LEPTOSPIROSIS & Dx and Management

1st International Critical Care & Emergency Medicine Congress, November 6-8, 2013, Istanbul-TR

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- GATA Haydarpaşa Training Hospital
- Infectious Diseases and Cl. Microbiology
- İstanbul-TR

Leptospirosis

- Leptospirosis is a zoonosis with protean manifestations caused by the spirochete, L. interrogans.

- Leptospirosis is a common zoonotic infection with worldwide distribution; humans are incidental hosts, and most infection occurs in tropical climates. The clinical manifestations are nonspecific and may include fever, rigors, myalgias, headache, cough, and gastrointestinal complaints.

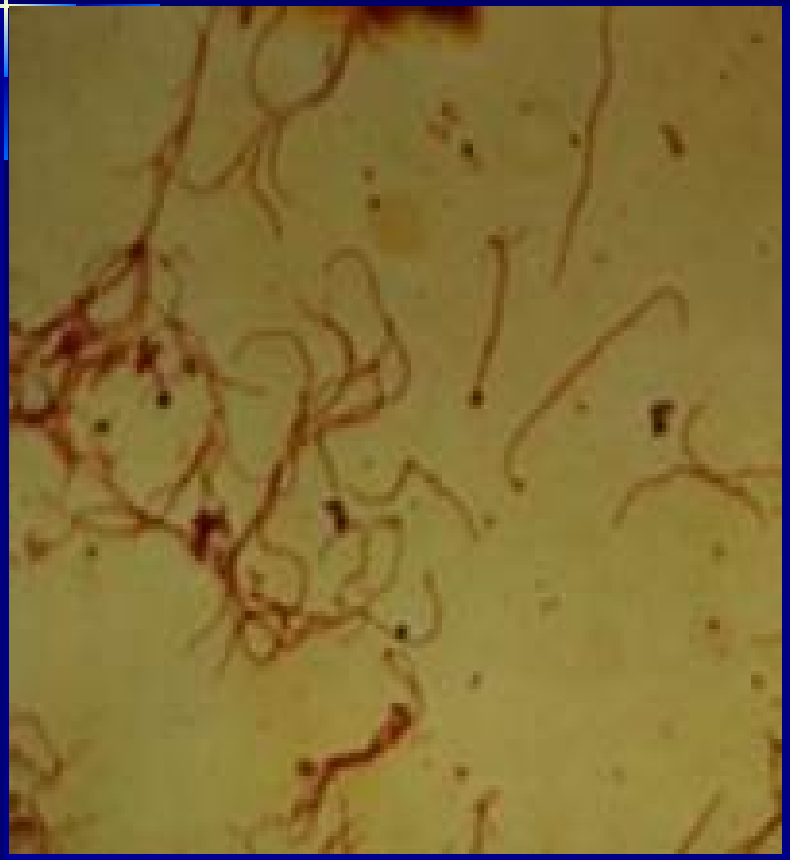
Leptospirosis

The clinical presentations are diverse, ranging from…

- Undifferentiated fever

- Fulminant disease including pulmonary and neurological forms.

Leptospirae



- Actively motile
- Without spor
- No Capsule
- Obligate aerobic,
- Helicoidal-flexible
- Both ends are in shape of semisircular like question mark
- 0.1 µm thick X 6-20 µm long
- Double membrane constitution supports Gr (-) negative bacteria
- Sensitive to detergent…

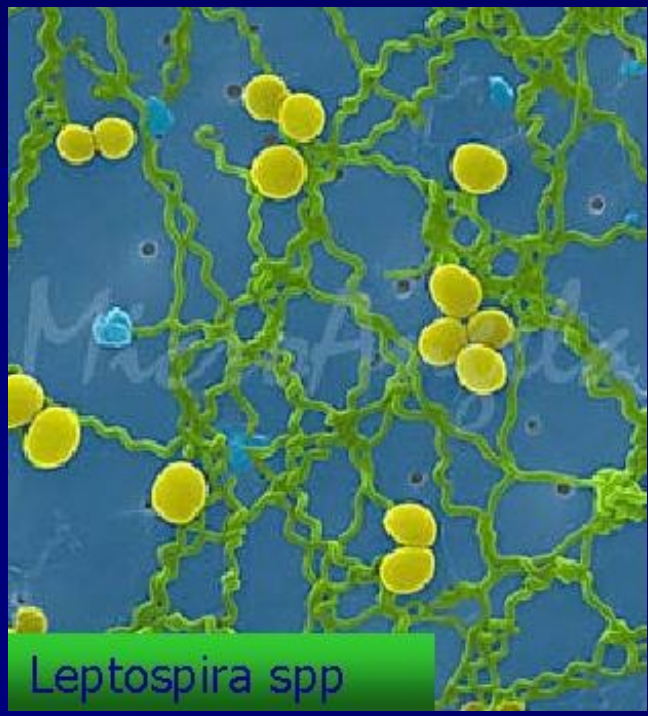
Etiology:

Leptospira genus :

2 species

- Leptospira biflexa
- Leptospira interrogans
  - Traditional system:
    - >300 serotype (Serovar)
    - 26 serogrups

Serovars are defined by agglutination after cross-absorption with homologous ag. The agglutinating ag is LPS.



Leptospirosis is an emerging zoonotic disease. It has a broad range of cl. presentations in humans.

Synonyms

Weil's disease,
Japaneese 7 day fever
Swineherd's disease,
rice-field fever,
cane-cutter fever,
swamp fever,
mud fever & Field fever,
hemorrhagic jaundice,
Stuttgart disease, and Canicola fever.
Autumn fever
Fort Bragg Fever
Soldier's Disease
Gold prospectors Disease…

Fort Bragg Fever…

- August 1942, an unusual acute febrile illness (99.8° to 105.6°F) occurred in a group of soldiers at Fort Bragg, N.C.
- Soldiers quartered near a small stream and its tributaries
- 40 patients with sudden onset malaise, mild aches, lumbar pain, severe headaches
- Bilaterally symmetrical rash limited in to the pretibial areas on the fourth day
- Similar outbreaks 1946 and 1947 among soldiers quartered in the same area…

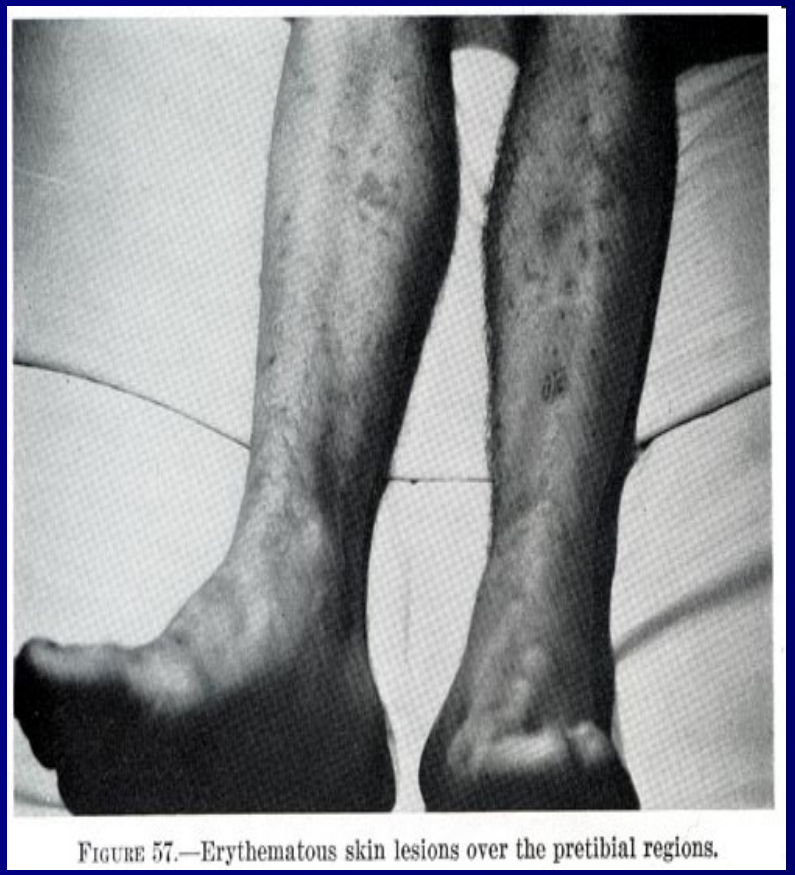


FIGURE 57.—Erythematous skin lesions over the pretibial regions.

