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Guillen-Barret Syndrome in a Patient with Leptospirosis

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Abstract

Introduction: leptospirosis is a zoonotic infection which is mostly transmitted with infected water. We report a case of Guillen-barret syndrome in adults associated with leptospirosis infection.

Case Description: A 59 years old, worker of water and Sewage Company, presented to emergency room with icter, ascending paraplegia and high creatinine level. He reported influenza like symptoms 2 weeks before his current presentation. Due to his work status and symptoms, leptospirosis infection was considered and patient received doxycycline in his treatment coarse. Patients symptoms and lab test has been better however weakness and reduced DTR was persistent. Cervical spine MRI reveals disc dehydration and protrusion in C5-6. However his symptoms, due to reducing DTR and ascending weakness were more consistent with Guillen batter syndrome. The patient received IVIG and the symptoms significantly reduced.

Discussion: Based on literature, the most common neurologic manifestation of leptospirosis is aseptic meningitis however there are some reports of mononeuritis multiplex, flaccid paraplegia and a Guillen-barret in pediatric. Our case is the first report of Guillen-barret in an adult with leptospirosis.s.

Keywords: Guillen-barret syndrome; Leptospirosis

Introduction

Leptospirosis is a zoonotic disease with a worldwide distribution especially in tropical and subtropical region [1]. It's a spirochete bacterial infection with systemic unspecified manifestation, from mild symptoms especially conjunctival suffusion and muscle tenderness, which may proceed to severe form of disease, Weils syndrome, with characteristic triad of renal failure, icterus and hemorrhage. A Neurologic manifestation of leptospirosis is rare and could include aseptic meningitis, optic neuritis and very rarely primary neurologic disease [1]. We present a 59 years old patient with Guillen-Barret following leptospirosis infection.

Case Presentation

A 59 years old man, worked at water refinery, presented with ascending and progressive paraplegia since 2 days before admission. He had flue like symptoms 2 weeks ago. At presentation he was icteric. His pulse rate was 82, blood pressure: 120/80 and he had no fever. In physical examination the sclera was icteric. There was no lymphadenopathy in neck. His heart and pulmonary sounds and abdominal examination were unremarkable. Neurologic examination showed reduced lower extremity forces in proximal and distal (approximately 2/5) but normal force in upper extremity. He had no complained of reduced urine output, nausea or vomiting, headache or any other neurologic signs. His lab test at presentation is showed in Table 1.

Due to icter, abnormal creatinine and neurologic symptom, TTP/HUS was the first differential diagnosis.

A peripheral blood smear was taken, which showed no shistocyte. Considering his working status and symptoms the most probable diagnosis is leptospirosis infection. Serology of leptospirosis infection has been checked and the diagnosis was confirmed. Appropriate treatment with doxycycline for 7 day has been initiated and the patient's icterus and renal impairments relieved. However his weakness was persistent. Due to his persistent weakness a brain MRI has been done without any significant abnormality and no evidence of myelitis.

An electromyography-nerve conduction velocity (EMG_NCV) has been done which showed asymmetrical sub-acute mixed type (demyelinating and axonal) polyneuropathy. Due to EMG-NCV results and ascending weakness a lumbar puncture has been done which was consistant with Guillen Barret syndrome. An intravenous immunoglobulin (IvIg) has been started and the patient has responded to the therapy. Muscle biopsy was also done.

Discussion

We presented a 59 years old patient with progressive decreased lower limb forces post leptospirosis infection. . Some differential diagnosis was considered including seeding infection in CNS, cerebrovascular disease, potassium abnormalities and transverse myelitis. Appropriate diagnostic lab test and imaging was done, which was more compatible with Guillain-Barre syndrome. Guillain-Barre syndrome is an acute ascending paralytic neuropathy [2] which shortly appear after infectious disease including campylobacter jejuni, cytomegalovirus, Ebstein-bar virus, Mycoplasma Pneumonia, Hemophilus influenza etc. Must have presentation includes, progressive limb weakness and areflexia. For GBS diagnosis compatible clinical presentation, CSF analysis or EMG-NCV findings are necessary. Our patient developed symmetric lower limb weakness following a week from leptospirosis infection. EMG-NCV is not necessary for diagnosis of Guillain-Barre syndrome however it can be both presented with demyelinating and axonal pattern, which axonal pattern is more prevalent in post diarrhea-GBS [3]. Our patient had a mix pattern of axonal and demyelinating syndrome.

Due to previous studies, leptospirosis could present with meningitis,

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	At the presentation		
		Unit	Normal lab range
WBC	24000	Per mm^3	4100-10100
Hgb	11.5	g/dl	12-16
MCV	81.3	FL	77-94
PLT	412000	Per mm^3	150000-400000
PT	14	sec	11-20
PTT	55	sec	25-40
INR	1.5		
Na	131	meq/ L	135-145
K	4	meq/ L	3.5-5
Urea	176	Mg/dl	
Cr	2.2	mg/dl	0.6-1.3
calcium	8.1	mg/dl	8.6-10.2
Mg	3.2	mg/dl	1.6-2.6
phosphorus	5.1	mg/dl	2.5-4.5
Uric acid	12.1	mg/dl	3.6-8.2
ESR	107	g/dl	6.6-8.8
CRP	96	Mg/L	
lactate	5	Mg/L	4.5-20
AST	61	U/L	<37
ALT	91	U/L	<41
ALKP	205	U/L	80-306
Bilirubin total	26.4	Mg/dl	0.1-1.2
Bilirubin Direct	14.8	Mg/dl	<0.3
CPK	726	U/L	24-195
Urinary analysis			
SG			
PH			
Protein			
Glucose			
Blood			
Nitrite			
WBC			
RBC			
Urine protein/24h	1050	Gr/24h	13-36
Urine cr/24h	798	Mg/24h	800-2000
LDH	2247	U/L	<400
HBSAg	Non-reactive		
Anti-HCV	Non-reactive		
HIV-Ag/Ab	Non-reactive		
T3		Ng/ dl	80-200
T4		µg/d	4.5-12.5
TSH		mIU/l	0.3-5
ANA	1.84	U/ml	Negative<11
ASMA	Negative	index	
Blood cultures*2	Negative		
Leptospira IgM	24.5	NTU	Negative<9 Borderline 9-11 Positive>11
Leptospira IgG	15	NTU	Negative<9 Borderline 9-11 Positive>11
VBG			
PH	7.52		
PCo2	31.2		
Hco3	25.8		

Table 1: Patient's lab tests.

peripheral nerve lesions like mononeuritis multiplex, cortical and cranial and spinal cord lesions [4,5]. Our case is the third case of leptospirosis induced GB. Based on previous reports, other reported GB, was with Leptospira icterohaemorrhgia [6,7], which Unfortunately we could not subtype the leptospira in our case.

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