

INTRODUCTION

Leptospirosis is a pervasive and potentially fatal zoonotic disease that is prevalent in numerous tropical regions. While various animals can act as reservoir hosts, the brown rat stands as the primary source of human infections. The likelihood of more severe clinical outcomes is likely contingent upon three principal factors: epidemiological conditions, host susceptibility, and pathogen virulence.

The incubation period ranges from 2 to 20 days, with the typical duration falling between 7 and 12 days. The clinical course is conventionally categorized into a 'leptospiraemic phase' or acute phase, succeeded by an 'immune phase'. The initial 'leptospiraemic phase' persists for a period ranging from three to nine days, presenting as a non-specific acute febrile illness. This illness is characterized by fever, myalgia, and headache, and at times can be misidentified as other conditions such as influenza and dengue fever.

During the "leptospiraemic" or "septicaemic" phase, the body's immune response produces IgM antibodies in the blood, and the bacteria are expelled in the urine. At this stage, the bacteria tend to accumulate in the proximal tubules of the kidney in high concentrations, leading to severe symptoms. When patients show classic signs such as conjunctival suffusion, jaundice, and acute kidney injury, it is referred to as Weil's syndrome. If the infection spreads widely through the bloodstream, the patient may develop multiple organ failure. In cases of renal failure with reduced urine output, immediate dialysis can be life-saving. High levels of bilirubin are caused by liver cell damage, which leads to bilirubin leaking out of the bile ducts. Bleeding complications are common and are often linked to abnormal blood clotting. Severe pulmonary hemorrhage, characterized by extensive bleeding in the lungs, has a fatality rate of over 50%.

CASE PRESENTATION

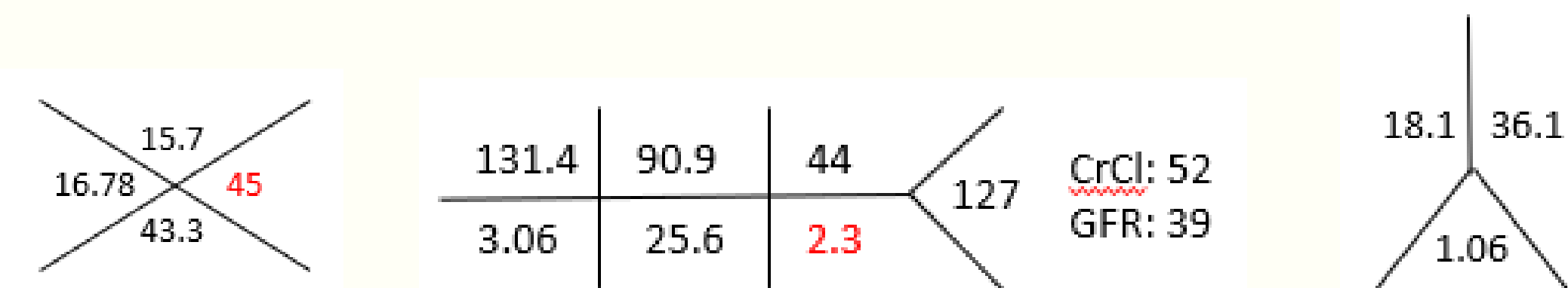
27-year-old white American male who came to the emergency department due to fever and generalized malaise for a week. Associated symptoms of intractable vomiting and decreased urine output since the day before arriving at the Emergency Department. The patient took Tylenol, advil and prednisone for 3 days without improvement. The patient is a surfer who lives in the west of Puerto Rico and is used to walking barefoot.

Past Medical history: None
 Medications: None
 Allergies: NKDA
 Social: current smoker for the past 10 years, 15 cigarettes daily 10 packs per year, drinks alcohol 3 days a week 3 glasses of rum or beer. Smokes marijuana every day. Practices surf.

