Case Report: Acute Pancreatitis and Acalculous Acute Cholecystitis in a Patient with Leptospirosis

Olgu Sunumu: Leptospirozlu Hastada Akalkuloz Akut Kolesistit ve Akut Pankreatit

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SUMMARY

Leptospirosis has been associated with hyperamylasaemia and it has been suggested that leptospirosis should be included in the differential diagnosis of acute pancreatitis and acalculous cholecystitis. In this report, we presented a case of an acute pancreatitis and acute acalculous cholecytitis when it was diagnosed during Leptospirosis treatment.

KEY WORDS: *Leptospirosis, Acute pancreatitis, Acalculous acute cholecystitis, Hyperamylasemia*

ÖZET

Leptospirozizde hiperamilazemi görülebilir ve bu durum akut kolesistit ve akut pankreatit ayırıcı tanısında Leptospirozun da yer alması gerektiğini gösterir. Bu yazıda Leptospiroz tedavisi sırasında tanısı konulan akut akalküloz kolesistit ve akut pankreatit olgusu sunulmuştur.

ANAHTAR KELİMELER: *Leptospiroz, Akut pankreatit, Akut akalkuloz kolesistit, Hiperamilazemi*

INTRODUCTION

Leptospirosis is a common zoonosis caused by a spirochetal bacterial infection. It causes several clinical illnesses in humans.[1,2] This zoonosis is especcially seen in farmers, veterinerians, trappers, rice field workers, and sawage system workers which commonly in some other parts of the world.[2] Infection mainly affects liver and kidneys. Rarely, other organs such as lung, heart, gallbladder, brain, and ophthalmic tissues are involved, mainly due to vasculitis pathogenesis.[3,4] Although hyperamylasemia is a common laboratuary finding in this infection, pancreatic involvement is an uncommon manifestation for Leptospirosis. Therefore, the diagnosis of acute pancreatitis with or without abdominal pain is a controversial situation in this infection.[4-10] Acute cholecystitis in the absence of any detectable stones is known as acute acalculous cholecystitis (AAC).[5,6] In this report, we presented a case of an acute pancreatitis and acute acalculous cholecytitis when it was diagnosed during treatment for Leptospirosis.

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CASE REPORT

A previously healthy 67-year-old woman was admitted to our emergency service for nausea, fever, diarrhea, malaise, general muscular pain, and weakness with a 2-days history. She had no history of systemic disorders, smoking, alcohol consumption and drug abuse. She was a housewife and she had been well and denied any infectious diseases contacts or recent travel abroad.

On physical examination, she was in poor general condition with fever and her temperature was 38.9 C, pulse rate was 110/min, blood pressure 145/85 mmHg and she was tachypneic with no cyanosis. Urine output was normal. Her head and neck were normal and no palpable lymphadenopathy was detected. The lung and heart examination were normal and there was no organomegaly, arthritis, skin lesions, or neurological deficits.

Admission electrocardiogram showed tachycardia with non-specific ST-T wave's changes. Chest radiography was unremarkable. Laboratory studies on admission to our hospital showed leucopenia, thrombocytopenia, hyponatremia, hypokalemia, anemia, increased levels of C-reactive protein (CRP), blood urine nitrogen (BUN), creatinin, creatin kinase (CK), aspartat aminopeptidase (AST), alanin aminotransferase (ALT), and. Other biochemical tests and peripheral blood smear were a normal. Patient's abnormal laboratory findings at admission and sequent days are shown at Table I. Abdominal ultrasonography (USG), computed tomography (CT) for abdomen and thorax were normal. Ampicilline sulbactam four times per day (2g/day) was given to the patient intravenously and intravenous fluid resuscitation was given.

Differential diagnostic tests for common other infectious diseases such as viral hepatitis, human immunodeficiency virus infection, Dengue fever, brucellosis, salmonellosis, gastrointestinal infections, and other causes such as infections, malignancies, and rheumatological diseases were negative. Specific tests for differential diagnosis are shown at Table II. Leptospira microagglutination test was positive (at 1/800, L. icterohemorrhagica). Spirochetes were seen in blood on dark-field microscopy.

At the 4th day of her admission, the patient was feeling entirely well and had no fever. A septic screen that included several blood cultures, sputum and urinary cultures were unrevealing.