Soldier`s disease&Leptospirosis

Military Hospital-Istanbul/TR

- First leptospirosis pt diagnosed by a Mil.Dr Resat Riza in 1915.
- Any case reported in 21 ys (1982-2003)
- 22 cases in just 6 ms (2004)

- Reason?
- An active screening started for feverish pts with multi organ involvement.
- GATA-TR 34 Form

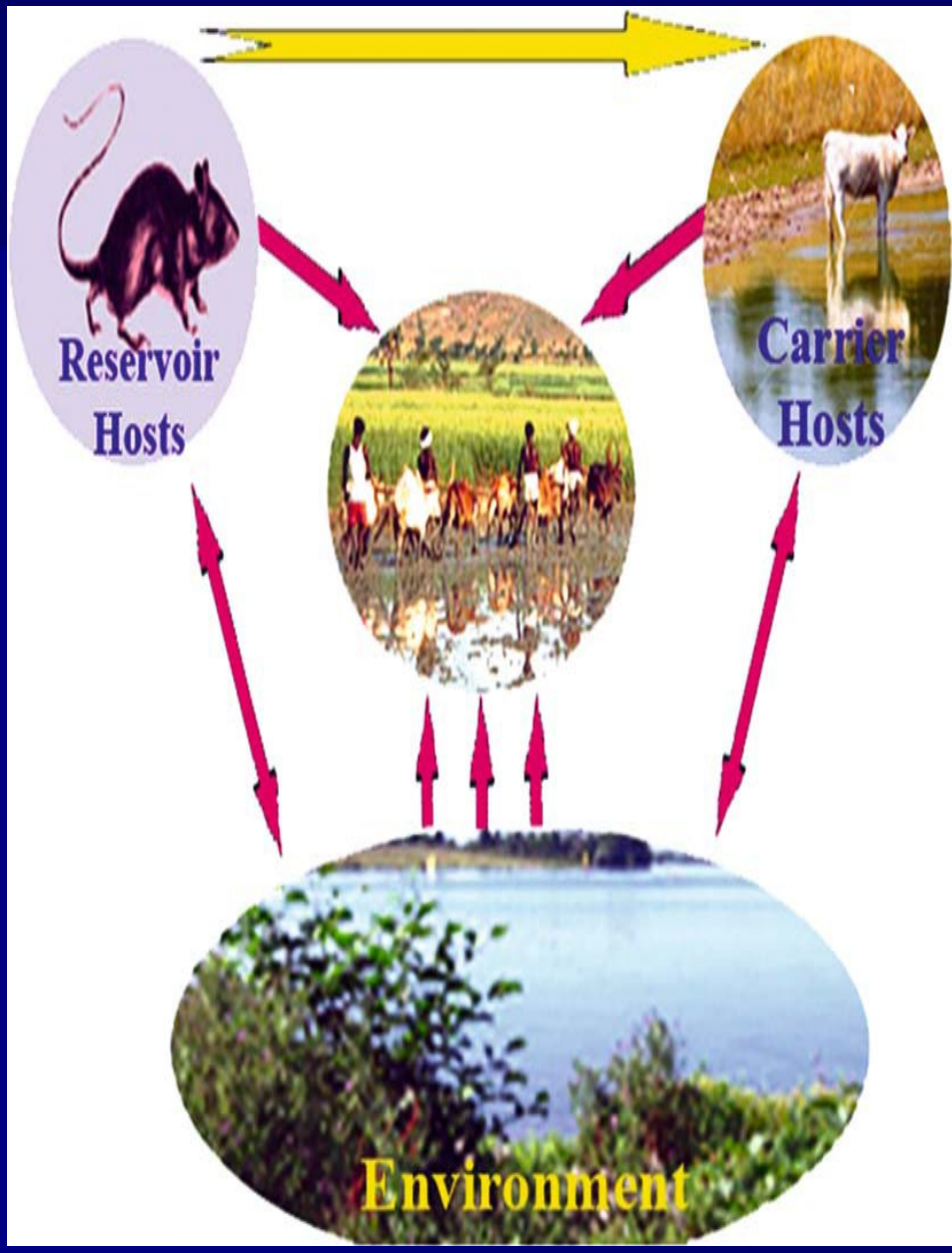
➢ *These results demonstrate that soldiers are at increased risk for leptospirosis and warranted carefully tracking for leptospirosis in military facilities.*

Turhan V, et al. Leptospirosis in Istanbul, Turkey: a wide spectrum in clinical course and complications. Scand J Infect Dis. 2006;38(10):845-52.

