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A 45-Year-Old Man from Sri Lanka With Fever and Right Hypochondrial Pain

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Clinical Presentation

History

A 45-year-old Sri Lankan man presents to a local hospital with fever, chills, headache, body aches and severe right hypochondrial pain for the past week. He has also developed a dry cough during the past few days. He has vomited twice during his illness and has lost his appetite.

His abdominal pain is constant and dull. It radiates to the right shoulder and is made worse when coughing and resting on the right side.

The patient had been well before the current illness. He admits to consuming locally brewed alcohol ('*toddy*', made of coconut flowers) daily for the past 10 to 15 years.

Examination

The patient looks generally ill, mildly dehydrated and is in pain. Temperature is 38.3°C (100.8°F), blood pressure 100/80 mmHg, pulse 102 bpm, respiratory rate 24 breath cycles per minute. There is no jaundice, no pallor and no lymphadenopathy. The abdominal examination reveals a tender hepatomegaly; however, the tenderness is most prominent over the 6th to 9th intercostal spaces in the right mid-axillary line. The spleen is not enlarged. On auscultation, there are few inspiratory crackles over the right lung base. The cardiovascular system and the nervous system are clinically normal.

Investigations

His laboratory results are shown in Table 46.1. A chest radiograph showed elevated right hemidiaphragm and patchy shadows in the right lower zone.

Questions

1. What is the likely diagnosis?
2. How would you manage this patient?

TABLE 46.1 Laboratory Results at Presentation

Parameter	Patient	Reference
WBC ($\times 10^9/L$)	14.7	4–10
Haemoglobin (g/dL)	12.3	12–16
Platelets ($\times 10^9/L$)	224	150–350
AST (U/L)	54	13–33
ALT (U/L)	38	3–25
ALP (U/L)	446	40–130
Serum bilirubin total ($\mu\text{mol/L}$)	10.3	25.7–30.8
Serum bilirubin direct ($\mu\text{mol/L}$)	1.5	1.7–5.1
Blood urea nitrogen (mmol/L)	7	2.5–6.4
Serum creatinine ($\mu\text{mol/L}$)	124	71–106
C-reactive protein (mg/L)	48	<6

Discussion

A 45-year-old Sri Lankan man presents with fever, headache, body aches and constant right-sided abdominal pain for a week. He also has a dry cough. His past medical history is unremarkable, but he consumes local alcohol. He is febrile with tender hepatomegaly and intercostal tenderness on the right. There is no jaundice.

His blood results show very mildly elevated transaminases, an elevated alkaline phosphatase (AP) and raised inflammatory markers.

Answer to Question 1

What is the Likely Diagnosis?

Tender hepatomegaly, intercostal tenderness and an elevated right hemidiaphragm in the context of fever point towards an infectious focus in the liver.

His transaminases are only slightly elevated; AST is higher than ALT, which could be explained merely by his regular alcohol consumption. In infectious hepatitis one would expect higher transaminase levels and clinical jaundice.

The most likely diagnosis in this man is a liver abscess, which could be amoebic or pyogenic. Given the Asian setting, hyermucoviscous serotypes of *Klebsiella pneumoniae* have to be considered which have been increasingly detected in South and South East Asia since around 1990 and also seem to be spreading to countries outside Asia. Given the epidemiological setting, the relatively young age of the patient and the absence of comorbidities such as diabetes or biliary disease, an amoebic liver abscess is more likely. Also, the alcoholic drink the patient consumes is locally known to be linked with amoebiasis. The precise mechanisms are still under discussion; it is assumed that the parasites contaminate the clay containers used to collect *toddy*, but additional factors may play a role as well.

Another tropical infectious disease to consider in a febrile patient from Asia with any kind of organ abscess is melioidosis. Melioidosis, caused by the environmental bacterium *Burkholderia pseudomallei*, can also present with pulmonary infiltrates and cavities similar to TB, as septic arthritis, with skin manifestations and with cerebral involvement. Cases of melioidosis have been increasingly reported from Sri Lanka. The majority of cases occur in the immunocompromised, especially with type 2 diabetes mellitus, but also alcoholism, chronic lung disease, chronic renal disease, steroid use, immunosuppressive therapy and cancer.

Melioidosis is also endemic in other parts of Asia, such as India, Thailand, Lao PR, Vietnam and in northern Australia, sporadic cases are seen all over the tropics.

Answer to Question 2

How Would You Manage This Patient?

