

Icteric leptospirosis leading to multiorgan failure and concomitant pancreatitis

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Introduction

- Leptospirosis is a zoonotic disease caused by *Leptospira interrogans* with relatively higher prevalence in tropical regions.¹
- The clinical presentation of leptospirosis ranges from asymptomatic to multiorgan failure with complications including aseptic meningitis, renal failure, liver failure, pulmonary hemorrhage, acute respiratory distress syndrome, and dysrhythmias.²
- Cases of pancreatitis are rare.³
- We present a case of leptospirosis causing acute kidney and liver injury, dysrhythmias, and pancreatitis.
- In 2019, the United States and territories reported 189 cases of leptospirosis with 93 cases in Puerto Rico and 30 cases in Hawaii.⁴ There were 64 cases in the continental United States and 24 cases in the Atlantic states.⁴

Case Presentation

- A 36-year-old male with a history of schizoaffective disorder and polysubstance misuse presented with bilateral calf pain and pruritis for one week. He denied recent alcohol use or travel.
- Vitals were normal except for heart rate of 118 beats per minute. Exam revealed scleral icterus and calf tenderness.
- Laboratory findings showed leukocytosis, thrombocytopenia, elevated creatinine, transaminase elevation, hyperbilirubinemia, and elevated lipase (Table 1).
- Lower extremity ultrasounds were normal. Magnetic resonance cholangiopancreatography showed mild fatty infiltration without bile duct dilatation and edema around the pancreatic head and neck consistent with pancreatitis.
- The patient developed pleuritic chest pain with mild troponin elevation, B-type natriuretic peptide elevation, and ST segment elevations in the lateral leads (Table 1).
- He then developed anuria and hypotension requiring vasopressors, steroids, and hemodialysis. His bilirubin peaked at 40 milligrams/deciliter.
- Leptospirosis antigen and polymerase chain reaction (PCR) were obtained, and ceftriaxone was empirically started.
- He improved with normalization in hemodynamics, urine output, bilirubin, transaminases, and renal function. Leptospirosis antigen and PCR resulted positive.

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| WBC | 12,750 10 ⁹ /L |
| Platelets | 57,000 10 ⁹ /L |
| BUN | 91 mg/dl |
| Creatinine | 7.8 mg/dl |
| AST | 392 U/L |
| ALT | 134 U/L |
| Albumin | 3.1 grams/dl |
| Alkaline phosphatase | 105 U/L |
| Total bilirubin | 14.6 mg/dl |
| Direct bilirubin | 9.1 mg/dl |
| INR | 1.15 |
| Lipase | 912 U/L |
| Creatinine kinase | 7000 U/L |
| Acetaminophen level | undetectable |
| Viral hepatitis panel | negative |
| Troponin | 0.059 ng/ml |
| BNP | 38,400 pg/ml |

Table 1: pertinent lab values

Discussion

- Our patient's chief complaint was bilateral calf tenderness which is a distinguishing physical finding.²
- He had signs of severe leptospirosis including renal, hepatic, and cardiac dysfunction. Interestingly, our patient also had pancreatitis.
- From 2002 to 2019, only 17 cases of leptospirosis-related pancreatitis have been published and were largely localized to Central Europe and Sri Lanka with just one case coming from North America.^{3,5}
- This patient's life-threatening illness underscores the importance of recognizing the variable clinical presentation of leptospirosis, particularly in temperate climates with lower prevalence.

References

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- TABLE 2. Annual reported cases of notifiable diseases, by region and reporting area, United States and U.S. Territories, excluding Non-U.S. Residents*, 2019*^{sup class="hds-sup-ble">††}*. Accessed January 30, 2022. <https://wonder.cdc.gov/ndss/static/2019/annual/2019-table21.htm></sup>
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