

Amoebiasis: A 10 Year Retrospective Study at the University Hospital, Kuala Lumpur

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Summary

A hospital based retrospective study of amoebiasis was carried out for a ten-year period at the University Hospital, Kuala Lumpur. Of the 51 cases traced, 30 (59%) had amoebic dysentery, 20 (39%) were amoebic liver abscess (ALA) and one patient had both conditions. *Entamoeba histolytica* trophozoites were identified in 13 (43%) of the amoebic dysenteric stools and 9 (30%) from biopsy. Of the 20 (39%) ALA cases, only one showed parasites in the stool and biopsy. Majority of the patients with dysentery were Malays while Chinese comprised 40% with ALA. Males predominated overall with a male female ratio of 3:1, while for ALA it was 9:1. Most of ALA were single (71.4%) and were localised in the right lobe. The majority of the patients were unemployed. Eighty three percent (83%) of the patients presented with diarrhoea or dysentery followed by abdominal pain while those with ALA had fever, chills, rigors and pain in the right hypochondrium. Eighty percent of the ALA cases showed hepatomegaly. All patients responded to treatment with metronidazole.

Key Words: Amoebiasis, Hospital based retrospective study, Epidemiology

Introduction

Amoebiasis caused by an intestinal amoeba - *Entamoeba histolytica* is an endemic disease in Malaysia. The prevalence of amoebiasis, as demonstrated by stool examination for cysts had been carried out by several workers on various populations in all ethnic and age groups¹⁻⁶. The prevalence of amoebiasis from these surveys ranged from 1.0% to 40.7%. Several workers have reported prevalence of amoebic liver abscesses in various hospitals in Malaysia⁷⁻¹⁰. It was also observed that amoebic liver abscess had a higher incidence in the Indian community¹¹. These surveys under-reported the extent of this infection in the Malaysian community as most infected patients did not bring their watery stools to be examined fast. Amoebiasis can present as two forms viz. as asymptomatic cyst-passers (90%) which serve as a source of infection to the community and invasive amoebiasis (10%) clinically expressed as amoebic colitis/dysentery and or amoebic liver abscess.

Patients are usually admitted to the hospital for amoebic dysentery, amoebic liver abscess or for their complications.

The aim of this study was to retrospectively determine the number of amoebiasis cases admitted to the University Hospital in the last ten years and note their clinical presentations and epidemiology.

Materials and Methods

The case records of all patients admitted with amoebiasis to the University Hospital, Kuala Lumpur for the year 1984 - 1994 were reviewed in detail. Patients were considered to have amoebiasis when: (1) *Entamoeba histolytica* trophozoites and cysts were recovered from the stool specimen with/without history of dysentery; (2) *Entamoeba histolytica* trophozoites were recovered from the liver biopsy, colonic biopsy, sigmoidoscopy or

from the anchovy pus; (3) *Entamoeba histolytica* antibody titres were greater than 1:64; (4) anchovy pus was drained from liver abscess and (5) when the patient responded to treatment with anti-amoebic drugs alone.

The data collected were analysed on the basis of sex, ethnicity, age, socio-economic status, clinical features, complications, management and type of amoebic infection. The blood chemistry of most of these patients were not done as previous authors had indicated that it was not diagnostic⁹.

Results

A total of 51 patients admitted with amoebiasis for the periods 1984 - 1994 showed that 30 (59%) had amoebic dysentery, 20 (39%) had amoebic liver abscess and one patient had both amoebic colitis and amoebic liver abscess. Table I shows that of the 30 cases with amoebic

dysentery, 13 (86.7%) were stool positive and nine (81.8%) specimens obtained from biopsy were positive for *Entamoeba histolytica* trophozoites. Of the 20 (39%) liver abscess cases, one (6.7%) showed parasites in the stool specimens and one (6.7%) was positive at biopsy. Parasites were identified in the stool and biopsy specimens in the patient with both amoebic dysentery and amoebic liver abscess. Of the 51 cases, 15 (30%) were stool positive thus proving an etiological link between the condition and the agent. In biopsy, 11 (21.6%) were positive for the parasite.