An ultrasound of the liver should be done. *Entamoeba histolytica* serology is highly sensitive and useful as a screening test; however, it may lack specificity in individuals from highly endemic tropical regions like the Indian subcontinent. Recently, multiplex PCR testing on aspirated fluid has been identified as a rapid and robust diagnosis of amoebic liver abscess in patients with cystic focal liver lesions. Stool microscopy for *E. histolytica* trophozoites may be attempted but is less than 50% sensitive.

The Case Continued...

The ultrasound scan of his abdomen revealed a solitary hypochoic lesion with an irregular wall measuring 7 × 6 cm in the right liver lobe. There was a small pleural effusion on the right.

Because of its large size, the lesion was aspirated under ultrasound guidance, yielding brownish pus highly suspicious of an amoebic liver abscess.

TABLE 46.2 Treatment of Amoebic Liver Abscesses. (After Anesi, J.A., 2015)

Agent	Medication	Dose	Duration
Tissue Agents	Metronidazole	500–750 mg IV/PO TDS	7–10 days
	Tinidazole	2 g PO OD	3–5 days
	Ornidazole	0.5 g IV BD	3–6 days
	Nitazoxanide	500 mg PO BD	3 days
Luminal Agents	Paromomycin	8–10 mg/kg PO TDS	7 days
	Diloxanide Furoate	500 mg TDS	10 days
	Iodoquinole (Diiodohydroxyquin)	650 mg PO TDS after meals	20 days

PO = orally, IV = intravenously, BD = twice daily, TDS = three times a day.

The patient was treated with metronidazole for ten days and made a rapid and uneventful recovery.

SUMMARY BOX

Amoebic Liver Abscess

Amoebic liver abscess (ALA) is the most common extraintestinal form of invasive amoebiasis caused by *Entamoeba histolytica*. The infection occurs worldwide but is most common in tropical areas with overcrowding and poor sanitation. Rates of ALA are 3 to 20 times higher in men between 18 and 50 years of age than in other populations; the reasons for this are poorly understood but hormonal factors are being discussed, as well as alcohol consumption. Humans acquire the infection by ingestion of faecally contaminated food or water. Trophozoites of *E. histolytica* may penetrate the intestinal wall and haematogenously spread to the liver. Clinical manifestations include fever with chills, right hypochondrial pain, anorexia and weight loss, but most patients with ALA do not have a history of recent dysentery. A dry cough and fine crepitations over the right lung bases are common. Jaundice is unusual. Localized intercostal tenderness helps in the clinical diagnosis. ALA may rupture into the peritoneal cavity or through the skin or diaphragm. Haematogenous spread may cause metastatic abscesses in distant organs such as the brain.

Leukocytosis, raised inflammatory parameters and an elevated alkaline phosphatase are the most common non-specific laboratory findings. Diagnosis is usually made by a combination of imaging studies and serology. Abdominal ultrasound scan is the most suitable imaging technique in resource-limited settings, but CT and MRI scans are also highly sensitive. None of the imaging techniques is specific for ALA. Plain radiography of the thorax may reveal elevation of the right hemidiaphragm.

Serology is highly sensitive but may lack specificity in individuals from endemic countries. Although aspiration of a suspected ALA is not a routine investigation, aspirated fluid can be tested with multiplex PCR testing for the rapid and robust diagnosis of amoebiasis in patients with cystic focal liver lesions. The

aspirated fluid is thick, odourless and brownish in colour; it is bacteriologically sterile and amoebic trophozoites are not usually detectable in the aspirate. The term 'abscess' is a misnomer, as the 'pus' is in fact necrotic liver.

Most patients rapidly respond to antibiotic treatment with metronidazole or tinidazole.

Metronidazole 500 to 750 mg tds PO or IV should be given for 7 to 10 days, tinidazole 2 g per day PO for 3 to 5 days. This should be followed by a luminal amoebicide, such as paromomycin, diloxanide furoate, or iodoquinol (Table 46.2).

The role of therapeutic percutaneous aspiration or drainage is still controversial. It may be useful in large abscesses, especially when located in the left liver lobe with high risk for rupturing into the pericardium, and in ALA that do not respond to nitroimidazole therapy within 72 hours when pyogenic infection is a concern. Lesions may take a long time to decrease in size, therefore short-term, follow-up imaging has to be interpreted with caution.

Further Reading

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3. Siu LK, Yeh KM, Lin JC, Fung CP, Chang FY. *Klebsiella pneumoniae* liver abscess: a new invasive syndrome. Lancet Infect Dis 2012;12:881–7.
4. Weitzel T, Cabrera J, Rosas R, et al. Enteric multiplex PCR panels: a new diagnostic tool for amoebic liver abscess? New Microbes New Infect 2017;18:50–3. <https://doi.org/10.1016/j.nmni.2017.05.002>.
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