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nonpregnant or dry dairy cows that had been held in the same pasture, distant from the main farm structures, during October 15–November 15, 2011; during the stamping out process, a second dairy cow from this group had a positive test result by ELISA.

Hunting of wild boar (Sus scrofa) had been organized during September-December 2011 in the adjacent forest, and wild boar offal was discarded in a corner of the pasture, with no biosecurity precautions. A recent study confirmed the high prevalence of B. suis biovar 2 infection in wild boars in this province (2). These findings suggest that these animals were naturally infected with B. suis biovar 2; because of the period between infection and testing, the results indicate that antibodies can be detected in cattle by ELISA performed on milk or serum >16 weeks after infection.

Blood samples were taken from the farmer, his wife, and their 2 children, all of whom regularly consumed raw milk. No clinical signs or symptoms suggestive of brucellosis were reported, and slow agglutination test results for all family members were negative (titer <160), which suggests they had no exposure to *B. suis* biovar 2 (3). A total of 111 cattle carcasses, including that of the second seropositive cow, were sampled at the abattoir, and all other samples were negative for *Brucella* spp.

Our findings indicate that preventive measures against the spread of pathogens such as Brucella spp. must be implemented by hunters (i.e., awareness campaigns, biosecurity education, and responsible hunting practices). In addition, biochemical typing of *Brucella* spp. is necessary to trace the source of infections (4,5), and epidemiologic inquiry of positive test result(s) should be conducted to identify or exclude bovine brucellosis and to investigate possible B. suis biovar 2 infections. Our bacteriologic results (absence of isolation of B. suis biovar 2 from all samples collected at the abattoir) suggest that stamping out is not necessary because *B. suis* biovar 2 is not likely to be transmitted between cattle because they are spillover hosts, not preferential hosts for *B. suis* biovar 2, and are thus not likely to sustain the infection. Finally, from a veterinary public health perspective, *B. suis* biovar 2 has a low residual pathogenicity in humans (5,6).

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Hepatitis E and Lymphocytic Leukemia in Man, Italy

To the Editor: Hepatitis E is an enterically transmitted infection with worldwide distribution and high prevalence in developing countries. This disease can occur as large water-borne epidemics associated with hepatitis E virus (HEV) genotypes 1 and 2. Hepatitis E is less common in industrialized countries, including Italy (*I*), where sporadic autochthonous cases associated with genotypes 3 and 4 have been reported. Virus strains of these genotypes are widespread in different mammalian species, including wild boar (*2*).

We report a case of hepatitis E in a 60-year-old man born and living in Vicenza, Italy, who was admitted to the Emergency Department of Vicenza Hospital on May 9, 2012 with symptoms of acute icteric hepatitis. He had been given a diagnosis of chronic lymphocytic leukemia and hemolytic anemia in 2003 and underwent 8 treatment cycles of cyclophosphamide and steroids, which were completed 20 days before he came to the Emergency Department.

His liver function test results at admission were the following: alanine aminotransferase 1,804 IU/L, total bilirubin 24.1 mg/dL, and alkaline phosphatase 137 IU/L. Test results for other causes of viral hepatitis were negative (Figure). A liver biopsy performed on June 1 showed severe acute lobular hepatitis with necrosis and cholestasis. Serum obtained at admission was positive for IgM and IgG against HEV (Dia.Pro Test, Milan, Italy).

HEV RNA was detected by reverse transcription PCR and open reading frame 2 (3) was detected in serum and feces samples on May 9. Phylogenetic analysis of sequences identified HEV genotype 3 subtype h in serum and fecal samples (GenBank accession nos. KC782933 and KC782934).

Three months after admission, the patient had viremia, and results of liver function tests were abnormal. Recent data suggest that immunosuppressed persons who are viremic 3 months after HEV infection do not spontaneously clear HEV (4). Therefore, the patient was given antiviral therapy to achieve viral clearance. Ribavirin, 1,000 mg/day in 2 doses (400 and 600 mg), was administered during August 2–November 2, 2012. This drug was well tolerated, although the patient experienced mild anemia (hemoglobin level 10.5 mg/dL), which did not require any treatment.

Liver function test results returned to reference levels on day 14 of treatment. HEV RNA was detected in blood and feces on day 18 of treatment (August 20). Viral clearance (HEV absent from feces and serum) was achieved on day 54 of treatment (September 27) and was sustained over a 6-month period after the end of therapy.