Table II shows that of the 30 cases of amoebic dysentery, 18 (60%) were males and 12 (40%) females. Twelve (40%) amoebic dysentery patients were Malays, followed by Chinese (33.3%) and 5 (16.7%) being Indians. Ninety percent (90%) of amoebic liver abscess cases were seen in males. Of the different types of clinical presentations of amoebiasis, 37 (72.6%) were predominantly seen in males thus showing male

Table I
Classification of the Various Clinical Forms of Amoebiasis Admitted to the University Hospital, Kuala Lumpur: 1984-1994

| Type of Amoebiasis | Number of Cases (%) | Stool Positive (%) | Biopsy Specimen Positive (%) |
|--|---------------------|--------------------|------------------------------|
| Amoebic dysentery | 30 (59) | 13 (86.7) | 9 (81.8) |
| Amoebic liver abscess | 20 (39) | 1 (6.7) | 1 (9.1) |
| Amoebic dysentery + Amoebic liver abscess | 1 (2) | 1 (6.7) | 1 (9.1) |
| Total | 51 | 15 | 11 |

Table II
Types of Amoebiasis Classified According to Ethnicity for Years 1984-1994

| Types of amoebiasis | Malay | | Chinese | | Indians | | Others | | Total |
|--|-------|-----|---------|-----|---------|-----|--------|---|-------|
| | M | F | M | F | M | F | M | F | |
| Amoebic dysentery | 7 | 5 | 7 | 3 | 3 | 4 | 1 | 0 | 30 |
| Amoebic liver abscess | 3 | 0 | 8 | 1 | 6 | 1 | 1 | 0 | 20 |
| Amoebic dysentery and amoebic liver abscess | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| Total | 10 | 5 | 15 | 4 | 9 | 5 | 3 | 0 | 51 |
| Percentage (%) | 19.6 | 9.8 | 29.4 | 7.8 | 17.7 | 9.8 | 5.9 | 0 | 100 |

preponderance. From Table II, it can also be seen that male Chinese formed the core comprising 29.4% followed by male Malay (19.6%) and Indians (17.7%). Amoebic liver abscess was a condition seen largely among male Chinese who formed 40% of the cases followed by Indians (30%).

Table III shows the type of abscesses encountered in this study. Of the total cases of amoebic liver abscess, 15 (71.4%) had abscesses which were single and located in the right lobe while 2 (9.5%) were single abscesses located in the left lobe. Three (14.3%) were multiple abscesses.

Table III
Types of Abscesses in Amoebic Liver Abscess

| Types of Abscess | Number of Cases (%) |
|------------------------------|---------------------|
| Single abscess in right lobe | 15 (75%) |
| Single abscess of left lobe | 2 (10%) |
| Multiple abscesses | 3 (15%) |

Table IV shows the distribution of amoebiasis according to age, sex and race. Thirty seven point three (37.3%) constituted the Chinese, 29.4% Malays and 27.5% Indians. The prevalence of amoebiasis was predominantly seen in two age groups: viz. 0 - 9 years and 50 - 59 years. Males formed 70.6% of the total number of amoebiasis cases of which 29.4% were Chinese in this study. Malays formed 19.6% of the cases while Indians constituted 11.8%. When both sexes were combined, 37.3% of the patients affected were Chinese. The Malays formed 29.4% and Indians 27.5%.

Table V shows the socio-economic status or occupation of the affected patients. Most of the affected patients were people from the lower socio-economic groups. Twenty percent were unemployed. Six of the patients were chronic smokers and chronic drinkers. All the children came from poor families and four (20%) of amoebic liver abscesses reported were seen in children, the youngest, was a one year old male Indian child. An eleven-year old Indian child with amoebic liver abscess had just returned from India 6 days prior to admission. The child could have picked up the infection from India.