Vital Signs

- BP 139/89 HR 122 Sat 95% with Venturi Mask 50%
- GEN: Alert, active, oriented x 3, in acute distress due to intractable vomiting, SOB
 - HEENT: PERRLA, EOMI, dry oral mucosa, **scleral icterus, conjunctival suffusion**
 - HEART: regular rhythm tachycardic
 - LUNGS: Grossly clear to auscultation bilaterally, **coughing blood**
 - ABD: + BS in all quadrants, soft, depressible, non-tender
 - EXT: no edema, no cyanosis
 - NEURO: no focal deficit, CN II XII grossly intact
 - Skin: **generalize jaundice**, generalized skin itch

ADMISSION RESULTS



- ESR elevated at 38, CRP elevated at 11.5
- Liver panel: elevated total bilirubin at 18.9 with elevated direct bilirubin at 13.3 and indirect bilirubin at 5.6. Transaminitis with AST at 90 and ALT at 71
- Urinalysis: proteinuria of 300mf/dL, glucosuria of 500 mg/dL, trace ketones, elevated bilirubin >10, and blood >1 (RBC at 257.1/HPF)

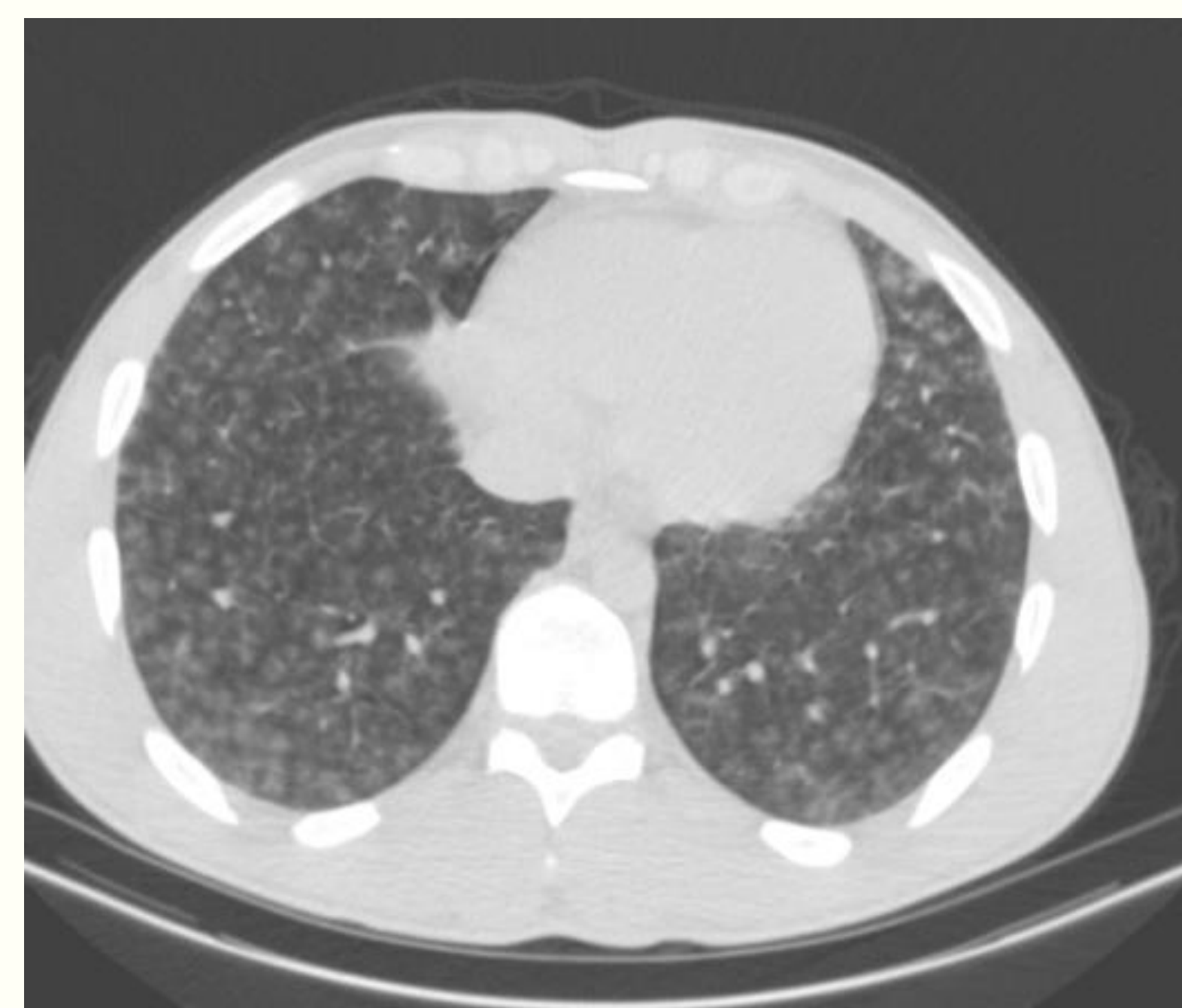


Fig. 1 Admission Abd/Pelvic CT: Lung bases reveal innumerable bilateral centrilobular subcentimeter nodules, findings could be secondary to alveolar hemorrhage.

ADMISSION RESULTS

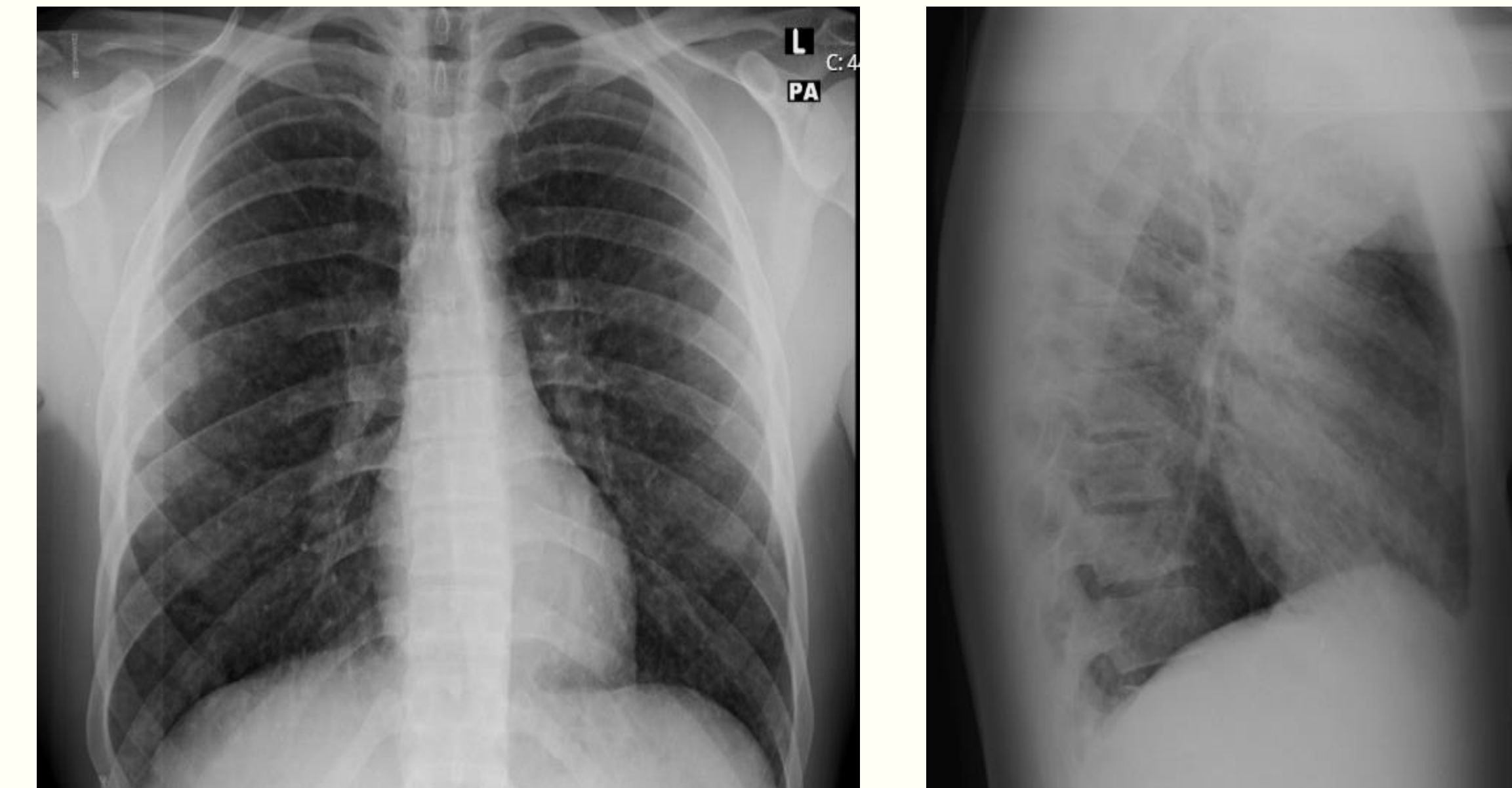
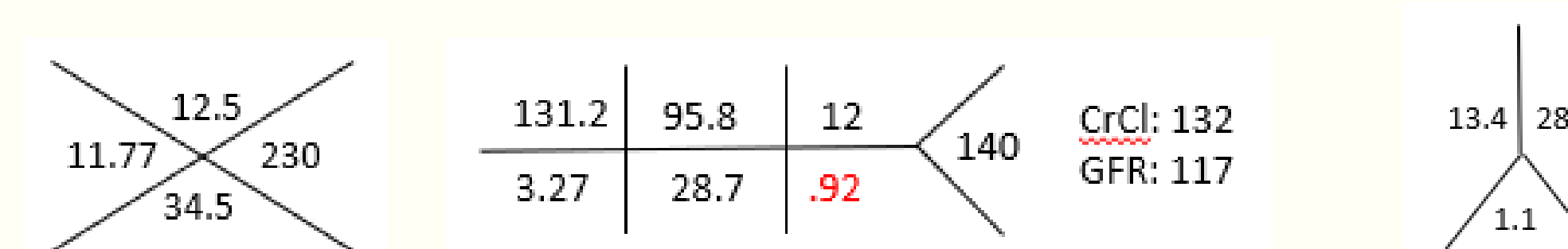