Leptospirosis Transmission-I

- **Direct transmission:** occurs when leptospires from tissues, body fluids or urine of acutely infected or asymptomatic carrier animals enter the body of the new host and initiate infection.

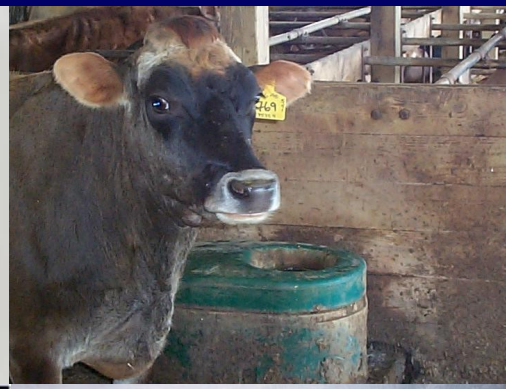
- **Indirect transmission:** Animals or human being acquires leptospirosis from enviromental leptospires, originating in the urine of excretor animals.



Leptospirae Transmission-II

- dwell in the renal tubules of their animal host and excreted to environment along the ds and ms.
- can be excreted via placentas or amniotic fluids of infected animals.
- Leptospirae can survive for long periods of time in the environment; months in water and wet soils,
- even in sea water for 24 hs.

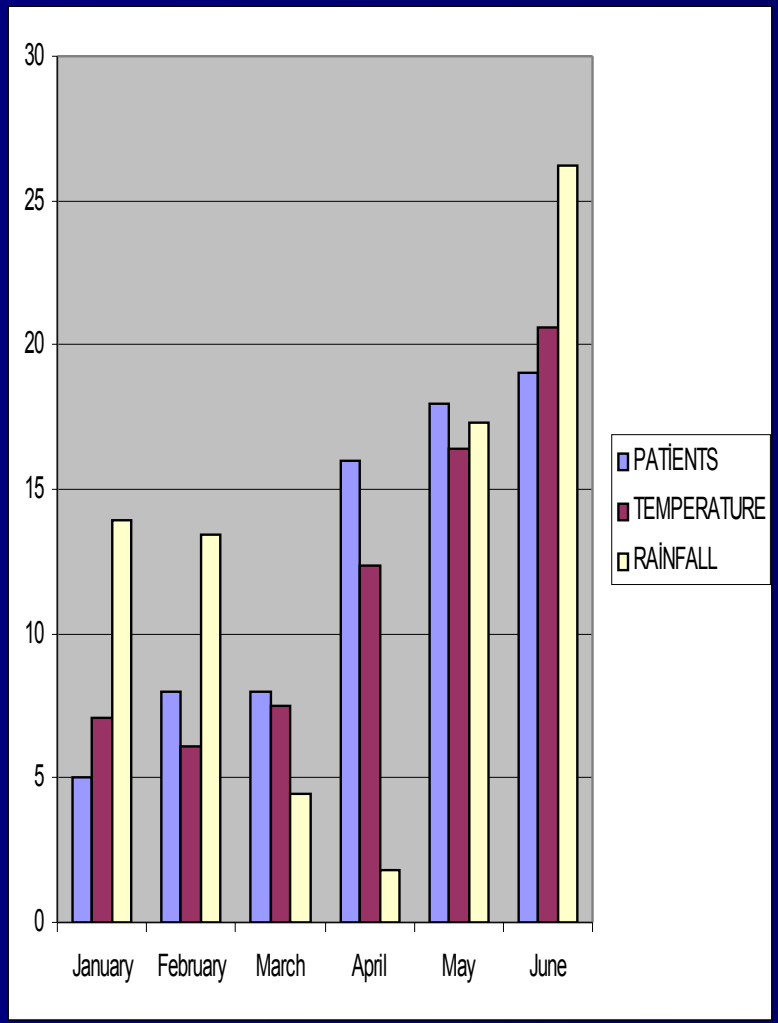
Leptospirosis & Reservoir Animals



Leptospirosis &Climatic Changes-I

"The correlation of Temperature and Rainfall Changes and Leptospirosis Cases in Istanbul-Turkey".
Polat E, TurhanV et al. 2006, istanbul-TR