Table IV
Distribution of Amoebiasis by Age, Sex and Race (1984 - 1994) UHKL

| Age Groups | Race & Sex | | | | | | | | Total | (%) |
|------------|------------|-----|---------|-----|--------|------|--------|---|-------|------|
| | Malay | | Chinese | | Indian | | Others | | | |
| | M | F | M | F | M | F | M | F | | |
| 0-9 | 3 | 1 | 1 | 0 | 3 | 1 | 0 | 0 | 9 | 17.7 |
| 10-19 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 5 | 9.8 |
| 20-29 | 2 | 1 | 3 | 0 | 0 | 0 | 1 | 0 | 7 | 13.7 |
| 30-39 | 2 | 0 | 3 | 0 | 2 | 0 | 0 | 0 | 7 | 13.7 |
| 40-49 | 1 | 0 | 4 | 1 | 0 | 1 | 1 | 0 | 8 | 15.7 |
| 50-59 | 1 | 1 | 3 | 1 | 1 | 1 | 1 | 0 | 9 | 17.7 |
| 60-69 | 1 | 1 | 0 | 1 | 1 | 2 | 0 | 0 | 6 | 11.8 |
| Total | 10 | 5 | 15 | 4 | 8 | 6 | 3 | 0 | 51 | |
| (%) | 19.6 | 9.8 | 29.4 | 7.8 | 15.7 | 11.8 | 5.9 | | | |
| | 29.4% | | 37.3% | | 27.5% | | 5.9% | | | |

Table V
Socio-economic Status or Occupation of Patients

| Types of Occupation | Number of Cases (%) |
|---------------------|---------------------|
| Rubber tapper | 2 (04) |
| Labourer | 5 (10) |
| Security guard | 2 (04) |
| Pensioner | 5 (10) |
| Lorry driver | 2 (04) |
| House wife | 4 (08) |
| Clerk | 3 (06) |
| Unemployed | 10 (20) |
| Businessman | 4 (08) |
| Factory worker | 2 (04) |
| Ex-Army personnel | 1 (02) |

*Children, 11(22%) were excluded from the above table

Table VI shows the clinical presentation of all the amoebiasis patients admitted to the hospital. Majority (83%) of the patients with amoebic dysentery presented either with diarrhoea or dysentery followed by abdominal pain. Majority (95%) of the patients with amoebic liver abscesses presented clinically with fever, chills, rigors and pain in the right hypochondrium. Eighty percent of the amoebic liver abscess cases showed hepatomegaly while (20%) presented with jaundice. It is interesting to note that 20% of amoebic dysentery patients showed hepatomegaly.

All patients responded to treatment with metronidazole except two cases: one who developed recurrent abscess and another elderly female patient who died of septicaemia secondary to peritonitis caused by amoebic colitis. Five of the amoebic liver abscess patients were treated with both oral metronidazole and drainage of abscess.

Discussion

Amoebiasis is the second most important protozoan infection in Malaysia after malaria¹. Surveys carried out by various authors show the prevalence of *Entamoeba histolytica* infection to range from 1.0% - 14.4% with a higher prevalence among aborigines of all age groups¹. While survey prevalence of the infection is high within the community, the number of clinical cases of amoebiasis admitted to the hospitals appears to be low. The extent of the prevalence of intestinal and hepatic amoebiasis is still unknown and could be a tip of iceberg problem in Malaysia, as they are not reported. Even when they are admitted to the hospitals the cases are not reported except for occasional publications as retrospective studies. Surgeons and gastro-enterologists report only amoebic liver abscess cases rather than other clinical complications. A number of hospital based studies have been carried out to determine the extent and prevalence of amoebiasis in Malaysia⁷⁻¹⁵. Most of the studies concentrated on amoebic liver abscess rather than intestinal amoebiasis. The studies carried out indicate that amoebic liver abscess is a common

