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An Unusual Cause for Bowel Perforation- Leptospirosis

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Authors' contributions

This work was carried out in collaboration between all authors. Author NRK designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors MMB, SH and NKM managed the analyses of the study. Author MMB managed the literature searches. All authors read and approved the final manuscript.

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Case study

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ABSTRACT

Leptospirosis is an acute febrile illness of zoonotic origin that is endemic in many tropical and subtropical regions. Infection results from direct or indirect exposure to infected reservoir host animals that carry the pathogenic leptospires in the renal tubules and are shed in their urine. The spectrum of disease is extremely wide-ranging from infections mimicking a number of other unrelated infections viz dengue and other viral hemorrhagic fevers, hepatitis or pyrexia of unknown origin to life-threatening complications including hepato-renal failure and multiorgan dysfunction. Gastrointestinal involvement in leptospirosis is rare and here we report a fatal case of leptospirosis with colonic perforation and multiorgan dysfunction with sepsis in a 65 yrs old male patient.

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1. INTRODUCTION

Leptospirosis is one of the widest spread zoonotic illness of ubiquitous distribution caused by a pathogenic spirochete belonging to the genus *Leptospira*. Infection is often transmitted by rodents or other animals through their urine which contains the pathogenic *Leptospira*. Direct or indirect contact with infected animals results in infection. The spectrum of illness in humans is extremely wide-ranging from asymptomatic illness with low morbidity to life-threatening complications commonly called as Weil's disease with multi-organ dysfunction.

Diagnosis and treatment of Leptospirosis is a challenge to the clinician due to the wide range of clinical manifestations mimicking other illness that can involve any organ. A typical severe form of the disease is characterized by jaundice, haemorrhage and renal failure. Timely diagnosis and appropriate treatment could be lifesaving in suspected leptospirosis. Gastrointestinal involvement in leptospirosis is seen in the form of pancreatitis, acalculous cholecystitis, peritonitis but it is rare. To date, there is only one case report describing bowel gangrene as a complication of leptospirosis [1]. Here we describe an unusual presentation of leptospirosis with colonic perforation progressing to multiorgan dysfunction and sepsis.

2. CASE HISTORY

A 65 yrs. an old farmer with no known comorbidities presented to the emergency department with complaints of fever, abdominal pain and distension for the past 1 week. He also noticed yellowish discolouration of his eyes, decrease in urine output, hematuria, constipation and passage of dark brown coloured stool for the past 3 days. He started having a fever a week ago, which was high grade, biphasic in nature and was associated with myalgia.

On examination, he was well built and nourished, conscious and oriented. He was found to be afebrile and had icterus with bilateral marked conjunctival suffusion. He was hemodynamically unstable with a blood pressure of 90/70 mmHg without inotropic support. The abdomen was distended and generalized tenderness was present with absent bowel sounds. No organomegaly was detected. Laboratory investigations showed elevated total White blood cell counts with neutrophil preponderance. Urine

microscopic examination revealed the presence of Red blood cells and deranged renal function tests with elevated blood urea and creatinine levels. An erect plain X-ray abdomen showed air under the diaphragm and Ultra sound abdomen revealed the presence of free fluid in the abdomen. A clinical suspicion of perforation peritonitis was made and emergency laparotomy was performed after stabilizing the patient. Intraoperatively, on opening the abdomen around 1 litre of feculent fluid was found in the peritoneal cavity. Two perforations each of size 1 cm was present in the descending colon 10 cm distal to the splenic flexure. Another perforation 3x2 cm in the distal sigmoid with wall thickening was identified. No significant lymphadenopathy was present around the lesions. Left hemicolectomy and Hartmann's procedure with an end-transverse colostomy was done.

Postoperatively patient was shifted to ICU and was put on a ventilator and double ionotropes as he was found to be hemodynamically unstable with symptoms of septic shock, where he died several hours later due to multi-organ dysfunction with sudden cardiac arrest. Positive serological test for leptospirosis IgM ELISA became available shortly after the death. Other febrile agglutination tests were negative. Blood was sent for culture and sensitivity on admission and was sterile after 7 days of aerobic incubation. Histopathological examination of the resected specimen revealed ulcerated colonic mucosa with lamina propria showing predominantly chronic inflammatory cells composed of lymphocytes and plasma cells with the presence of congested blood vessels.

3. DISCUSSION

Leptospirosis is the most common zoonotic disease globally caused by the pathogenic Spirochete *Leptospira interrogans* that can affect both animals and humans. The most common manifestations of the severe disease are jaundice, renal failure and haemorrhage. However, it is a disease with varied clinical manifestations that can affect almost any organ in the body causing myocarditis, pancreatitis, acalculous cholecystitis, rhabdomyolysis, transverse myelitis, flaccid paraplegia, Guillain Barre syndrome, cerebral venous thrombosis, uveitis and renal failure [1-10]. Gastrointestinal manifestations have been described in leptospirosis in the form of bowel gangrene, pancreatitis, peritonitis, acalculous cholecystitis

[1,2]. Above we have described an unusual case of leptospirosis with colonic perforation progressing to sepsis and multiorgan dysfunction.

Gastrointestinal involvement in leptospirosis is rare and is often associated with poor prognosis. The exact pathogenesis of gastrointestinal involvement in leptospirosis is not clear. Studies have shown that it may be due to complex interactions of various tissue injuring factors viz. hemolysins, endotoxins and lipase. Most consistent pathologic finding seen in leptospirosis is vasculitis of capillaries and the resulting loss of red blood cells through the enlarged junctions and fenestra that may lead to secondary tissue injury and this may account for the colonic perforation seen in our case. Other causes for large intestine perforation viz. diverticulitis, diastatic perforation secondary to intestinal obstruction and volvulus were ruled out intra operatively.

4. CONCLUSION

This case demonstrates the gastrointestinal involvement in Leptospirosis in the form of colonic perforation and peritonitis progressing to sepsis and multiorgan dysfunction. Timely clinical diagnosis of leptospirosis and treatment with appropriate antibiotics could be lifesaving since large bowel perforations are associated with higher mortality.

CONSENT

As per international standard or university standard, the patient's written consent has been collected and preserved by the author.

ETHICAL APPROVAL

It is not applicable

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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