CASE REPORT

An unusual presentation of an amoebic liver abscess: the story of an unwanted souvenir

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SUMMARY

This case was rather unusual with regard to the disease presentation. The patient had non-specific symptoms of weight loss and general malaise, without any history of preceding diarrhoea or dysentery. It is important to be aware of the epidemiology of the disease, and to relate it to patients presenting with symptoms suggestive of amoebiasis. We discuss the recommended investigations and management options for these patients based on the current guidelines/evidence.

BACKGROUND

This was an unusual case which came to our attention. The patient was managed under our team, with an unclear diagnosis, subsequently found to be amoebiasis, which is rare in the UK. Investigations and management for this condition are not commonplace in the UK, but with the increasing numbers of travellers and people going abroad, it is a diagnosis to note. Our case illustrates the importance of taking a good travel history and not necessarily just in the previous 12 months.

CASE PRESENTATION

Case

A 74-year-old gentleman presented with loss of appetite over a 5-week period, weight loss of one stone, malaise, confusion and dizziness on standing. Previously, the patient was fit and well, a non-smoker with no significant medical history, minimal alcohol intake and on no regular medications. On examination, the observations were normal, afebrile, no tachycardia or tachypnoea and normal oxygen saturations. There were bibasal crepitations heard on auscultation of the chest and the abdomen was soft and non-tender. The blood tests performed showed raised white blood cells of $22.6 (4-11 \times 10^9/l)$ and a raised C reactive protein of 140 ($<5 \text{ mg/l}$). The liver tests were also deranged, showing a bilirubin of 15 ($0-15 \mu\text{mol/l}$), alkaline phosphatase of 157 ($40-120 \text{ U/l}$), alanine aminotransferase of 78 ($5-37 \text{ U/l}$), albumin of 24 ($35-50 \text{ g/l}$) and γ -glutamyl transpeptidase of 68 ($0-50 \text{ u/l}$), an increase from the patient's normal range. The haemoglobin level was within the normal range at 13.8 ($12.7-16.4 \text{ g/dl}$). At this point, the differential diagnoses discussed were infection (of unknown source), malignancy and postural hypotension.

Investigations were ordered; the chest x-ray showed left basal consolidation with some patchy right-sided consolidation, with no diaphragmatic elevation to suggest subdiaphragmatic pathology. The patient was started on oral amoxicillin and CT

imaging of the chest was requested. This showed a solitary lesion in the right lobe of the liver measuring 11 cm in diameter (figure 1). This was suspected to be an abscess; thus, the patient was started on tazocin and metronidazole as per the hospital guidelines, and needed to await drainage of the abscess. There was no suspicion of chronic liver disease on examination or on CT, so no gastroscopy was performed.

On day 5, the senior house-officer phoned the consultant microbiologist to discuss the planned duration of antibiotics as blood cultures taken previously were negative. Further, patient history was elicited at this point. It was found that there was no history of diarrhoea or vomiting or any recent travel; however, the patient had been in Egypt over 3 years ago. With this new information, amoebic and hydatid serologies were requested and sent to the Liverpool School of Tropical Medicine. Subsequent fine needle aspiration of the abscess only revealed non-specific inflammation. Ultrasound guided drainage of the liver abscess was organised. The collected fluid was sent for microscopy, culture and sensitivities. Results showed leucocytes only and nothing was grown on culture. Following these events, results from the tropical medicine unit were available regarding the requested serology. Positive amoebic serology was confirmed along with negative hydatid serology. To confirm this result, indirect fluorescent antibody (IFA) titre was performed. The initial sample showed a titre of 1:128, which increased to 1:512 after a week. Intravenous tazocin was stopped and metronidazole was continued. A repeat scan after 2 weeks of therapy showed the lesion to be 5.3 cm in diameter (figure 2).

The patient was then discharged home on oral metronidazole for a further 2 weeks to be followed

Figure 1 CT image showing a solitary lesion in the right lobe of the liver measuring 11 cm in diameter.

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Figure 2 Repeat ultrasonography after 2 weeks of therapy showed the presence of a resolving liver abscess, now measuring 5.3 cm.

by a course of diloxanide furoate. Repeat imaging was planned at 4 weeks postdischarge for follow-up.

Discussion

Amoebiasis is a major parasitic infection in developing countries. Amoebiasis is a common cause of recurrent diarrhoea and bloody mucoid stool.¹ An estimated 40 000–100 000 people die every year from amoebiasis worldwide.² With medical treatment, the death rates are between 1 and 3%.² Transmission is usually via contaminated food or water but can be associated with sexual contact through faecal oral contact. Development of amoebiasis usually starts with the ingestion of faecally contaminated water or food containing *Entamoeba histolytica* cysts. The initial *E histolytica* infection causes acute amoebic colitis. Typical symptoms include abdominal pain and fever. Abdominal pain is reported to be present in 98% and fever in 74% of the cases. A history of diarrhoea is present in 20–30% of the cases. Hepatomegaly and tenderness in the right upper quadrant of the abdomen (over the liver) are the most frequent physical signs.^{3 4} Other pathogenic spread is secondary to the development of colonic amoebiasis and can affect multiple systems leading to liver abscess formation, hepatopulmonary fistula, amoebic pericarditis or brain abscesses.⁵ In 90% of cases, the infection is asymptomatic and self-limiting. Around 10% of the cases show invasive disease, and less than 1% of the cases show extraintestinal disease. Liver abscess formation is the commonest extraintestinal manifestation, most commonly developing in the right lobe with characteristic ‘anchovy-sauce’ pus.