Table VI
Clinical Presentation of All the Amoebiasis Patients

| Clinical Symptoms & Signs | Amoebic Dysentery (%) n=30 | Amoebic Liver Abscess (%) n=20 |
|-----------------------------|-------------------------------|-----------------------------------|
| Diarrhoea | 83 | 50 |
| Abdominal pain | 63 | 20 |
| Fever with chills and rigor | 13 | 95 |
| Right hypochondrium pain | 0 | 80 |
| Hepatomegaly | 20 | 80 |
| Jaundice | 0 | 20 |

*Patient with both amoebic dysentery and liver abscess had all the symptoms listed above

infection in Malaysia⁷⁻¹³. In this 10 year retrospective study, a total of 30 (59%) cases were diagnosed with amoebic dysentery, 20 (39%) were amoebic liver abscess and one patient had both amoebic dysentery and amoebic liver abscess. Thus, an average of 5.1 amoebiasis cases was admitted to the hospital annually. The results of this study and others show that amoebic liver abscess and amoebic dysentery are important from the medical point of view but are not commonly reported.

Clinical suspicion of amoebic liver abscess can best be confirmed by a positive serologic, sonographic or radiological procedure followed by a specific response to therapy. Diagnostic aspiration may occasionally be needed to differentiate between amoebic and pyogenic abscesses. The aspiration under these circumstances needs to be carried out using ultrasound guidance. The percutaneous needle aspiration needs to be performed at the site of maximal tenderness or over the area of maximum dullness to percussion. If these signs are not present, the site of choice is along the anterior axillary line in the ninth inter-space.

The most reliable and dependable diagnostic technique for amoebiasis is the demonstration of the parasite (trophozoites) in specimens obtained from patient's i.e. the stools. Stool examination is tedious and time consuming. If the stools are not collected timely the trophozoites are destroyed and diagnosis becomes inconclusive. A number of authors have testified to the difficulties in confirming the causative organism^{7,10-13}. Trophozoites may not be found in biopsy materials because they disintegrate and disappear and hence confirmation of final diagnosis of amoebic liver abscess is seldom achieved. A number of serological tests have been found useful in confirming the diagnosis of invasive amoebiasis. This includes Fluorescent antibody test, gel diffusion, and immuno-electrophoresis, which are ideal but pose a limitation in routine use. The indirect immuno-fluorescent method has been found to be highly sensitive with 96% reactivity among confirmed liver abscess cases¹⁴. However, no serological diagnosis was carried out in these cases. The reliance of the diagnosis was based purely on stool examination and liver biopsy. If only 43% of the amoebic dysentery cases were stool positive and 30% were positive on biopsy, the

failure to detect the pathogen in the remainder of the 17 cases could be attributed to misdiagnosis or failure to consider it in the differential diagnosis. It is obvious because any amoebic dysenteric stool would be positive for the trophozoites. On the other hand, in hepatic liver abscess, trophozoites are never encountered in stools unless the patient has both intestinal and extra-intestinal amoebiasis as was in the single case. Besides, amoebic liver abscess may mimic pyogenic liver abscess, tuberculous abscess or even indeterminate abscess. Hence, an etiologic association of the abscess is mandatory and must definitely be carried out by all personnel involved in the management.

Previous authors have reported that amoebic liver abscesses were predominantly seen in males and in Indians^{7-8,10-13}. The male female ratio, in this study, for amoebic liver abscess was 9:1 while for amoebic dysentery it was 3:2. Forty five percent of the amoebic liver abscess cases were seen in the Chinese followed by Indians (35%). Malays formed the predominant group to be affected with amoebic dysentery forming 40% of the cases followed by Chinese. Indians did not form the predominant group affected for both conditions in this study. In Malaysia, previous reports showed high prevalence of amoebiasis among the Malays followed by the Aborigines^{13,4}. The higher prevalence among certain ethnic groups in Malaysia is not due to any ethnic predisposition but reflects the overall socio-economic status, level of environmental sanitation and hygiene practised as well as other socio-cultural practices pertaining to diet and eating habits¹⁴. The residence history of all the patients showed that they were from the rural and urban disadvantaged communities with poor toilet facilities.

