Seroprevalence of positive TPHA, anti-HBsAg, and anti-HIV in symptomatic amoebic patients treated in Tokyo, Yokohama, and Osaka between 2000 and 2001

	TPHA* (%) Positive/ examined	Anti-HBsAg† (%) Positive/ examined	Anti-HIV‡ (%) Positive/ examined
Colitis	(50) 15/30	(43) 6/14	(42) 10/24
Liver abscess	(30) 3/10	(33) 1/3	(30) 3/10
Colitis with liver abscess	(47) 7/15	(22) 2/9	(54) 7/13
Total	(45) 25/55	(35) 9/26	(45) 21/47

\* *Treponema pallidum* haemagglutination test.

† Antibody to hepatitis B virus surface antigen.

‡ Antibody to human immunodeficiency virus.

5 patients in their thirties, 3 in their forties, 5 in their fifties, and 2 in their sixties. Fifty-three patients were Japanese males, 3 were Japanese females, 1 was a 38-year-old Filipino male, and 1 was a 28-year-old Brazilian male. The profiles of the patients are shown in Table 1.

Fifty-three (91%) patients contracted amoebiasis in Japan, with the place of contraction being unknown in 2 patients. Three cases were presumed to have contracted the disease at sites outside Japan: a 28-year-old Japanese female colitis patient was presumed to have contracted the disease in India, a 38-year-old Filipino male with colitis was presumed to have contracted the disease in Saudi Arabia, and

a 47-year-old Japanese male with colitis with liver abscess was presumed to have contracted the disease in the Philippines.

Thirty-one (56%) male patients indicated that they were practising homosexuals. Twenty-four (44%) male patients denied any homosexual practice or did not answer the question, but 10 of those 24 had no history of marriage, and another 4 had divorced. Twenty (80%) of 25 *Treponema pallidum* haemagglutination test (TPHA)-positive male patients with symptomatic amoebiasis, 6 of 9 (67%) antibody to hepatitis B surface antigen (anti-HBsAg)-positive male patients with symptomatic amoebiasis, and 19 of 21 (90%) antibody to human immunodeficiency virus (anti-HIV)-positive male patients with symptomatic amoebiasis indicated that they were all practising homosexuals. Positive for both TPHA and anti-HIV were 13 male patients with symptomatic amoebiasis, with 11 of them indicating that they were practising homosexuals. Table 2 shows the prevalence of seropositivity for TPHA, anti-HBsAg, and anti-HIV in the patients. All patients positive for these infectious diseases were male.

Metronidazole was administered orally to all patients as an anti-amoebic drug. Good results were obtained in all patients except for one, whose amoebiasis improved but died because of acquired immunodeficiency syndrome (AIDS). Abscess fluid was drained in 16 of 25 patients with liver abscesses, and the other 9 patients were treated without abscess drainage. It remains unclear whether the abscess drainage reduced the disease duration.

## DISCUSSION

In our review, 95% of the Japanese patients were male, approximately 72% of all patients were aged between 30 and 59 years, and more than half of the male patients indicated that they were practising homosexuals, and the prevalence of homosexual activity among serum TPHA-positive patients, serum anti-HBsAg-positive patients, and serum anti-HIV-positive patients was high. These findings may indicate, first, that symptomatic amoebiasis due to *E. histolytica* is a disease that almost exclusively afflicts middle-aged males in the big cities of Japan, and secondly, that the afflicted population may contract *E. histolytica* during homosexual activity. If patients were to acquire amoebiasis through food or water in Japan, it is thought that the number of male and female patients would be nearly the same.

*E. histolytica* may be an important sexually transmitted organism, in addition to *Treponema pallidum*, the hepatitis B virus, and HIV in the subpopulation of homosexual men in Japan. Although *E. histolytica* is now endemic to Japan in a subpopulations of homosexual men, the infection may not spread beyond this group, since *E. histolytica* infection may occur during homosexual oral-anal or oral-genital activity, and the water supply and waste disposal systems are complete not only in the big cities, but also in the small cities in Japan.

While colitis is certainly the most predominant form of symptomatic amoebiasis, physicians should be mindful that as many as 17% of patients with the disease manifest liver abscess without colitis. Physicians in Japan must recognize the possibility that male patients with liver abscesses and no concomitant colitis may be afflicted with an amoebic liver abscess.

Except for the one patient who died due to AIDS, there were no fatal cases in this study, which was to be expected. Symptomatic amoebiasis manifested as colitis or liver abscess has a good prognosis when an appropriate therapy is administered, even if the patient is co-infected with HIV [5].

Our present study revealed a high prevalence of HIV infection among symptomatic Japanese patients with amoebiasis in Tokyo, Yokohama and Osaka. In a previous review of patients with symptomatic amoebiasis in South-east Tokyo in the mid-1990s, the prevalence of HIV was very low [4], while the prevalence of TPHA-positive patients was similar to that in our present study [4]. These findings may indicate that HIV infection has become common among Japanese male patients with symptomatic amoebiasis in less than a decade. The number of HIV-infected persons is increasing in Japan [6], and the number of patients co-infected with *E. histolytica* and HIV may also be increasing. It is important for doctors to be aware of amoebiasis when HIV-infected patients, especially homosexual men, present with colitis or liver abscess in Japan.

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