Serum amylase level was checked after the 6th day at admission to investigate hypoglysemia and elevated lactate dehydrogenase enzyme level without abdominal pain and nausea. Serum amylase level was increased compared to levels at admission. (Amylase levels at admission and subsequent days are shown at Table I). Abdominal USG showed a thickened gallbladder wall (7.2 mm) and pericholecystic fluid collection. There was no evidence of biliary dilatation, gallbladder stones and sludge. An abdominal CT confirmed the USG findings and showed mild pancreatitis. Therefore, we looked serum lipase level, pancreatic isoamylase and urine amylase levels were evaluated and she had an abdominal USG and then CT. Serum lipase, pancreatic isoamylase and urine amylase outputs of the patient were elevated. (These values were are shown at Table I). We were diagnosed acalculous cholecystitis and acute pancreatitis was diagnosed with these findings. She was kept per orally and intravenous antibiotics such as ampicilline-sulbactam 2g daily treatment. Emergency operation was no considered for this patient.

Oral intake was started on 5th day for pancreatitis and cholecystitis clinical picture. Although all laboratuary findings returned to normal within 10th day, increased lipase level was continued for 5th day. At the 13th day of her admission, she was feeling entirely well and has been free of any symptoms.

The patient was examined two months later and she was in a completely healty condition. All abnormal laboratories tests were returned to normal.

Discussion

Leptospirosis is a spirochetal zoonosis that causes clinical illness in humans as well as in animals.[1-3] These bacteria infect humans by entering

Tablo 1: Patient's abnormal laboratory results at admission and sequent days

Test	Unit	Normal value	On admission	2nd day	4th day	6th day	10th day	14th day
Hemoglobine	g/dl	11.7- 16.2	11.8	11.2	10.0	11.1	11.6	11.9
Hematocrite	%	35-47	34.5	30.3	27.8	29.2	33.6	34.7
Thrombocyte	K/uL	150- 400	79	73	56	78	98	165
Leukocyte	K/uL	4.4- 11.3	3.4	3.1	4.9	7.1	8.4	9.1
CRP	mg/dl	0- 5	211.4	199.7	98.3	47.3	18.61	4.65
BUN	mg/dl	5- 25	73.71	82.55	74.1	48.7	29.2	14.8
Creatinin	mg/dl	0.5- 0.9	5.42	5.46	4.03	3.19	1.13	0.9
AST	U/L	5- 32	41.8	47.5	50.7	23.47	17.9	14
ALT	U/L	5- 31	32.4	37.8	41.7	25.75	19.2	15
Total bilirubine	mg/dl	0.6-1.2	0.9	1.1	-	-	0.96	0.79
CK	U/L	20- 167	813.4	1099.8	1388.9	764	248	154
Sodium	mEq/L	131- 145	122.3	126.4	132.8	138.2	138.9	139.4
Potassium	mEq/L	3.4- 5.5	3.1	3.2	3.6	4.0	4.1	4.3
ESR	mm/hour	<20	16	26	52	64	48	22
Calcium	mg/dl	8.8- 10.2	8.9	-	8.1	7.9	8.2	9.1
LDH	U/L	90- 223	215.5	238.4	288.9	305.5	234.2	198
Amylase	U/L	10- 100	32.4	-	-	1074	432	96
Lipase	U/L	23- 60	-	-	-	697.2	541.82	142.7
Urine amylase output	U/L	75- 750	-	-	-	918	-	462
Pancreatic isoamylase	U/L	11- 54	-	-	-	246	-	23

through abraded skin, mucous membrane, conjunctivae.[3] It occurs as two clinically recognizable syndromes: the anicteric leptospirosis (80-90% of all cases) and the remainder icteric leptospirosis.[3] Icteric disease is known as Weil's disease, which is characterized by hemorrhage, renal failure, and jaundice. Weil's disease is a much more severe disease than anicteric leptospirosis form (1, 6 and 8). Leptospirosis is characterized by the development of vasculitis, endothelial damage, and inflammatory infiltration. This disease mostly frequently affects tissues of the liver and kidney. Other tissues such as the pancreas can be affected due to vasculitis.[1,2] Leptospirosis presenting as AAC and pancreatitis is rare and has only been reported 3 times, twice in adults and once in a child. Early diagnosis requires suspicion as presentations may be non-specific.[5,6,8-10] Our case was a non-icteric leptospirosis.

Oliguria is a significant predictor of death in leptospirosis.[4] Urine output was normal in this our case but she had acute renal failure caused by may be dehydratation due to diahrrea and the fever becaue renal function was revealed normal with following hydration and treatment for Leptospirosis.

