

Introduction

Rickettsial diseases are tick and flea borne illnesses classically causing mild and self-limited symptoms of headache and fever, and occasionally thrombocytopenia and hyponatremia.

An erythematous macular rash progressing to petechiae is seen in 80-90% of cases of rocky mountain spotted fever (RMSF) and 50% of cases of murine typhus.

Rickettsial infection is rarely associated with hepatic dysfunction.

Case Presentation

HPI: A male patient in his early 40s with no past medical history presented to the hospital with one week of fevers, myalgias, vomiting, and malaise. He denied recent sexual partners and had no sick contacts. He lived in Colorado but frequently travelled for work and had recently visited southern California.

Vitals: T 36.9 C, HR 100, BP 102/64, SpO2 92%

Exam: notable for jaundice and abdominal distension, no mental status abnormality

Initial Laboratory Data:

CBC: Hgb 12, WBC 9.5, plt 70

BMP: Na 133, K 4.3, Cl 101, HCO3 22, BUN 40, Cr 1.71, Glucose 56

LFTs: Alk phos 222, ALT 387, AST 349, Tbili 7.6, direct 4.0, Pro 4.8, albumin 2.4

INR: 1.2

Lactate 2.5

Hospital Work-up

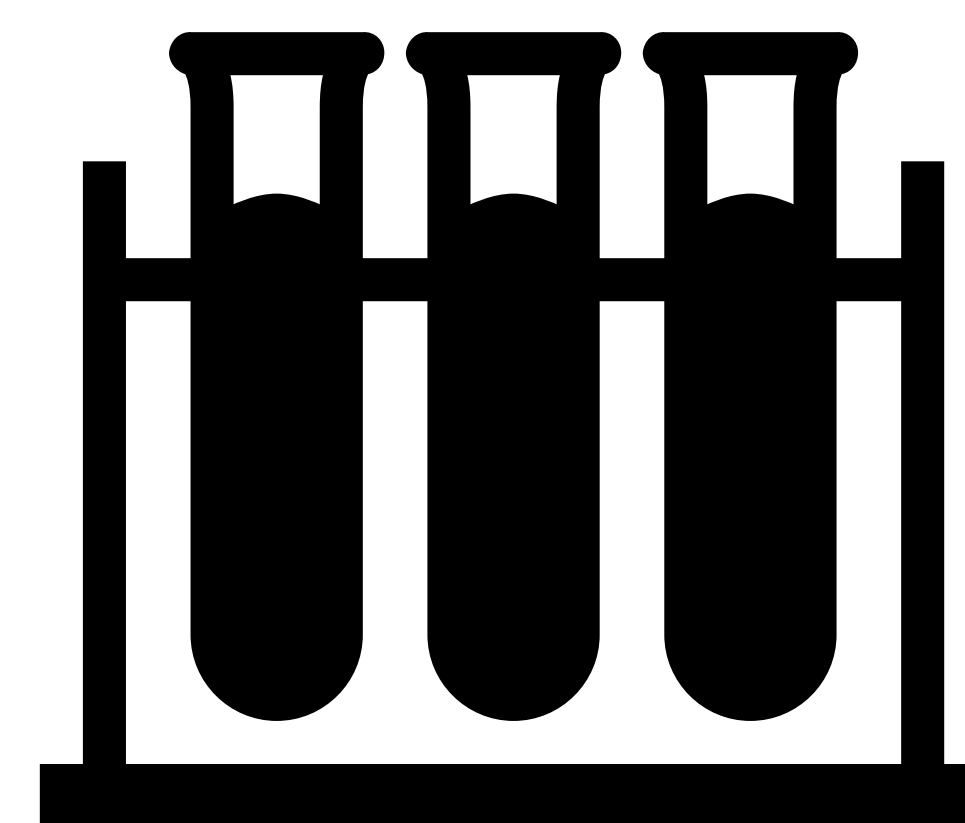
Imaging Data:

Abdominal US: no evidence portal vein thrombosis
CT abdomen/pelvis: hepatosplenomegaly and gallbladder wall thickening without pericholecystic fluid or gallstones

MRCP showed hepatosplenomegaly and diffuse heterogenous liver enhancement. Liver biopsy had inconclusive findings.

