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Dual Edge Sword- Leptospirosis and Typhoid Coinfection with Rare Complications- A Case Report

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Abstract: We report a case of leptospirosis and typhoid co-infections in a 20 year-old man presenting with intestinal perforation, acute acalculous cholecystitis, pancreatitis and acute hepatorenal failure. Sequential laparotomies during the same admission were done for multiple intestinal perforation and gall bladder gangrene and perforation. We intent to highlight the overlapping of symptoms, signs and laboratory investigations of both typhoid and leptospirosis with their rare complication, but clinically significant presentation of both typhoid and Leptospirosis -gallbladder perforation due to acalculous cholecystitis. In spite of grave morbidity patient condition improved and he survived due to appropriate supportive care and intervention. Patient was discharged on the 15th post operative day.
Keywords: Leptospirosis, Laparotomy, Acalculous cholecystitis.

INTRODUCTION

Leptospirosis is an acute febrile illness of zoonotic origin caused by Leptospira species. Weil's disease or Hepato Renal Syndrome is a serious complication of the infection. Typhoid fever is another febrile illness which mainly affects gastro intestinal tract leads to dreaded complication; intestinal perforation. Both the diseases are attributed to tropical regions than in temperate and spread by infected water. The purpose of the present report was to look for potential coinfections of Leptospirosis and Typhoid among undifferentiated AFI patients and look for its dreaded rare complications intensively.

We report a case of leptospirosis and typhoid co-infections in a 20 year-old man presenting with intestinal perforation, acute acalculous cholecystitis, pancreatitis and acute hepatorenal failure. Sequential laparotomies during the same admission were done for multiple intestinal perforation and gall bladder gangrene and perforation. We intent to highlight the overlapping of symptoms, signs and laboratory investigations of both typhoid and leptospirosis with their rare complication, but clinically significant presentation of both typhoid and Leptospirosis -gallbladder perforation due to acalculous cholecystitis.

CASE REPORT

A 20 year old gentle man came to emergency department with the complaints of fever, acute abdominal pain and loose stools for 5 days. He had the history of fever for 4 days which was high grade and intermittent, vomiting and diarrhea for the past 4 days and passing yellow coloured urine. The patient was an electrician by occupation and alcoholic for the past 3 years. On examination, patient was icterus with fever, other vitals were normal. Patient showed tense abdomen with diffuse tenderness and exaggerated bowel sounds, there was no organomegaly. On per rectal examination, the rectum was empty. Intestinal obstruction was suspected and exploratory laparotomy was planned after stabilizing the patient with fluids and broad spectrum antibiotics. Intra operatively, gangrenous gallbladder upto infundibulum, multiple gangrenous patches in the terminal ileum and multiple enlarged mesenteric lymph nodes were observed. Six hundred ml of bilious peritoneal fluid drained. Cholecystectomy and resection anastomosis of the ileum was done. Sub hepatic and pelvic drains were kept and abdomen closed in layers.

The Widal test was positive for Typhoid fever (1:320 dilution positive both Salmonella typhi H and O Antigen). Bile and stool culture also showed S.typhi which was confirmed by specific high titre sera. Leptospira IgM ELISA and MAT was positive with significant titre for the serovar Grippotyphosa 1:2560 and Javanica titre was 1: 80. Patient was started on intravenous crystalline penicillin along with third generation cephalosporins. On the 3rd post operative day, patient developed abdominal pain, fever, tachycardia and bilious drain fluid from the drainage tube. On surgical exploration, intestinal perforation was found 10 cm away from the anastamosis site and so resection in wide area with double barrel anastomosis

was done. Culture of the intra operative samples showed Escherichia coli which was an ESBL producer. IV antibiotic Imipenum was started. In spite of grave morbidity patient condition improved and he survived due to appropriate supportive care and intervention. Patient was discharged on the 15th post-operative day.

Table-1: Laboratory investigations Reports

Parameters	Values
Hb	13gm
WBC	7000mm^3/dl
PLT	1.53
PCV	37
RFT Urea Creatinine	 60 0.8
LFT Bilirubin Direct Indirect	 6.4 1.1
ALT	217
AST	62
PT	
Amylase	165
CULTURE Blood Bile Stool Urine	 Negative S.typhi S.typhi Negative
Widal (Tube Agglutination Test)	1:320 dilution positive both O and H Antigen
Leptospira IgM (ELISA) MAT	POSITIVE Grippo 1:2560 Java 1:80

DISCUSSION

The case report denotes the possibility of co-infection with Leptospirosis and Typhoid, presenting with similar symptoms like fever, abdominal symptoms, hepatic dysfunction with their rare complication of acaliculous cholecystitis and gallbladder gangrene.

Elevated serum aspartate transaminase level in this case may be due to leakage in the cytosol of hepatocytes. Leakage in the mitochondria of hepatocyte is expressed by increased alanine transaminase levels. Elevated bilirubin levels are due to Leptospirosis which causes dissociation of hepatocytes and jaundice. Leptospiral infection causes microcirculatory abnormalities more than typhoid and causes hyperbilirubinemia [1]. Typhoid is a common infection which causes intestinal perforation in tropics. Studies have shown, both typhoid and Leptospirosis can cause acaliculous cholecystitis [2] gangrene and perforation [3, 4]. Even though intestinal perforation is mainly due to typhoid fever complication, severe hepatic dysfunction, renal dysfunction and increased serum amylase are more in favour of severe Leptospirosis. A study in Egypt emphasized that Leptospirosis with severe jaundice, coinfected with typhoid have severe hepatic damage than Leptospirosis alone. The high coinfection rates (12.4%) suggest that defining the etiologies of AFI is imperative in guiding proper disease treatment, prevention, and control strategies in Egypt [5].

In the present study the level of direct bilirubin was high reaching 6.4. The characteristic conjugated hyperbilirubinemia associated with Leptospirosis is usually out of proportion to the degree of elevation of liver parenchymal enzymes. Leptospires can cause microcirculatory abnormalities due to failure of bilirubin excretion leads to increase in the bilirubin level. Hence typhoid and jaundice are considered as co-infection of leptospirosis[6].The severity of the infection depends on the general health of the patient and causative agent Serovar(strain) of bacteria involved and the infective dose. Severe illness progress to organ failure and often death if not treated with intervention and support. Hence the co-infections must be diagnosed early as possible before the severe hepatic dysfunction starts and to prevent the high risk. With respect to Typhoid fever patient presented with multiple intestinal perforations with acalculous cholecystitis with gangrenous gall bladder. Though gallbladder complication is a rare entity in cases of Typhoid and Leptospirosis, it always necessitates examination of gall bladder during Laparotomy for intestinal perforation. As it is a dreaded complication, it carries high morbidity and mortality if delayed intervention is done.

CONCLUSION:

The results obtained from the present study describes the clinical, laboratory and intra operative findings of a patient with Leptospirosis and Typhoid coinfection admitted to the tertiary care teaching hospital in Trichy, India. This indicates clearly that coinfections (Leptospirosis with Typhoid and jaundice) always leads to severe hepatic, intestinal damage and delay in appropriate intervention compared to Leptospirosis or Typhoid alone especially with limited laboratory support settings.

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