Cystic liver lesion and eosinophilia

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Patient Presentation

- 55 year old Cape Verde female presented to her PCP with 6 month history of variable RUQ pain (up to 9/10), intermittent fever and 15 kg weight loss.

- Patient denied nausea, vomiting, diarrhea, hematochezia or melena, and had no GU symptoms.

Physical Exam

- VS- 98.0, 98, 141/81, 100%(RA)
- The abdomen was soft and nondistended with epigastric and RUQ tenderness. Patient had rebound tenderness without guarding and no other peritoneal signs.
- There was no hepatomegaly, scleral icterus or jaundice noted
- The remainder of the physical exam was unremarkable
Pertinent admission laboratory results

- CBC – WBC 6.0, Hgb 11.9, Plt 281
- Diff – 32.1%Neuts, 0%Bands, 35.7%Lymphs, 4.7%Monos, **26.5%Eos**, 1.0%Baso
- ESR 92
- Amylase and LFT’s – WNL
- Electrolytes- WNL

http://www.microscopyu.com/galleries/pathology/eosinophilia.html
Initial findings

- 6 month history of RUQ and intermittent fever
- Elevated ESR
- Eosinophilia
- Normal liver and pancreas enzyme
- Travel history/Exposure – Cape Verde
Admission CT with contrast

Cystic lesion of the liver with multiple septations
Subcapsular fluid accumulation

Images from PACS, BIDMC
Reformatted views

Contiguous area of enhancing inflammation near the hepatic flexure of the ascending colon

Images from PACS, BIDMC
Ultrasound imaging

Images from PACS, BIDMC
Our patient: Radiographic Findings

- Cystic liver lesion with multiple tubular septation
- Diverticulosis
- Contiguous inflammation surrounding the ascending colon near the hepatic flexure

Origin of these findings:
- Liver abscess?
- Diverticulitis?
Differential diagnosis of cystic hepatic lesion

- Abscess *(pyogenic, fungal, or parasitic)*
- Cyst, congenital or acquired
- Cystic metastasis *(mucinous adenocarcinoma, cystadenocarcinoma, melanoma, carcinoid, or sarcoma with necrosis)*
- Acute hematoma
- Hydatid disease *(Echinococcus)*
Companion patient #1: Pyogenic liver abscess

Companion patient #2: 
*Entamoeba histolytica* liver abscess

Companion patient #3: Hydatid *Echinococcal* cyst

Companion patient #4: 

*Fasciola hepatica*

Hospital course

- Patient was made NPO and treated with IV levofloxacin and metronidazole for presumed diverticulitis
- Patient spiked a fever to 100.5 for one day but was otherwise stable
- Diet was advanced and patient was discharged on hospital day 5 on p.o. levofloxacin and metronidazole
Infectious disease follow-up

- Serum samples were sent for parasite serology:
  - *Fasciola hepatica* Ab **positive**
  - *Echinococcus* Ab negative
  - *Entamoeba histolytica* Ab negative
  - *Strongyloides* IgG **positive**
**Fasciola hepatica** morphology

- Oral sucker
- Ventral sucker
- Excretory/Genital pore

[http://www.yamagiku.co.jp/pathology/case/case051.htm](http://www.yamagiku.co.jp/pathology/case/case051.htm)
Fasciola hepatica life cycle

1. Unembryonated eggs passed in feces
2. Embryonated eggs in water
3. Miracidia hatch, penetrate snail
4. Sporocysts, Rediae, Cercariae
5. Free-swimming cercariae encyst on water plants
6. Metacercariae on water plant ingested by human, sheep, or cattle
7. Excyst in duodenum
8. Adults in hepatic biliary ducts

http://www.dpd.cdc.gov/dpdx/HTML/Fascioliasis.htm
Human fascioliasis

- **Acute phase**
  - Migration of parasites through intestinal wall and liver parenchyma
  - Symptoms (fever, RUQ pain, hepatomegaly) usually begin within 6-12 weeks of parasite ingestion and last an average of 6 weeks.
  - Eosinophilia noted at this stage

- **Chronic phase**
  - Maturation of the parasites that reach the biliary tree and subsequent egg production
  - Usually asymptomatic but can cause cholangitis, cholelithiasis and obstructive jaundice, as well as RUQ/epigastric pain, nausea, diarrhea, and wasting.
Imaging tests for human fascioliasis

- Ultrasound
- Computed tomography
- Magnetic resonance

Axial postcontrast fat saturated gradient echo MR image (TR 140 ms/ TE 4.1 ms)

Radiologic – Pathologic correlation

Coronal CT

Companion patient #5
Gross pathology specimen

Image from PACS, BIDMC
http://www.yamagiku.co.jp/pathology/case/case051.htm
F. hepatica in a liver abscess

H&E stain of a F. hepatic abscess

http://www.yamagiku.co.jp/pathology/case/case051.htm
Foreign body granuloma reaction to *F. hepatica* ovum in the gallbladder wall.  

*F. Hepatica* ovum on O&P.

http://www.yamagiku.co.jp/pathology/case/case051.htm
Our patient’s clinical course

- Patient followed up with ID as an outpatient and was treated with a 2 day course of triclabendazole for presumptive *F. hepatica* liver abscess 6 weeks after discharge.

- 48 hours after treatment patient felt nauseous and blood tests revealed elevated LFTs (AST 492, ALT 573, alk phos 416), which resolved after 4 weeks with no intervention

- Likely due to an inflammatory response to dying parasites
Patient follow-up – 6 months

- All symptoms resolved
- No eosinophilia

Initial

Follow-up
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References

- Maurice Reeder and Felson’s Gamuts in Radiology
- http://www.yamagiku.co.jp/pathology/case/case051.htm