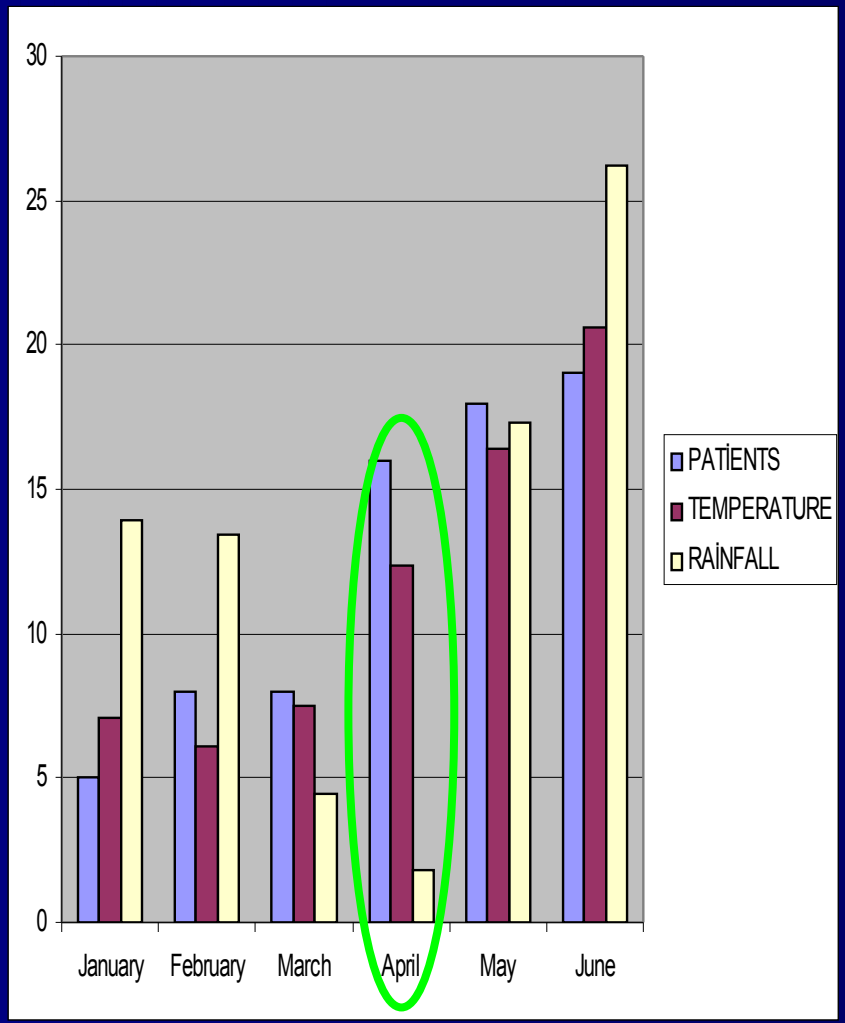
- UNDP project-Istanbul
- active screening for leptospirosis in Istanbul over 6 mts of 2006 (from jan to June) as a pilot study. The objective was to determine the endemicity potential of leptospirosis in Istanbul. This would permit the determination of climatic and environmental factors, as well as rainfall, that are probably responsible for leptospirosis.
- **Findings**
- During the study period (Jan-June 2006), leptospirosis was determined in 78 cases..



Leptospirosis &Climatic Changes-II

The correlation of Temperature and Rainfall Changes and Leptospirosis cases in İstanbul-Turkey. Polat E, Turhan V et al. 2006.

- In terms of rainfall, it is noteworthy that more leptospirosis cases are observed in periods when in addition to high total levels of rainfall there is also a high level of sudden precipitation (April 2006, Istanbul). This may be explained by the formation of unimportant looking accumulations of water in areas lacking sufficient infrastructure,
- Irregular rainfalls and floodings are important part of the global climatic change.



Leptospirosis & Natural Disasters Continuous epidemic

- Kalkuta, Mumbai, Andaman Islands ("Andaman Hemorrhagic Fever"), Seyschelles-India
- Orrisa (1999), Jakarta (2003)

- It has been a continuing and significant problem in the densely populated, flood-prone low lying areas of India.
- **More than 10% of ARF in India due to Leptospirosis.**

- Brasil, Southeast Asia, China…
- Panama Canal zone (1961)
- Italy (1984) due to contaminated water fountain,
- Nicaragua (1995), Thailand (1995 through 2000 and),
- Peru and Ecuador during heavy flooding (spring of 1998),
- and 110 cases in triathletes (from swimming in contaminated Lake Springfield) in 1998 in Illinois and Wisconsin-USA.