There were moderate rises in transaminase levels in our case. Hepatic dysfunction occurs but resolves in Leptospirosis, and it is rarely the cause of death.[3,4] Leptospirosis has been associated with hyperamylasaemia and it has been suggested that leptospirosis should be included in the differential diagnosis of acute pancreatitis. Edwards and Evarard reported that 23% of patients with leptospirosis had elevated serum amylase 3 times above the normal level without any other causes for the elevation.[7]

For the diagnosis of acute pancreatitis, a simultaneous determination of both amylase and lipase levels is recommended for the evaluation of patient without abdominal pain.[8,10] Elevation of lipase level with serum amylase is important for the diagnosis of acute pancreatitis.[11] And, elevation of pancreatic izoamylase level also supports the diagnosis of pancreatitis.[11] Hyperamylasemia also can be seen in leptospirosis due to renal function alterations or other unknown reasons.[5,6] CT scan is a gold standard in diagnosis of acute pancreatitis, as shown by many authors who use it. This diagnostic test has 100% specificity and over 90% sensitivity for pancreatitis.[12] We diagnosed acalculous cholecystitis and acute pancreatitis due to those laboratory results and imaging methods findings.

The treatment of acute pancreatitis in leptospirosis includes antibiotic treatment against leptospira and supportive treatment for acute pancreatitis.[4-6] In our case, the diagnosis was based on the strongly positive ELISA IgM, clinical features and laboratory investigations that were supporting the diagnosis. ELISA IgM for leptospira has been reported to have low sensitivity due to cross reactions with other organisms, giving false positive results.[13] However, we are certain in our case that the etiology is due to leptospirosis as extensive investigations failed to reveal any other possible causes.

In conclusion, pancreatitis may be seen in this infection. Early diagnosis and appropriate treatment is essential for life saving.

Tablo 2: Specific tests results for differential diagnosis

	Results
HBsAg	Negative
Anti-HCV	Negative
Anti-HIV	Negative
Wright	Negative
Gruber Widal	Negative
Mycoplasma pneumoniae IgM	Negative
Legionella pneumophiliae IgM	Negative
Blood Culture	Negative
Urine Culture	Negative
Faecal Culture	Negative
Sputum Culture	Negative
Antinucleer antibody	Negative
Romatoid factor	Negative
Anticardiolipin antibodies IgM and IgG	Meaningless
Cancer antigen125	Meaningless
Carcinoemriogenic antigen	Meaningless
Cancer antigen 19.9	Meaningless
Mucine Breast Antigen 153	Meaningless
Alpha- Fetoprotein	Meaningless
ELISA IgM for Leptospirosis	>160 titer
Dark Field Microscopy	Positive

REFERENCES

1. Leblebicioglu H, Sencan I, Sunbul Met al. Günaydin M. Weil's disease: Report of 12 cases. *Scand J Infect Dis* 1996; 28: 637-9.
2. Farr RW. Leptospirosis: State-of-the-art article. *CID* 1995; 21: 1-6.
3. Levett PN. Leptospirosis. *Clin Microbiol Rev* 2001; 14: 296-326.
4. Casella G, Scatena L Mild pancreatitis in leptospirosis infection (letter to the Ed.). *Am J Gastroenterol* 2000; 95: 1843-4.
5. Guarner J, Shieh WJ, Morgan J, et al. Leptospirosis mimicking acute cholecystitis among athletes participating in a triathlon. *Human Pathology.* 2001; 32: 750- 2
6. Monno S, Mizushima Y. Leptospirosis with acute acalculous cholecystitis and pancreatitis. *J Clin Gastroenterol.* 1993; 16: 52-4.
7. Edwards CN, Evarard COR. Hyperamylasemia and pancreatitis in leptospirosis. *Am J Gastroenterol* 1991; 86: 1665-8.
8. O'Brien MM, Vincent JM, Person DA, Cook A. Leptospirosis and pancreatitis: a report of ten cases. *Pediatr Infect Dis J*

1999; 18: 399-400.
9. Karaahmetoglu S, Ciftci A, Ozer I et al. A case of acute pancreatitis due to Weil's disease. *Mikrobiyol Bul* 2003; 37: 297- 9.
10. Pai ND, Adhikari P. Painless pancreatitis a rare manifestation of leptospirosis. *J Assoc Physic Ind*. 2002; 50: 1318-9.
11. Frank B, Gottlieb K. Amylase normal, lipase elevated: Is it pancreatitis? *Am J Gastroenterol* 1999; 94: 463-9.
12. Clavien PA, Hauser H, Meyer P, Rohner A. Value of contrast enhanced computerized tomography in the early diagnosis and prognosis of acute pancreatitis. *Am J Surg* 1988; 155: 457-63.
13. Bajani MD, Ashford DA, Bragg SL et al. Evaluation of four commercially available rapid serologic tests for diagnosis of leptospirosis. *J Clin Microbiol* 2003; 41: 803-9.