Goh *et al.*'s⁷ found the peak incidence of amoebic liver abscess in the 30 - 60 years age group while Teh *et al.*¹³ study showed in the 40 - 70 years age group. Fock *et al.*¹² noted incidence in 50 years and above. Patterson and Schoppe¹⁵ however, reported the disease to be predominantly in young male contrary to the findings of others. In this study, patient's age ranged from 0 - 59 years with peak incidence noted in the 40 - 49 years age groups. However, 61.9% of the case were in the older age group i.e. 30 - 59 years concurring with the results of others.

The majority of the amoebic liver abscesses are solitary or single abscesses and usually located in the right lobe of the liver^{7,12-13}. Amoebic abscesses were the only abscesses that predominated in the right lobe in the Singapore study¹³. Goh *et al.*⁷ in their study found 86.5% of the abscesses single with the majority (77.7%) in the right lobe. In this study, 75% of the liver abscesses were single and found in the right lobe. Only 10% were found in the left lobe with multiple abscesses forming 15% of the total. The results of this study concurs with Goh *et al.*'s study which was carried out in the same hospital at a different period.

The diagnosis of amoebic liver abscess depends on the clinician suspicion and recognition of a well-described clinical syndrome. The common clinical presentation is fever with chills and rigors, right hypochondrium pain, tender hepatomegaly, anorexia, malaise and nausea and these have been observed in all the studies⁷⁻¹⁰. It has been emphasised that fever of unexplained origin should give a strong suspicion of amoebic liver abscess. This should be entertained in any case of prolonged fever particularly in the tropics⁹. Jaundice has been reported previously from rare to 55% of the patients⁷⁻¹⁰. In this study, 20% showed jaundice. The clinical presentation, however, in all the patients with amoebic liver abscess were similar to the findings of other researchers. In patients with amoebic dysentery diarrhoea, abdominal pain, fever with chills and rigor were pathognomonic signs.

Amoebiasis occurs in people from the lower socio-economic groups and is associated with poverty, squatter settlements, improper sanitation, contaminated food and drinking water and poor nutrition¹⁵. Most of the patients in this survey were from poor socio-economic group, or unemployed (20%) and could have consumed food prepared in an unhealthy environment.

Metronidazole (750-mg t.i.d for 10 days) is highly effective against invasive amoebiasis, as well as anaerobic bacteria. When scan or ultrasonography confirms a suspected liver abscess and while awaiting serologic confirmation of an amoebic aetiology, treatment with metronidazole should be initiated. This may obviate the need for diagnostic needle aspiration. If clinical improvement is not obtained in about 3 days, aspiration should be performed. Some workers always recommend pre-treatment diagnostic aspiration when the aetiology is not clear. Tinidazole (Fasigyn) is a new drug that has been used for the treatment of amoebiasis under many regimens: 600mg twice daily for 5 to 10 days; single daily doses of 2gm for 2 to 6 days; 800mg, 3 times daily for 5 days or single daily doses of 2gm repeated for 3 days. This is an effective anti-amoebic drug with a longer half life and relatively fewer side effects. The efficacy of this drug awaits evaluation from our physicians and surgeons.

In conclusion, this retrospective study shows that the disease pattern closely resembles that of other countries in terms of its epidemiology and clinical presentation. The morbidity and mortality data of this disease is unknown. While a number of serological tests are becoming available, it would be timely if these tests are used to confirm the diagnosis in suspected individuals so that a true incidence and prevalence of the disease can be determined in the Malaysian community. While field surveys have indicated a high prevalence in the population this cannot be said for clinical cases of amoebiasis.

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