

Hepatic Amoebiasis with Superimposed (Secondary) Infection

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Abstract: Amoebiasis is not only one of the most common parasitic infection affecting the hepatobiliary system, it is also the most aggressive and therefore, a leading cause of death especially in most tropical and developing countries in which the prevalent ignorance, poverty, malnutrition and suboptimal sanitation increased the susceptibility. There is increased morbidity and mortality when there is a superimposed infection. Superimposed infection in cases of amoebic liver diseases are not only rare (as few cases are reported in literature), they are associated with increased morbidity and mortality. We hereby discuss a fatal case, seen at our centre and review the radiological assessment and literature to emphasize the fact that high index of suspicion is needed to promptly made the diagnosis and proper treatment. The patient was a 40 year old adult with history of abdominal pain and fever who had ultrasound, full blood count and liver function test done and initial diagnosis of amoebic liver abscess was made but died within 48 h of presentation despite commencement of treatment. Postmortem examination revealed there was a superimposed bacteria infection.

Key words: Amoebic, liver, abscess, secondary infection, rare, mortality

INTRODUCTION

Amoebiasis can be considered the most aggressive disease of the human intestine, responsible in its invasive form for clinical syndromes, ranging from the classic dysentery of acute colitis to extraintestinal disease, with emphasis on hepatic amoebiasis unsuitably named amoebic liver abscess (Salles *et al.*, 2003).

Hepatic amoebiasis or Amoebic liver abscess is seen more commonly in males; as 89% male preponderance was recorded by Salles *et al.* (2003).

It is considered to be the second or third leading cause of death amongst the parasitic diseases, surpassed only by malaria and schistosomiasis (Salles *et al.*, 2003).

Although, secondary infection is not a frequent complication-only reported in 10-20% of the patients with large or multiple lesions (Salles *et al.*, 2003). It can result in severe illness with an increase in morbidity and mortality.

The aim of the case report is to present a patient with amoebic liver abscess and secondary septicaemia thereby emphasizing the increased risk the secondary infection carries.

CASE REPORT

B.C is a 45 year old farmer who was supported (by relatives) into the accident and emergency unit of Obafemi Awolowo University Teaching Hospitals Complex. He presented with 3 weeks history of fever and a month history of abdominal pain.

The abdominal pain started as a dragging sensation in the (Rt) hypochondrium which radiated to the (Rt) shoulder region. It became worse progressively and was initially relieved by analgesics. The fever, which was at first low grade also became high grade, since about a week before presentation.

There was history of abdominal swelling (2 weeks duration) and jaundice of week duration.

General examination revealed a febrile (temp, 38.9%), tachypnoeic severely pale and ill looking man in obvious painful distress. He was jaundiced, with fast faint pulse (tachycardia 105 pulse/min). The respiratory system (apart from the tachypnoea) was normal.

- The abdominal examination revealed scarification mark on the (Rt) hypochondrial region and abdominal distension.

- On palpation, there was marked tenderness in the (Rt) hypochondrial region with a firm smooth hepatomegaly (8 cm below the costal margin). The spleen was also mildly enlarged. Other systems were essentially normal.
- A diagnosis of septicemia with anaemia secondary to pyogenic liver abscess was made.
- The full blood count revealed a PCV of 19% with leucocytosis (confirming anaemia and septicemia) while the Human Immunodeficiency virus screening was negative. Blood was also sent for culture and sensitivity.
- Serum alkaline phosphatase and transaminases were moderately elevated.
- An urgent abdominal ultrasound showed an enlarged liver (mainly the (RT) lobe) and a large oval shaped subcapsular hypoechoic lesion with fine homogenous granular internal echoes. The spleen is moderately enlarged but showed normal parenchymal echoes. The kidneys and pancreas were normal. There was no ascites.
- An ultrasound diagnosis of amoebic liver abscess R/o Hepatoma was made. The plain chest X-ray was normal.
- The patient was placed on tripple antibiotic regime of metronidazole, ciprofloxacin and Gentamycin; he also had blood transfusion but eventually died within 48 h of admission.
- Detailed post mortem assessment revealed the hepatic collection to be creamy-white in colour, with few amoebae identified in the pus; also mixed organisms were also seen. A post mortem diagnosis of secondarily infected hepatic amoebiasis was made.

