Travel-related causes of liver disease

Enrico Brunetti

Divisione Malattie Infettive e Tropicali
Università di Pavia-IRCSS S.Matteo
Pavia
International travel

• ≈ 80 million persons from industrialized nations travel to the developing world each year, and an estimated >200 million persons now reside outside their country of birth.

• In recent years, growth in international travel has been ≈6% per year, and similar trends are expected in the future.

Gautret et al Em Inf Dis 2009
• Tourists
• Visiting friends and relatives
• Immigrants
• Expatriates
• Refugees
• International adoptees
Travel-related conditions

• amebiasis
• echinococcosis
• schistosomiasis
• fascioliasis
• clonorchiasis
• hepatitis A and hep. E

affect or may affect the liver
Amebic abscess

• Amebic colitis and liver abscess are much more common in developing nations than in industrialized countries.

• *E. histolytica* infection is probably second only to malaria as a protozoan cause of death.

• 40 - 50 million cases of amebic colitis and liver abscess occur annually in the world, resulting in 40,000-110,000 deaths
• Prevalence > 5-10% in endemic areas sometimes as high as 55%.

• Highest prevalence in Mexico, India, Central and South America, and tropical areas of Asia and Africa.
Clinical presentation

- single lesion (60 %)
- right lobe
- fever
- RUQP
- Increased LFT
- elevated right hemidiaphragm
Pt from Senegal, 30 yo, RUQP, fever 35.000 WBC, ↑ liver enzymes
50 year old Italian tourist
• Hepatic lesion + epidemiology+ clinical
• Pos serology in int travelers
• Increase in serology in immigrants from endemic countries
• O&P may be negative!
Cystic echinococcosis
Cyst structure

Key:
- Single protoscolices
- Brood capsules
- Multilaminated layer
- Germinal layer
- Layer of inflammation
- Host tissue

E. granulosus

Courtesy Prof. Seitz
University of Bonn
### WHO-IWGE Classification of Ultrasound Images of Cystic Echinococcosis Cysts

<table>
<thead>
<tr>
<th></th>
<th>CL</th>
<th>CE1</th>
<th>CE2</th>
<th>CE3</th>
<th>CE4</th>
<th>CE5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><img src="image1" alt="Cystic Lesion A" /></td>
<td><img src="image2" alt="Active A" /></td>
<td><img src="image3" alt="Transitional A" /></td>
<td><img src="image4" alt="Inactive A" /></td>
<td><img src="image5" alt="Cystic Lesion B" /></td>
<td><img src="image6" alt="Active B" /></td>
</tr>
</tbody>
</table>

- **CL**: Cystic Lesion
- **CE1**: Active
- **CE2**: Transitional
- **CE3**: Inactive
Dynamic, chronic condition
DD with NON-PARASITIC
• Imaging
• Serology
• If still undetermined → Percutaneous aspiration (w/resuscitation team available)
Around 200 million people are infected with *Schistosoma* species in at least 76 countries, and around 85% of those infected are believed to live in Africa.

Most infections are due to:

- *Schistosoma mansoni*,
- *S. haematobium*,
- *S. japonicum*. 
• **Acute** (Katayama fever) — migration of the parasite cercarial forms through the skin into the lung and hepatic circulation – fever, eosinophilia

• U/S hepatosplenomegaly, lymphadenopathy

• **Chronic** — granulomatous response to parasite eggs resulting in chronic fibro-obstructive sequelae in the portal veins
• Fibrosis proceeds from the peripheral portal spaces of left lobe (pipe stem fibrosis) to the central portal vessels and from here it gradually extends to the capsule
Niamey-Belo Horizonte grading of Symmer’s fibrosis
Portal hypertension in schistosomiasis

• Hyperafflux from spleen

• Decreased portal net capacity due to occlusion of peripheral portal branches

• Portosystemic shunts
  
  Bleeding from esophageal varices

• *Liver function not impaired!*

• Ascites rare / terminal event
• US features
• Epidemiology
• Serology
• O&P
Fasciola spp

2.4 million people estimated to be infected worldwide.

Prevalence highest in areas of extensive sheep and cattle raising and consumption of raw aquatic vegetables.
How it gets to the liver

perforates intestinal wall-
travels on peritoneal surfaces and
penetrates liver through capsule
Acute fascioliasis

2-4 weeks after Ingestion of contaminated plants or water

- Fever
- Hepatosplenomegaly,
- Eosinophilia

Utrasound:
Fleeting hypoechogetic liver foci

Courtesy Dr. J. Richter
Heinrich Heine University
Duesseldorf
Chronic Fascioliasis

- Aspecific symptoms

- RUQP
- fever
- fatigue
- anorexia
- weight loss
- **abnormal gas distention / dyspepsia**
- pruritus / rashes
- muscle pain
liver lesions

- multiple
- ill-defined
- confluent
- 1-3 cm
- no vascularity

Courtesy Prof. A Kabaalioglu Akdeniz University Antalya, Turkey
starting from the capsule
ill-defined
solid - necrotic
Abscess-like subcapsular lesion

foot-prints pattern
may have cystic-necrotic component
may mimic metastases!
resected tumor-like liver tissue

eggs in specimen
• Imaging
• Serology
• History of ingestion of raw vegetables
• High index of suspicion!
Clonorchis and Opistorchis

*Clonorchis sinensis* and *Opistorchis viverrini* infect 17-20 million people in China, Russia, Korea, Thailand, Laos and Vietnam, where consumption of raw freshwater fish is commonplace.
• Reside mainly in the intrahepatic bile ducts but occasionally extend to the extrahepatic biliary tree, including gallbladder.

• Induce cells to create bile with a high mucin content, which, with adult flukes and eggs, serves as a nidus for bacterial superinfection and intrahepatic stone formation.

• *Escherichia coli* is the most frequent cause of superinfection.
Subject with 49,920 Clonorchis sinensis eggs per gram of feces
• The ectasia of intrahepatic bile ducts may progress to pyogenic cholangitis, liver abscess, and hepatitis

• Gallstone formation, pancreatitis, or cholangiocarcinoma can also occur
• Imaging
• O&P
• Epidemiology
Hepatitis A

Acute, usually self-limiting infection caused by HAV.

≈1.5 million cases of clinical hepatitis A each year, mainly in countries with high or intermediate risk of transmission, where poor sanitary conditions prevail.
• The case-fatality rate is 1.8% in adults aged 50 years
• persons with **chronic liver disease** are at increased risk for **fulminant hepatitis**
Hepatitis E virus (HEV) infection causes large epidemics of liver disease in developing countries.
The incubation period ranges from 3 to 8 weeks (mean 40 days) and is dose-dependent. Illness is generally self-limited, with death rates <4% in the general population but a strikingly high death rate (10%–25%) has been reported among pregnant women.