The diagnosis of amoebiasis is based on:

- ▶ Direct microscopy of the stool sample for trophozoites.
- ▶ Enzyme immunoassay (EIA) kits for the detection of faecal amoebiasis (the parasite will not be found in the stool once disease is extraintestinal).
- ▶ Identification of the parasite in liver abscess aspirate (20% sensitivity); however, PCR on the aspirate can detect *E histolytica* with a sensitivity of 83%.⁶
- ▶ Diagnostic serology screening with the latex agglutination test: rapid test with a sensitivity of 98% and specificity of 96%.
- ▶ Detection of antibodies by IFA detection, indirect haemagglutination or gel diffusion precipitation tests.

A non-invasive diagnostic test for amoebic liver abscess is required; amoebic and bacterial abscesses can appear identical on ultrasound scans (USS) or CT. IFA titre was used in this case to confirm diagnosis of amoebiasis. A titre of 16 or higher is diagnostic. The test will be positive if tissue invasion has occurred. No rise is found in patients who have acute amoebic dysentery or are asymptomatic cyst passers. Conversely, significant titres are found in patients with active hepatic amoebiasis. Sensitivity and specificity are >95%. Antiamoebic activity is almost exclusively confined to IgG autoantibodies. Serological testing demonstrates the presence of antiamoebic antibodies and is positive for most patients with an amoebic liver abscess. However, in individuals from endemic areas, it can remain positive for antiamoebic antibodies for several years after an infection.^{7–9} The differentials would include hepatocellular carcinoma, hepatic metastases and pyogenic abscess. It should also be remembered that certain patient groups like the elderly and the immunosuppressed may not always display a response to infection, for example, with a fever. If anyone has a history of travel to an endemic area with compatible symptoms, there should be a high index of suspicion and appropriate serological testing should be undertaken.

Management

Oral amoebicidal drugs are the first line of treatment for amoebiasis with uncomplicated amoebic liver abscess. Metronidazole remains the drug of choice. The efficacy of metronidazole as an amoebicide shows a cure rate of 90% and no resistance is yet to be observed.^{10 11} A course of 750 mg three times a day for 7–10 days is recommended. Abscesses smaller than 5 cm in diameter respond better to metronidazole treatment. A course of metronidazole and diloxanide furoate is recommended for the pharmacological management of the condition.^{12 13} This is because a tissue agent, metronidazole, treats the invasive amoebiasis and then a luminal agent like diloxanide furoate eliminates any intra-luminal cysts. A study showed clearance of the parasite with the above combined therapy in a group of 34 patients with amoebiasis to be 100%.¹³ Percutaneous needle aspiration and/or catheter drainage are the invasive alternatives. Routine aspiration is not recommended in most cases; however, aspiration may be considered especially if the abscess is large, complicated or unresponsive to pharmacological management. Some authors suggest that only abscesses of less than 5 cm will respond to medical treatment; thus, larger abscesses should undergo aspiration.⁴ Patients with aspirated abscesses were shown in general to stay longer in hospital irrespective of their abscess size, suggesting that aspiration and not solely abscess size was the factor most influencing hospital stay.¹² If both pharmacological management and percutaneous needle aspiration fail to treat an amoebic liver abscess, treatment with USS or CT-guided catheter drainage is indicated. Overall, the indications for catheter drainage include failure of medical therapy within 48–72 h, an abscess cavity of >5 cm with a thin rim (<1 cm) of liver tissue around it on ultrasound and a left lobe abscess.¹⁴ Surgical open drainage is only indicated for patients with a complicated amoebic abscess, such as development of a secondary infection and peritonitis with or without perforation.

Conclusions

This case was rather unusual with regard to disease presentation. The patient had non-specific symptoms of weight loss and

general malaise, without any history of preceding diarrhoea or dysentery. It is important to be aware of the epidemiology of the disease, and to relate it to patients presenting with symptoms suggestive of amoebiasis. The usual incubation period of *E histolytica* demonstrated in travellers from Europe who develop amoebic liver abscesses is reported to be 8–20 weeks after leaving an endemic area.¹⁰ In this case, the patient was asymptomatic for several years, which is very unusual for this disease. It is advised that medical management is first line, and only with failure to improve on medical management should more invasive management methods be used.

