Hepatic echinococcosis in a patient with psoriasis recently on adalimumab
A not so *worm* welcome

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Introduction

Cystic echinococcosis is a helminthic disease caused by larval infection by the Echinococcus granulosis tapeworm, normally present in canines (definitive hosts) as well as livestock, including sheep, goats, cattle (intermediate hosts) and found throughout Europe, Africa, Asia, and South America. Humans may become accidental intermediate hosts via fecal-oral transmission. Infection is typically characterized by development of a larval cyst, most often in adult patients, and infections may go years while remaining asymptomatic. Diagnosis is based upon clinical presentation, imaging and serology. Complications may arise from obstruction by cysts or cystic rupture leading to local and disseminated infection and anaphylaxis. Here we discuss a case of hepatic echinococcosis in a patient with psoriasis and discuss diagnosis and treatment for cystic echinococcosis as well as infection risk in patients on adalimumab.

Case

A 74-year-old man, originally from rural Scotland with reported farm animal exposure, who works as a physician with history of hypertension, type 2 diabetes mellitus, chronic kidney disease, psoriasis and psoriatic arthritis, recently on adalimumab and prednisone presented to the hospital following several weeks of cough, night sweats and subjective fever. Admission vitals notable for T 99 and HR 101. Admission labs notable for Cr 1.07, alkaline phosphatase 105, WBC 7.6, ESR 84 and CRP 143.77. Prior to admission, he had an outpatient CT abdomen pelvis which showed a cystic mass in the right lobe of the liver, initially described as 7.3 x 5.0 cm x 5.0 lobular and rim enhancing with a relatively well-defined border (figure 1). Patient was admitted for further evaluation of potential infectious or neoplastic disease. AFP, CA 19-9 and CEA were within normal limits. HBV serologies were negative. Subsequent MRI imaging revealed a 5.3 x 4.8 cm septate cystic mass in the right hepatic lobe with appearance concerning for hepatic echinococcosis (figure 2). Echinococcal serology was negative, however, diagnosis was made based on clinical suspicion as well as imaging characteristics.