DISCUSSION

Amoebiasis is the most aggressive protozoal disease that affects the human bowel.

Those in the 3rd and 4th decades of life appear most vulnerable, although the disease process can occur in childhood.

Benign space occupying lesions in the liver are very common in the tropics and sub tropics because of parasitic infestation. Most common among the benign causes are parasitic infections of which hepatic amoebiasis is the commonest (Olubuyide and Ayoola, 1986).

Different investigation reported its high frequency especially in the metropolitan regions of developing countries; subtropics and tropical regions. It is reported to be more common in Nigeria compared to other countries in West Africa where pyogenic abscess is more (Adi, 1965).

The hepatic lesion is usually solitary, most frequently located in the (Rt) lobe, contiguous to the capsule and may be variable in size, occasionally occupying about 80% of the liver surface (Salles *et al.*, 2003). The lesion in this presented case was solitary and located in the right hepatic lobe, subcapsular.

Fever, pain and hepatomegaly are the most common symptoms-these are present in the discussed patient. Abdominal pain is the earliest and most frequent complication and it is present in 100% of the patients. Other symptoms may include malaise, nausea, vomiting, anorexia and weight loss. In about 2% of cases, diarrhoea and abdominal cramps may be present.

Jaundice is seen in about 5% of cases and this suggests existence of large or multiple abscess, superimposed bacterial infection and derangement of hepatic function (Ahmed *et al.*, 1992).

The patient presented with jaundice most likely due to the superimposed bacterial infection, size of the lesion and mild derangement of hepatic function as shown by the serum enzymes.

Until now, it remains unclear why hepatic amoebiasis is more common in men than in women.

The new concepts regarding amoebiasis tend to emphasize the differences between *Entamoeba dispar* (non invasive, non antigenic), responsible for more than 90% of amoebic infections and *Entamoeba histolytica* (invasive and pathogenic); some aspects of the pathogenesis are still unclear (Read, 1995).

Genetic and immunoenzymatic profile may determine the activities of trophozoites in the intestinal lumen-they may remain confined, feeding on bacteria and cellular debris or produce proteolytic enzymes, invade the intestinal mucosa and establish extraintestinal infection throughout the portal vein radicles, most especially in the liver (Revdin, 1995).

In endemic areas for amoebiasis, a variety of conditions may be responsible for exacerbation and these include ignorance, poverty, malnutrition, climatic, poor or suboptimal sanitation and impaired cellular or hormonal immunity.

Amoebic invasion of the liver through the portal radicles leads to lysis of neutrophils, release of mediators and eventual hepatocyte death. Numerous small lesions then coalesce to form a larger hepatic lesion, unsuitably named amoebic liver abscess, which contains homogenous thick, clotty exudate, which may be creamy-white or dirty brown in colour-anchovy sauce. These are often sterile except in case of secondary infection (as in this case) which allows for pyogenic abscess as a differential diagnosis. Different organisms may be responsible for the

secondary infection (Kawashina *et al.*, 2000) actually reported a case of amoebic liver abscess complicated with tuberculosis.

Radiological investigations play major roles in non invasive diagnosis, assessment of complications and follow up after treatment.

Plain chest radiograph usually shows elevation of the right or left hemidiaphragm in cases of upward enlargement of the right or left lobe, respectively. Interstitial consolidation may be seen in cases of pneumonitis from invasion of lung parenchyma, which may also lead to lung abscess.