Returning Travellers& Leptospirosis

- Leptospirosis, often difficult to diagnose, may also be more common than recognized in travellers returning from tropical areas.

- 32 cases of leptospirosis were recognized in Dutch travellers over a 5-y period; the infection was acquired in Thai or other countries in SE Asia from contact with surface water.

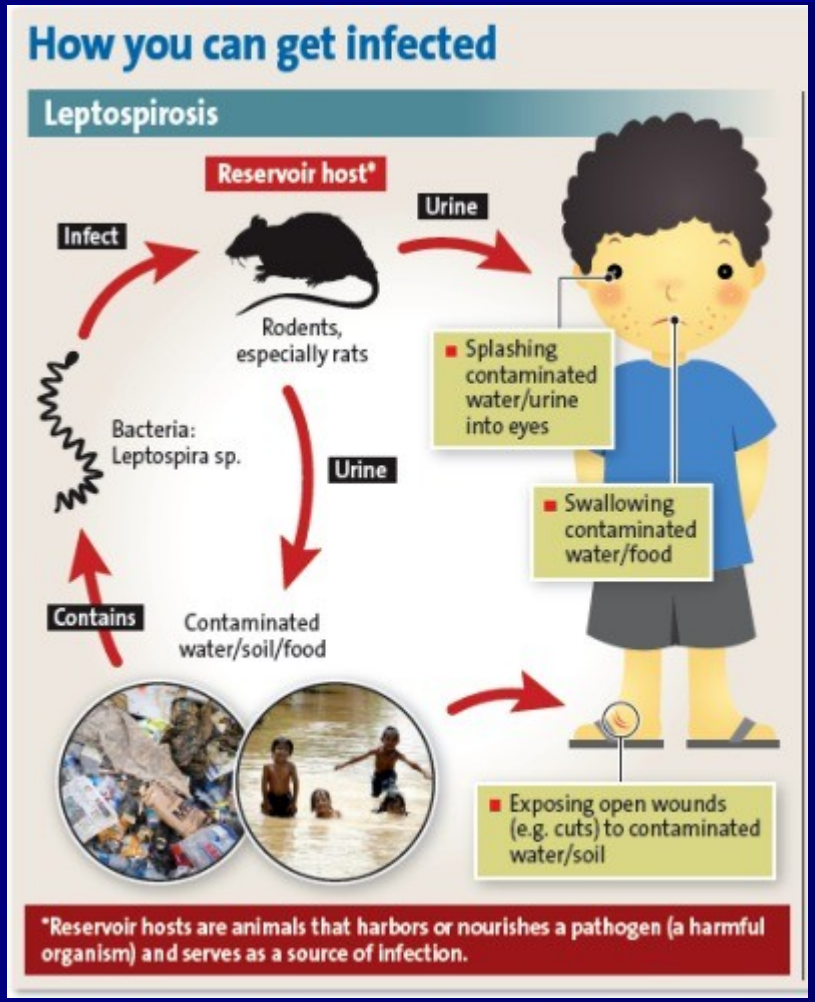
Recreational Sports & Leptospirosis

- An outbreak of leptospirosis among competitive swimmers occurred in Borneo, Malaysia (eco-challege Sabah multi-sport expedition race) in the y 2000; 44 % of 158 athletes contacted met the case definition.

- "Swimming in the Segama River" was associated with a 38 % attributable risk of acquiring leptospirosis.

Children & Leptospirosis

- > 40% of pts were <15 yrs, a reversal of traditional prevalence rates.
- childhood predilections to play with suspected vectors (eg, dogs) or contact with water.
- leptospire abs in as many as 30% of children in some urban American populations.
- Hickey PW. Pediatric leptospirosis. Medscape. 19 June 2012 (updated).