Figure 1. initial outpatient CT AP with contrast

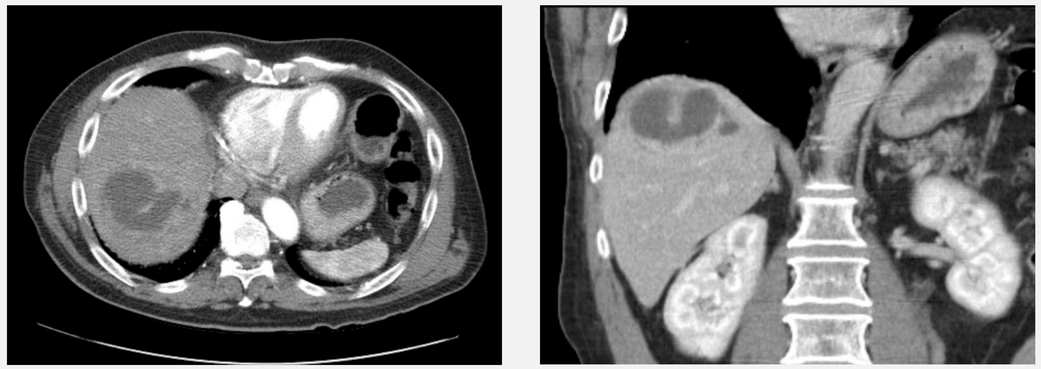


Figure 2. initial inpatient MRI AP with contrast

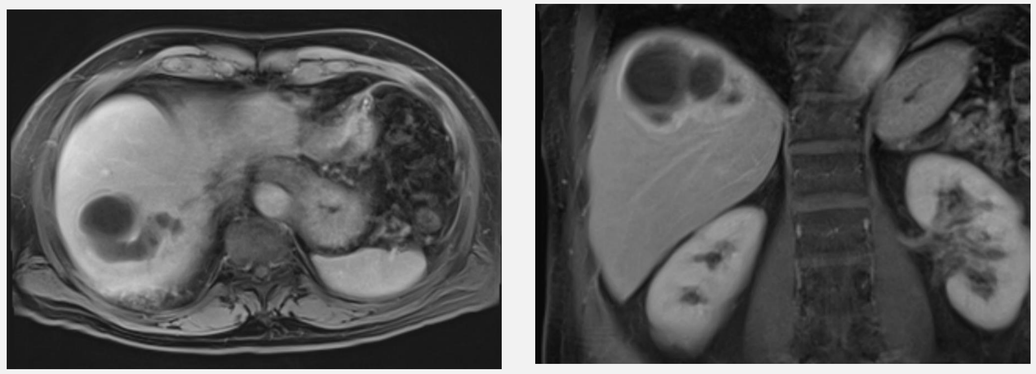
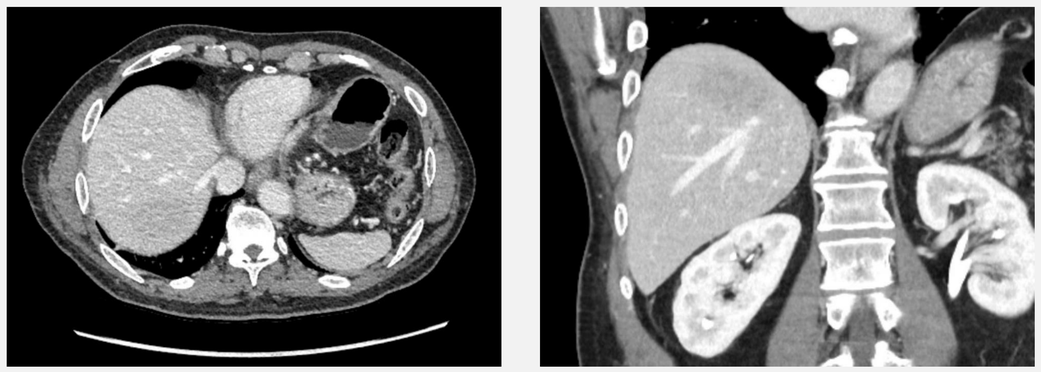


Figure 3. outpatient CT AP with contrast after ~7 weeks of albendazole therapy



Case Continued

The patient was started on albendazole therapy at 400 mg twice daily with a total duration of 4 months. Interval repeat CT imaging at approximately ~7 weeks showed significant improvement with collapse of the cystic lesion (figure 3). While on therapy, patient's hepatic function panel was trended for signs of albendazole toxicity which showed minor AST elevations towards the end of therapy but overall reduction in alkaline phosphatase. Follow up with infectious disease included discussion on resuming adalimumab therapy and it was determined that patient would be able to resume therapy with repeat monitoring. Continuation of albendazole was also discussed but deferred given resolution of the cyst and risk of toxicity. Repeat MRI at 2 and 4 months following completion of albendazole redemonstrated resolution of the former cyst.

Discussion

Cystic echinococcosis remains a significant parasitic infection in many parts of the world, though typically in rural, agricultural communities of Africa and Asia. Hepatic cysts are the most common manifestation (50-70%). Serology is often negative as a result of the parasites often spending decades sequestered within the cysts with no immune response. Therapeutic modalities include albendazole treatment, PAIR (puncture-aspiration-injection-re-aspiration) or surgery. Choice of therapy is based upon World Health Organization Informal Working Groups on Echinococcus cyst classification. Small cysts <5 cm may be treated with albendazole, while larger cysts may also require PAIR or surgery. In this case, procedural intervention was deferred given response to albendazole alone. A notable aspect of this case was the patient's desire to resume adalimumab therapy. Adalimumab is a monoclonal antibody TNF-alpha inhibitor and is associated with increased risk of infection, warranting screening for infections including tuberculosis and hepatitis B. Several case reports have investigated parasitic infection and/or reactivation in patients on anti-TNF-alpha therapy, though echinococcal infection has only been described rarely. Repeat imaging after reinitiating therapy may be warranted in such cases to monitor reoccurrence, as in this case, which showed sustained resolution of infection.