Fig 2. Admission CXR: The trachea is midline. The cardiac silhouette is normal in size. Innumerable bilateral pulmonary nodules are seen. No focal consolidation, pleural effusion or pneumothorax.

CASE PRESENTATION CONTINUUM

The patient presented with persistent impaired renal function, requiring the insertion of a hemodialysis catheter and undergoing a single session of hemodialysis. Vigorous hydration measures were sustained, resulting in a restoration of renal function to its baseline. Furthermore, the patient received treatment with the established antibiotic ceftriaxone. Notably, the patient did not exhibit the Jarisch-Herxheimer reaction. Hemoptysis, fever, and myalgia had abated by the eighth day of admission.

At discharge laboratories



- Liver panel: elevated total bilirubin at 20.2 with a decreasing trend of direct bilirubin at 10.6 and elevated indirect bilirubin at 8.4. Transaminitis with AST at 60 and ALT at 119

Leptospirosis Antibody (IgM): positive

CONCLUSION

In the context of a tropical climate, when encountering a patient presenting with fever and generalized malaise, it is imperative to inquire about potential exposures during the history-taking process. Specifically, aspects such as contact with rat urine, contaminated bodies of water, and direct exposure to contaminants through abrasions or barefoot walking should be thoroughly explored. Notably, in regions such as Puerto Rico, diseases like dengue and leptospirosis remain pertinent.

Severe leptospirosis manifests with conjunctival suffusion, jaundice, acute kidney injury, and even pulmonary hemorrhages, requiring prompt intervention. The patient's recovery could be attributed to aggressive hydration through intravenous fluids and the administration of ceftriaxone. Additionally, the utilization of hemodialysis has been associated with life-saving outcomes.

LIMITATIONS

This is a case report that limits the generalization of findings.

Leptospirosis was diagnosed by ELISA with a positive IgM. Although PCR is preferred for diagnosis the test was not available at the institution.

Patient toxic habits may have had a confounding effect provoking an alveolar hemorrhage.

This case report was conducted retrospectively, the patient or family members were not contacted for follow-up. It is important to acknowledge that potential complications may have emerged after the patient's discharge.

REFERENCES