INVESTIGATIONS

- ▶ Direct microscopy of the stool sample for trophozoites.
- ▶ EIA kits for the detection of faecal amoebiasis (the parasite will not be found in the stool once the disease is extraintestinal).
- ▶ Identification of the parasite in liver abscess aspirate (20% sensitivity). However, PCR on the aspirate can detect *E histolytica* with a sensitivity of 83%.⁶
- ▶ Diagnostic serology screening with the latex agglutination test: rapid test with a sensitivity of 98% and specificity of 96%.
- ▶ Detection of antibodies by IFA detection, indirect haem-agglutination or gel diffusion precipitation tests.
- ▶ USS or CT to identify abscesses.

TREATMENT

- ▶ Oral amoebicidal drugs are the first line of treatment for amoebiasis with uncomplicated amoebic liver abscess. Metronidazole remains the drug of choice.
- ▶ A course of metronidazole followed by diloxanide furoate is recommended for the pharmacological management of the condition.
- ▶ Percutaneous needle aspiration and/or catheter drainage are the invasive alternatives. Catheter drainage is required for failure to respond to medical therapy within 48–72 h, an abscess >5 cm or a left lobe abscess.

OUTCOME AND FOLLOW-UP

The patient was managed pharmacologically and with percutaneous drainage. Serial subsequent USS showed the liver abscess to be decreasing in size, as well as complete resolution of the patient's symptoms. The patient was followed up in the clinic regularly.

DISCUSSION

Amoebiasis with amoebic liver abscess development is an unusual/rare find in medical practice in the UK. This case also did not have the typical symptoms you would expect with amoebiasis, as well as the lengthy delayed presentation. We hope we have brought this disease to the attention of readers, and have described the current recommended evidence for its investigation and management.

Learning points

- ▶ Amoebiasis is a major parasitic infection in developing countries; symptoms include recurrent diarrhoea, bloody mucoid stool, abdominal pain and fever. It should be considered in cases of returning travellers with symptoms.
- ▶ Presentation is usually within 8–20 weeks after being in an endemic area but, as in this case, it can be years later.
- ▶ The diagnosis of amoebiasis is based on direct microscopy of the stool sample, enzyme immunoassay, diagnostic serology screening with the latex agglutination test, detection of antibodies by immunofluorescence antibody detection, and ultrasonography to detect abscesses.
- ▶ Oral amoebicidal drugs are the first line of treatment for amoebiasis with uncomplicated amoebic liver abscess. Metronidazole remains the drug of choice followed by diloxanide furoate.
- ▶ Percutaneous needle aspiration and/or catheter drainage is not recommended in most cases; however, aspiration may be considered especially if the abscess is large, complicated or unresponsive to pharmacological management.

Competing interests None.

Patient consent Obtained.

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REFERENCES

- 1 Chang HR, Lee JJ, Lin CB. Pleural empyema secondary to rupture of amoebic liver abscess. *Intern Med* 2012;51:471–4.
- 2 Stanley S. Amoebiasis. *Lancet* 2003;361:1025–34.
- 3 Akgün Y, Taçyıldız İH, Çelik Y. Amebic liver abscess. Changing trends over 20 years. *World J Surg* 1999;23:102–6.
- 4 Donovan AJ, Yellin AE, Ralls PW. Hepatic abscess. *World J Surg* 1991;15:162–9.
- 5 Murali A, Balu K, Paari V, et al. Atrial flutter and pericarditis; a rare complication of right lobe amoebic liver abscess. *Med J Malaysia* 2011;66:5:499–500.
- 6 Khan U, Mirdha BR, Samantaray JC, et al. Detection of *Entamoeba histolytica* using polymerase chain reaction in pus samples from amoebic liver abscess. *Indian J Gastroenterol* 2006;25:55–7.
- 7 Jackson TFGH, Gathiram V, Simjee AE. Serological differentiation between past and present infections in hepatic amoebiasis. *Trans R Soc Trop Med Hyg* 1984;78:342–5.
- 8 Juniper K, Worrell CL, Minshew MC, et al. Serologic diagnosis of amoebiasis. *Am J Trop Med Hyg* 1972;21:157–67.
- 9 Yang J, Kennedy MT. Evaluation of enzyme-linked immunosorbent assay for the serodiagnosis of amoebiasis. *J Clin Microbiol* 1979;10:778–85.
- 10 Li E, Stanley SL. Amoebiasis. *Gastroenterol Clin North Am* 1996;25:471–92.
- 11 Luvuno FM. Surgery for complicated amoebiasis. *Bailliere's Clin Trop Med* 1988;3:349–65.
- 12 McGarr PL, Madiba TE, Thomson SR, et al. Amoebic liver abscess—results of a conservative management policy. *SAMJ* 2003;93:2.
- 13 Qureshi H, Ali A, Baqai R, et al. Efficacy of a combined diloxanide furoate-metronidazole preparation in the treatment of amoebiasis and giardiasis. *J Int Med Res* 1997;25:3:167–70.
- 14 Sharma N, Sharma A, Varma S, et al. Amoebic liver abscess in the medical emergency of a North Indian Hospital. *BMC Res Notes* 2010;3:21.

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