

Liver lesions in the returning traveller

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Abstract

This chapter provides an overview of liver lesions in returned travellers. Symptoms suggestive of liver disease include right upper quadrant abdominal pain, nausea, vomiting, and sometimes fever. Some liver lesions are asymptomatic and detected incidentally. Important lesions in febrile returned travellers are amoebic and bacterial liver abscesses. Others, such as tuberculosis and hydatid disease, are more common in migrants and much less often acquired during holiday travel or short stays abroad. Finally, more unusual parasitic infections, such as liver fluke, occasionally present as liver lesions in travellers.

Keywords Abscess; amoebic; hydatid; liver fluke; MRCP; pyogenic

Epidemiology

The differential diagnosis of liver lesions in returned travellers is given in Table 1. The most common causes are pyogenic liver abscess (PLA) and amoebic liver abscess (ALA); differentiating these is important as management differs and both can be fatal if untreated. ALA is caused by the protozoon *Entamoeba histolytica*, transmitted faeco-orally, by ingestion of cysts in contaminated food and water.¹ It also causes amoebic dysentery. Amoebiasis is common worldwide, affecting an estimated 40 million people annually, most often in areas or countries with poor sanitation, particularly in the tropics. Fewer than 1% develop liver abscesses. PLA is usually caused by Gram-negative or anaerobic bacteria from the biliary tree or intestine. Data on the incidence of PLA in returned travellers in the UK are lacking.

Cystic hydatid disease is transmitted by ingestion of *Echinococcus granulosus* eggs passed in dog faeces in sheep-rearing communities and alveolar hydatid disease by *Echinococcus multilocularis*, transmitted by contact with foxes, other carnivores and small mammals. They are uncommon in returned travellers but more often diagnosed in migrants from endemic areas, and predicted to affect >1 million people worldwide.

Liver flukes are transmitted either by ingestion of metacercariae on aquatic vegetables (fascioliasis)² or by ingestion of raw or undercooked fish (clonorchiasis/opisthorchiasis).

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Key points

- Pyogenic (PLA) and amoebic (ALA) liver abscess can be fatal if untreated, so early diagnosis and treatment is imperative. They typically present acutely with fever, epigastric or right upper quadrant tenderness and/or tender hepatomegaly, although fever may be the only sign
- Risk factors for ALA include poor hygiene, alcohol use, malnutrition, pregnancy, HIV and other forms of immunocompromise
- ALA most commonly occurs in the right lobe and is a single lesion, whereas multiple lesions with irregular walls, or left lobe lesions, are more suggestive of PLA
- A high prevalence of resistant Gram-negative organisms is found in certain geographical locations, particularly Asia. Resistance patterns in the area of travel should inform empirical treatment regimens for PLAs
- Treatment of cystic hydatid is guided by radiological staging and should be undertaken at specialist centres
- An increased risk of cholangiocarcinoma is associated with *Clonorchis* and *Opisthorchis* infections

History and examination

The duration of illness and detailed travel history (including itinerary and activities) are important to identify potential exposures (Table 1). A short history suggests either ALA or PLA, although ALA can present subacutely. A recent diarrhoeal or dysenteric illness can indicate intestinal amoebiasis (reported in >30% of individuals with ALA).

Symptoms suggestive of a liver lesion include right upper quadrant abdominal pain, nausea and vomiting. Important clinical signs include fever, epigastric or right upper quadrant tenderness and/or tender hepatomegaly – suggestive of either ALA or PLA. In ALA/PLA, fever may be the only sign.

Hydatid disease and malignant lesions can be asymptomatic and detected incidentally. Hydatid disease can present with anaphylaxis caused by cyst rupture and sometimes liver abscess as a result of secondary bacterial infection. Presentation with ascending cholangitis is particularly characteristic of *Clonorchis*/*Opisthorchis* due to adult flukes obstructing the biliary tree.

A longer history including weight loss and night sweats can suggest tuberculosis, HIV-related opportunistic infection, lymphoma, primary hepatocellular carcinoma or metastatic liver disease. General examination for stigmata of chronic disease and lymphadenopathy is important in all cases.

Risk factors other than travel

Risk factors for ALA include poor hygiene, alcohol use, malnutrition, pregnancy, HIV and other forms of immunocompromise. Risk factors for PLA include older age and pre-existing bowel or

Differential diagnosis and investigation of liver lesion in the returned traveller

Presenting features	Typical ultrasound findings	Risk factors	Diagnosis	Blood cultures suggested?	Serological tests	Other tests
Fever, right upper quadrant pain, neutrophilia (acute)	Multiple irregular lesions	Older age, co-morbidities (e.g. diabetes mellitus, hepatobiliary disease), bacteraemia	Pyogenic liver abscess	Yes, often positive	Amoebic serology usually negative	Diagnostic aspirate for bacterial culture
	Single lesion, regular wall, right lobe	Male, heavy alcohol use, pregnancy, other immunocompromise, poor sanitation, particularly associated with budget travel to Asia	Amoebic liver abscess	Yes, usually negative	Amoebic serology: usually positive >1 week after symptom onset. If early and negative, repeat after 1 week	Hot stool analysis or <i>Entamoeba histolytica</i> PCR on stool may confirm intestinal amoebiasis. Aspiration <i>not</i> indicated unless size >10 cm or is left lobe lesion
Fever, eosinophilia, deranged LFTs (acute or subacute)	Poorly defined liver lesions	Consumption of unwashed salad/aquatic plants, occurs worldwide although most commonly in Asia and Latin America	<i>Fasciola hepatica</i>	Yes, usually negative	<i>Fasciola</i> serology	Stool/bile analysis for <i>Fasciola</i> eggs
	Acute cholangitis	Consumption of raw or undercooked fish. Imported cases usually from Asia	<i>Clonorchis</i> / <i>Opisthorchis</i>	Yes, may be positive if intercurrent bacterial infection	<i>Fasciola</i> serology	Stool/bile analysis for <i>Fasciola</i> eggs
	Cystic lesion with membranes/daughter cysts	Dog and sheep contact; rural location	Cystic hydatid – may be ruptured, infected or haemorrhagic	Yes, may be positive if intercurrent bacterial infection	Hydatid serology usually positive	Consider aspirate if secondary bacterial infection likely
Mild gastrointestinal symptoms, LFTs may be normal (subacute or chronic). Can be an incidental finding	Cyst ± calcification	Particularly common in UK migrants from Eastern Europe and North Africa	Cystic hydatid – active or inactive	Not required	Hydatid serology can be positive or negative depending on stage and treatment history	CT/MRI to characterize lesion

Diagnosis is based on presentation and risk factors, including travel history. Investigations include hepatic imaging and blood tests. Full blood count, liver function tests and HIV serology are recommended in all cases. The wider differential (not listed above) includes tuberculosis and malignancy. CT, computed tomography; LFT, liver function test; MRI, magnetic resonance imaging; PCR, polymerase chain reaction.

Table 1

biliary pathology. Risk factors for hydatid disease include dog and sheep contact (cystic hydatid) and exposure to small mammals such as foxes (alveolar hydatid).

Laboratory and radiological diagnosis

We recommend full blood count, liver function tests and HIV serology in all patients. Common laboratory abnormalities in

ALA and PLA include raised alkaline phosphatase, and polymorph leucocytosis but not eosinophilia. Eosinophilia suggests an alternative diagnosis such as hydatid disease or liver fluke. Blood cultures should be performed in all patients in whom PLA is suspected.

Chest X-ray may demonstrate a raised right hemi-diaphragm or a right pleural effusion. The imaging of choice is ultrasound. Although this cannot reliably distinguish ALA from PLA, it may

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