The source of the HEV infection was uncertain. The patient had never

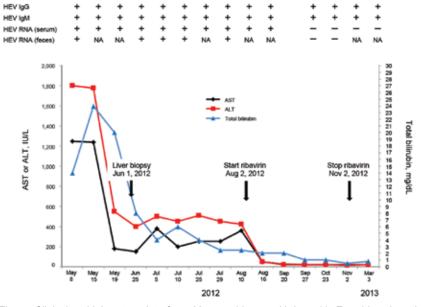


Figure. Clinical and laboratory data for a 60-year-old man with hepatitis E and lymphocytic leukemia, Italy, 2012. Start of ribavirin treatment and virologic response are indicated. A differential diagnosis was obtained by using abdominal ultrasound, which showed an enlarged hypoechogenic liver and thickening of the gallbladder wall (5 mm) with gallstones in the lumen, but a regular biliary tree. An enlarged spleen (bipolar diameter 15.07 cm) and lymph nodes were attributed to chronic lymphocytic leukemia. Test results for the following markers were negative: viral hepatitis A, B, and C; hepatitis B virus DNA (nested PCR; Roche, Switzerland); hepatitis C virus (nested PCR; Roche); cytomegalovirus virus DNA; Epstein-Barr virus; Q fever; agglutination for *Leptospira* spp. (Galton's test); enteric fever; *Borrelia* spp.; *Bartonella* spp.; autoantibodies (anti-nuclear, anti–liver kidney microsomal, anti-mitochondrial); blood and feces cultures; and ova and parasites in feces. HEV, hepatitis E virus; NA, not available; AST, aspartate aminotransferase; ALT, alanine aminotransferase. Reference ranges were 8–48 IU/L for AST, 7–55 IU/L for ALT, and 0.1–1.0 mg/dL for total bilirubin.

traveled outside Italy. However, he had butchered a wild boar that he had hunted in Barberino del Mugello (Tuscany) in March 2012. The patient's wife, who also butchered the animal, was positive for IgG against HEV but negative for IgM against HEV and for HEV RNA in February 2013. No boar meat was available for HEV testing, which indicated that this route of transmission was likely, but not confirmed.

Autochthonous hepatitis E in industrialized countries is usually an acute, self-limiting disease, but chronic disease can occur in immunocompromised hosts (5). These hosts include transplant recipients, persons infected with HIV, and patients with hematologic malignancies. Chronic infection with HEV has only been documented with genotype 3 strains and has been observed in many countries in Europe, However, to our knowledge, no cases of chronic infection with HEV have been reported in Italy. Our results indicate that chronic infection with HEV genotype 3 occurs in Italy.

Acute and chronic hepatitis E have been reported in patients with hematologic malignancies. An autochthonous case of acute hepatitis E was recently described in Germany in a patient with chronic lymphocytic leukemia that had been treated with chemotherapy, a bone marrow transplantation, and hemodialysis (6). He did not receive any specific treatment for hepatitis E and died of acute liver failure 39 days after diagnosis. Reactivation of hepatitis E in a patient with acute lymphoblastic leukemia was reported after allogeneic stem cell transplantation (7). HEV can also be transmitted directly from an infected transplanted organ.

Ribavirin monotherapy is an effective treatment for most patients with chronic HEV infection (8). It has also been used successfully to treat acute severe infection by genotype 1 of HEV in developing countries and by genotype 3 in industrialized countries (9), and is used to treat hepatitis C,

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although its mechanism of action against HCV and HEV is uncertain. Data are limited on the use of ribavirin in patients with chronic hepatitis E and hematologic malignancies (10). The outcome for our patient suggests that ribavirin might be useful for treating hepatitis E in such patients.

In conclusion, all patients with hepatitis of unknown origin should be tested for HEV, in particular, immunocompromised patients, because they are at risk of acquiring chronic hepatitis and having an adverse outcome. Ribavirin appears to be efficacious in treating hepatitis E and should be considered for any immunocompromised person who has viremia 3 months after acute infection.

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Letters

Letters commenting on recent articles as well as letters reporting cases, outbreaks, or original research are welcome. Letters commenting on articles should contain no more than 300 words and 5 references; they are more likely to be published if submitted within 4 weeks of the original article's publication. Letters reporting cases, outbreaks, or original research should contain no more than 800 words and 10 references. They may have 1 Figure or Table and should not be divided into sections. All letters should contain material not previously published and include a word count.

Q Fever Surveillance in Ruminants, Thailand, 2012

To the Editor: Two cases of fatal endocarditis in Khon Kaen Province in northeastern Thailand were found to be caused by *Coxiella burnetii* (1). Although *C. burnetii* is known to be present in many countries, including in Thailand (2), human infection is more commonly associated with sheep and goats, possibly because these animals shed the organism more frequently in vaginal secretions and feces than do large ruminants (3).

Surveillance for Q fever, which is caused by *C. burnetii*, in livestock is currently based primarily on serologic or PCR testing of milk (4). However, problems in estimating prevalence include serologic assay insensitivity (5,6) or unavailability of milk from nondairy animals.

For diagnosis of Q fever, the placenta of the animal is commonly tested, but testing is usually conducted only when abortions occur, which is only likely when uninfected animals first encounter *C. burnetii*. Therefore, this approach might underestimate true organism distribution in a disease-endemic area (7). In addition, nearly all abortion storms have occurred in sheep or goats, which are rare in Thailand. Ruminant abortion is rarely reported to veterinary authorities in Thailand.

Comparison of paired colostrum and placental samples from sheep showed that *C. burnetii* was found more frequently in placental samples (δ), which suggested that the placenta is a better sample than milk for surveillance purposes. Also, a placenta may be more useful because it is more likely to contaminate the farm environment. Milk is an unlikely source of Q fever in adult persons because it is seldom consumed by adults in Thailand.