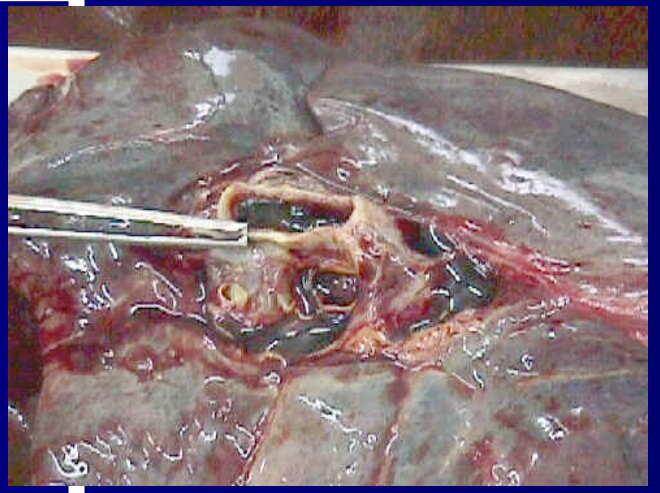
Most important reason of the FUO especially in rainy seasons in tropical regions is LEPTOSPIROSIS…

Pathogenesis-Pathology & Leptospirosis

Port Entry

- **Incubation period**

- Bacteremia
- Toxins
- Capillary endothelial injury
- Muscular necrosis and necrobiosis
- Visceral haemorrhage
- Renal tubular damage (hypoxemia /immun complex glomerulonephritis)
- Jaundice (Hepatic capillary vasculitis)



Clinic & Leptospirosis-I

incubation Time: 12 ds (2-30)

Asemptomatic infection

↓

icteric leptospirosis (Weil Disease, 5-10 %)

Anicteric leptospirosis (90-95 %)

- ✓ Septicemic Phase (1^{st} Wk)
- ✓ Immunogenic Phase (2^{nd}-3^{rd} Wk)
  - Meningeal irritation signs
  - iridocyclitis/ Optic neuritis
  - Encephalomyelitis/ Peripheric neuropathy
  - Abortus

Frequency of symptoms in a Case series of 208 Leptospirosis pt-I (Puerto-Rico)

Symptoms&Findings	ANICTERIC (%)	ICTERIC CASES(%)
Fever	100	99
Conjunctivitis	100	98
Myalgia	97	97
Headache	82	95
Chills	84	90
Pharyngitis	72	87
Nausea	71	81
Muscular sensitivity	70	79
Vomiting	65	75
Hepatomegaly	60	80
Tachycardia	64	83
Icterus	0	100
Ocular Burning sensation	54	38
Diarrhea	25	30
Cough	11	36
Pulmonary findings	35	12

Frequency of symptoms in a Case series of 208 Leptospirosis pt-II

SYMPTOMS	ANICTERIC	ICTERIC CASES
Adenopathy	4	29
Petechiae-Ecchymosis	8	14
Hypotension	12	5
Nuchal rigidity	5	14
Hemoptsy	0	19
Coma	2	12
Conjunctial hemorrhage	4	9
Maculopapular eruptions	3	10
Diastolic Hypertension	3	8
Bloody Diarrheae	1	6
Splenomegaly	2	5
Hematemesis	0	6
Epistaxis	0	5
Herpes labialis	3	2

LEPTOSPIROSIS

- **Routine Biochemistry**
  - Neutrophilia (100 %)
  - Increased AST & ALT (<200-250 IU)
  - Thrombocytopenia
  - Increased CPK
  - Urine abnormalities
    - Leucocyturia, proteinuria, hematuria

Scandinavian Journal of Infectious Diseases, 2006; 38: 845–852

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ORIGINAL ARTICLE

Leptospirosis in Istanbul, Turkey: A wide spectrum in clinical course and complications

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From the Departments of [1]Infectious Diseases and Clinical Microbiology, [3]Nephrology, [4]Cardiology, [5]Internal Medicine, Gulhane Military Medical Academy Haydarpasa Training Hospital, and [2]Department of Clinical Microbiology Istanbul University Cerrahpasa Medical Faculty Hospital, Istanbul, Turkey

Abstract

Patients with high fever and multiorgan involvement were investigated for the determination of frequency, clinical course and complications of leptospirosis in Istanbul. Leptospirosis was determined in 22 cases among the 35 hospitalized patients that were prediagnosed as leptospirosis according to 'Probable Leptospirosis Diagnosis and Follow-up' form. Among the leptospirosis cases 19 were male and 16 were military staff. Mean age was 35.6 y. Dark field examination (DFE), latex agglutination test (LAG), ELISA IgM, leptospirosis culture (LC) and microscopic agglutination test (MAT) were performed to confirm the diagnoses. The most frequent initial symptoms and findings were fever, fatigue, headache, nausea-vomiting and increased muscle sensitivity. Jaundice was noted only in 2 cases. A 74-y-old female patient died after the recurrence of the disease with severe rhabdomyolysis and pulmonary failure. Sagittal sinus thrombosis, perimyocarditis and chronic renal failure were major complications in another 3 patients. ELISA IgM, LC

Table II. Basic demographic and clinical-laboratory findings of the 22 leptospirosis cases.