Ultrasound is the most widely used initial imaging procedure in cases of suspected hepatic amoebiasis, it is cheap, readily available and will rapidly detect hepatic lesions at different stages of the diseases, determining their numbers, size and exact position. It will also differentiate a solid tumour from an abscess, useful in guiding percutaneous catheter liver drainage as well as following the course of infection and clinical resolution (Kimura *et al.*, 1997). At Ultrasonography, amoebic hepatic lesion tends to be round or oval, hypoechoic with well defined echo-poor margins. Lesions are multiple in 25% of cases and a usually located in the right lobe, often subcapsular.

They however, often require 2 years or longer resolving and continued presence of cystic lesions does not imply that therapy has failed (Ralls *et al.*, 1983).

Hepatic adenoma, a differential diagnosis is rare and commoner in women and may be related to use of oral contraceptives. It is usually solitary and solid but may be hypoechoic in 20-40% thus mimicking amoebic liver abscess. Also, colour Doppler will demonstrate intratumoral veins usually 1-5 mm diameter with characteristic continuous flat flow.

Pyogenic liver abscess, another differential diagnosis of amoebic liver abscess has a variable ultrasound appearances, most commonly cystic with irregular, thick, sluggy walls containing echogenic debris with particulate matter and clumped debris that may layer. The abscess often contains internal septae and air (Ralls *et al.*, 1983).

Abdominal computerized Tomography scan is another valuable imaging procedure with greater resolution and sensitivity in detecting hepatic lesions especially smaller ones, which is useful for early diagnosis (Kawashima *et al.*, 2000). It appears as a rounded, well defined, low-density lesion, with an homogenous septated cavity and with considerable fluid. Computerized Tomography was not done in this patient because he could not afford the bill.

Magnetic resonance imaging usually show a ringed hepatic lesion which may be incomplete and of variable

intensity, better seen on T1 weighted than T2 weighted images. It may be hyperintense on T1 weighted image. However, during antibiotic treatment, T1 and T2 weighted images show the development of 4 concentric zones because of central liquefaction and resolution of hepatic edema.

Chemotherapy, Percutaneous drainage guided by Ultrasonography or computerized tomography scan and surgical drainage are the management options available for these patients. The patient presented was placed on chemotherapy for possible ultrasound guided aspiration later.

CONCLUSION

A case of amoebic liver abscess with superadded infection has been discussed. Secondary infection in hepatic amoebiasis is not very common and often requires additional chemotherapy with increased morbidity and mortality.

REFERENCES

- Adi, F.C., 1965. Clinical features of hepatic amoebiasis review of 120 cases. *West Afr. Med. J.*, 14: 181-187.
- Ahmed, A., P.W.J. Mac Adams and A.W. Sturm, 1992. Systemic manifestations of invasive amoebiasis. *Clin. Infect. Dis.*, 15: 74-82.
- Kawashima, I., H. Fusegawa, M. Obena and A. Matznokay, 2000. Case of AIDS complicated with liver tuberculosis. *J. Jap. Assoc. Infect. Dis.*, 74 (1): 984-988.
- Kimura, K., M. Stoopan and M.M. Reader *et al.*, 1997. Amoebiasis: Modern diagnostic imaging with pathological and clinical correlations. *Semin Roentgenol.*, 32: 250-275.
- Olubuyide, I.O. and E.G. Ayoola, 1986. Hepatobiliary disease in tropical Africa, the Ibadan Experience. *Trop. Gastroentol.*, 7: 54-61.
- Ralls, P., M. Quim and W.J. Baswell *et al.*, 1983. Patterns of resolution in successfully treated hepatic amoebic abscess. *Radiology*, 149: 541-543.
- Read, S.L., 1995. New concepts regarding the pathogenesis of amoebiasis. *Clin. Infect. Dis.*, 21 (Suppl): 5182-5185.
- Revdin, J.I., 1995. Amoebiasis. *Clin. Infect. Dis.*, 20: 1453-1458.
- Salles, J.M., 2003. Luis Alberts Moavaes, Manro Costa Salles. Hepatic amoebiasis. *Braz J. Infect Dis.*, Vol: 7, No. 2. Salvador.