Negative blood tests:

Blood cultures, Hep A, B, C, EBV, CMV, VZV, HSV, HIV, ANA, AMA, ASMA, celiac panel, ceruloplasmin, alpha 1 antitrypsin, west nile, treponemal Ab, leptospira Ab, borrelia Ab, and fungal studies



RMSF IgM and IgG titers positive; doxycycline initiated with a presumptive diagnosis of RMSF and his symptoms rapidly improved



Top: Stereotypical maculopapular rash seen in early RMSF. Bottom: Petechial-purpuric rash present in later stages of RMSF (CDC)

Discussion

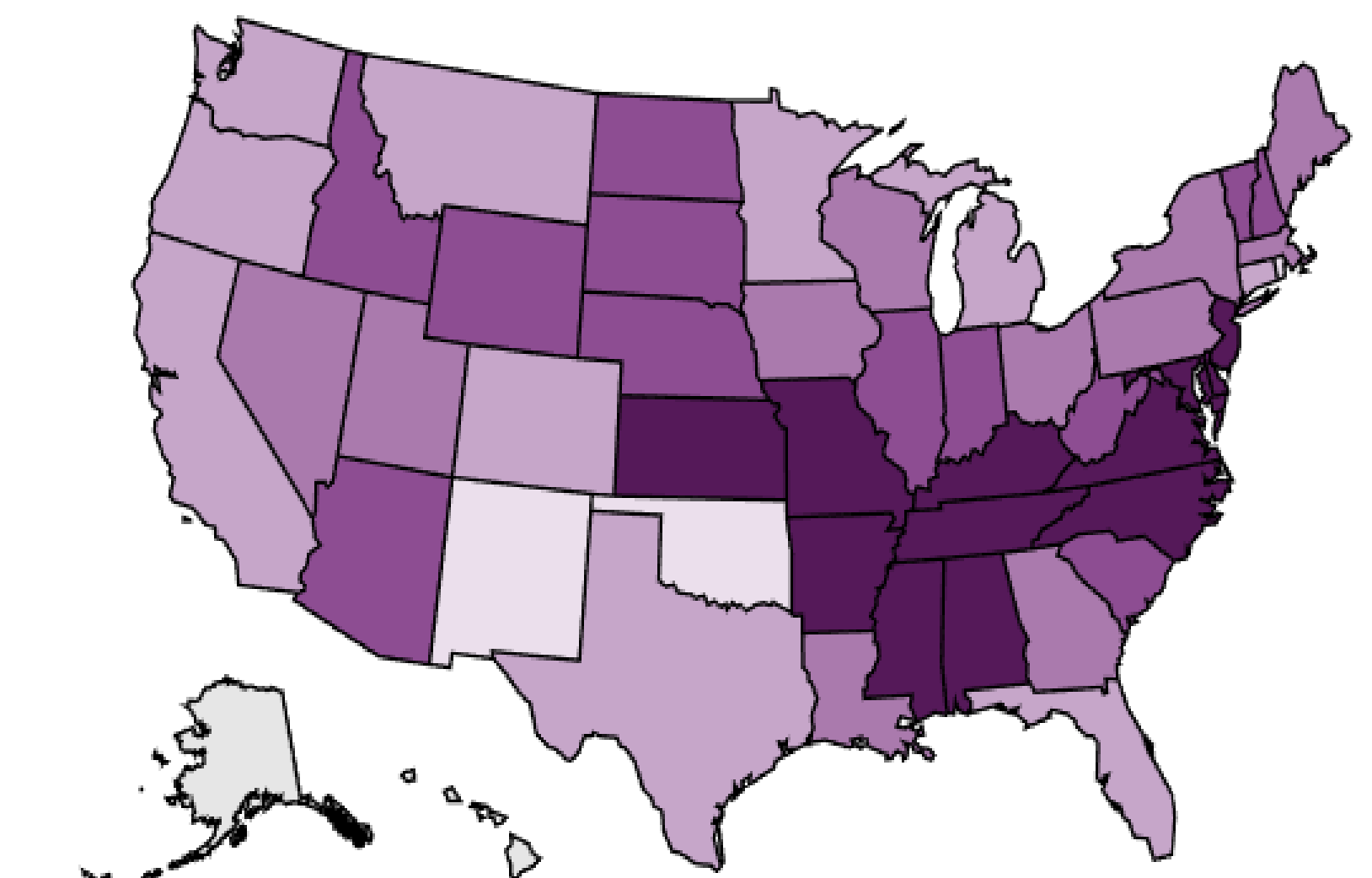
This is a rare case of acute liver injury secondary to rickettsial disease although missing stereotypical rash

Our patient had positive convalescent IgG for *R. typhi* and *R. rickettsi* but neither met the four-fold increase considered diagnostic

Confirmatory PCR testing would likely have aided in determining the causative pathogen however this testing was unsuccessful due to delayed sample transport to the CDC

Annual incidence (per million population) of reported spotted fever rickettsiosis—United States for 2019

0 0 to <1.9 1.9 to <5.2 5.2 to <15.0 15.0+ Not notifiable



Conclusions

This case highlights a need for a higher clinical suspicion of Rickettsial pathogens causing severe liver dysfunction when typical work up is negative.

Underscores the importance of timely PCR testing to ensure an accurate diagnosis when serologies prove inconclusive as public health initiatives can only be inacted through definitive diagnosis of these pathogens

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