

Acalculous Cholecystitis: A Rare Presentation of Leptospirosis

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Abstract

A zoonotic infection with a higher prevalence in the tropics is leptospirosis. Leptospirosis is a clinical issue for doctors in the tropics due to its well-known varied symptoms. Even seasoned doctors may confuse leptospirosis with non-medical disorders. In a review of the literature, a few cases of leptospirosis that presented as acalculous cholecystitis were discovered. We want to draw attention to an uncommon but substantial clinical manifestation of leptospirosis called acalculous cholecystitis.

1. Introduction

The pathogenic spirochete from the genus *Leptospira*, family Leptospirosis, and order Spirochaetes causes leptospirosis, a zoonotic infection that is more common in tropical regions. Leptospirosis' epidemiology has changed, and it is widely recognized as one of the developing infectious diseases on a global scale. This could be the result of modifications in environmental factors such as animal husbandry, climate, cleanliness, and human behavior. Leptospirosis, the most prevalent form of the illness, is self-limiting and lethal, whereas Weil's disease, its severe variant, causes multi-organ failure and has a high death rate. In this report, we show acalculous cholecystitis, a rare leptospirosis manifestation.

2. Case Presentation

40 years old manual worker who had a 4 days fever and 1 day long right upper abdomen pain and 2 episodes of

vomiting reported with these complaints. He also detailed a 3 days history of myalgia, generalized body pain and generalized malaise.

3. Clinical Examination

He was found to be febrile have sore muscles and have slight dehydration. He had stable hemodynamically and a check of his abdomen showed mild tenderness over right hypochondrial region, other systemic examinations were within normal limit. All preliminary investigations were done showed total WBC count was 12300 cell/cumm with neutrophilia 75% and platelet count was 0.85 Lakhs/cumm. Patient serum bilirubin was 3.9mg/dl (Direct bilirubin – 3.3mg/dl). SGOT/SGPT were 110/95 IU/dl, alkaline phosphate and GGT were 656 IU/dl & 400 IU/dl respectively. Urine analysis showed albumin +2 and sugar +2. Abdominal sonogram showed thickened gallbladder wall with no evidence of stones probable diagnosis of Acalculous cholecystitis. He was started

Journal of Coastal Life Medicine

on IV crystalloids and supportive care but his symptoms did not improve. He experienced petechia purpura severe myalgia. Dengue serology was negative Leptospirosis IgM PCR showed positive. He was started on IV doxycycline and IV crystallin penicillin and other supportive measurements. Serial blood count

platelets RFT, LFT monitoring were done, there was gradual improvement the patient improved symptomatically. He was allowed to leave the hospital with just minor jaundice, nearly normal renal function and good urine output.

Table I. Laboratory Reports of Leptospirosis

Test description	Observed value
Hemoglobin	14.4 g/dl
Total WBC count	12300cell/cumm
Platelet count	0.85 Lakhs/cumm
Neutrophils	75%
Lymphocytes	9.5%
Bilirubin (total)	3.9 mg/dl
Bilirubin (direct)	3.3 mg/dl
SGOT	110 IU/dl
SGPT	95 IU/dl
GGT	400 IU/dl
Alkaline Phosphatase	656 IU/dl
Urea	95 mg/dl
Creatinine	1.9 mg/dl
Sodium.	133 mEq/L
Potassium	3.6 mEq/L
Chloride.	99 mEq/L
CRP	15.5 mg/dl

Figure I. Acalculous Cholecystitis



4. Discussion

Leptospirosis has become one of the most common infectious diseases in the globe. In the western world, it is increasingly acknowledged as a recreational sickness. The lower socioeconomic strata are still affected by it as an occupational disease in tropical nations. On contact with polluted water from environmental sources, the spirochete enters people through the mucous membranes or damaged skin.

Leptospirosis is renowned for being a master of disguise due to the variety of its clinical characteristics. In a retrospective analysis of the clinical presentation and management of 353 cases of laboratory-confirmed leptospirosis in Hawaii from 1974 to 1998, Katz AR et al discovered that non-specific symptoms were most frequently present. Early in the course of the disease, the majority of atypical presentations go unnoticed.

Acalculous cholecystitis is a rare symptom of leptospirosis, and the pathogenesis may be an immunological reaction to the invader *Leptospira* in the gall bladder. Examining the histopathology of a gall bladder revealed spirochetes in one specimen along with sub-mucosal mono nuclear infiltration, is oedema, and positive immune-histochemistry for This species in cases of leptospirosis presenting as cholecystitis. Gall bladders were also found to have thicker walls stained with bile and a smooth serosal surface. If cholecystectomy is performed on feverish patients who may have been exposed to animals or the environment, they advise conducting pathologic testing for

leptospirosis. The *Leptospira* genus has a large number of adhesives with various biological purposes. These include the pathogen's plasminogen activation, complement resistance, and adherence to host tissue components. More investigation is required to fully comprehend the pathophysiology of leptospirosis

The quickest method of detecting leptospirosis is by dark ground microscopy detection of mobile spirochetes in urine. Polymerase Chain Reaction, blood or urine culture, a positive microscopic agglutination test, and the detection of immunoglobuline M against leptospira are among the most reliable tests for leptospirosis. Our patient additionally exhibited *Leptospira*-positive Immunoglobulin M and Polymerase chain Reaction results, indicating that the patient satisfied the updated

Doxycycline, penicillin, ceftriaxone, or azithromycin are all effective treatments for the disease. Doxycycline can also be given as a preventative to people who are at risk. On whether to treat acute cholecystitis caused by *Leptospira* surgically or medically, debate rages on. After evaluating the literature, we believe that proper and quick administration of antibiotics would be sufficient to treat acalculous cholecystitis brought on by leptospirosis instead of cholecystectomy.

5. Conclusion

We draw attention to acalculous cholecystitis as a rare but significant clinical manifestation of leptospirosis that could have negative consequences. Sometimes,

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physicians from the tropics diagnose leptospirosis as non-medical illnesses and begin surgical treatment. Early initiation of antibiotics might be preferable to cholecystectomy for the treatment of acalculous cholecystitis caused by leptospirosis.

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