Case	DFE	LAG	LC	ELISA IgM	Clinical spectrum	Prediagnosis other than leptospirosis	Antibiotic treatment	Complications
1/F/74	+	+	+	–	Hepatic and renal involvement, severe rhabdomyolysis	Dermatomyositis, collagen tissue diseases	Penicillin-G, ceftriaxone, doxycycline	Pulmonary haemorrhage, recurrence
2/M/45	+	+	–	+	Choleriform diarrhoea, hepatic and renal involvement	Acute gastroenteritis, cholera	Ciprofloxacin*	Severe acute renal failure
3/M/20	–	+	–	+	Meningitis, myocarditis, hepatic, renal and pulmonary involvement, diarrhoea	Viral meningo-encephalitis, sepsis	Penicillin-G, clarithromycin*	Significant meningitis
4/M/21	+	+	+	+	Hepatic and renal involvement, cutaneous rash	Viral infection Rickettsial infection	Doxycycline, clarithromycin*	Sagittal sinus thrombosis
5/M/20	–	+	–	+	Coma, diarrhoea, Weil's disease	Sepsis, acute renal failure	Cefotaxime, doxycycline	Chronic renal failure
6/M/21	+	+	–	–	Bloody diarrhoea, thrombocytopenia	Cytomegalovirus infection, amoebiasis	Ornidazole*, ciprofloxacin*, doxycycline	Severe thrombocytopenia (initial thrombocyte count was 5 000/mm^3)
7/F/72	+	+	+	+	Hepatitis, urinary abnormalities, diarrhoea	Pyelonephritis, malignancy	Ciprofloxacin*, doxycycline	
8/M/20	+	+	+	–	Hepatitis, urinary abnormalities	Nephrolithiasis	Ampicillin, sulbactam	
9/M/55	+	+	+	+	Hepatitis, diarrhoea	Viral infection	Doxycycline	
10/F/70	+	+	+	+	Right lumbar region pain, hepatitis, diarrhoea, polyuria	Nephrolithiasis, malignancy	Amoxycillin-clavulanate*, ciprofloxacin*, doxycycline	Severe acute renal failure
11/M/42	–	+	+	–	Hepatic and renal involvement	Acute sinusitis, URTI, salmonellosis	Amoxicillin-clavulanate*, clarithromycin*	
12/M/44	+	+	+	+	Hepatic and renal involvement, diarrhoea	Acute gastroenteritis, food intoxication	–	
13/M/20	+	+	+	–	Hepatitis, acute psychotic disorder	Lyme disease	Ceftriaxone	Transient psychotic disorder
14/M/20	+	+	–	–	Hepatitis, swollen knees and ankles	Myopathy	Doxycycline	
15/M/28	+	+	+	+	Hepatitis, urinary abnormalities	HBV infection+URTI	Doxycycline	
16/M/71	+	+	+	+	Hepatitis, urinary abnormalities	Hepatic malignancy	–	
17/M/25	+	+	–	–	Urinary abnormalities, diarrhoea, emesis, vomiting	Food intoxication	Ornidazole*, ciprofloxacin	
18/M/44	+	+	+	+	Hepatitis, urinary abnormalities	URTI, atypical pneumonia	Amoxicillin-clavulanate*, doxycycline	
19/M/21	+	+	+	+	Hepatitis	Tonsillitis, Lyme disease	Doxycycline	Anxiety reaction
20/M/20	+	+	+	+	Hepatitis		Ceftriaxone	Psychotic disorder
21/M/21	+	+	+	+	Meningitis, hepatic and renal involvement	Viral meningo-encephalitis	Acyclovir*, ceftriaxone	Meningoencephalitis, hallucinations
22/M20	–	+	+	+	Weil's disease	Sepsis, Multiorgan dysfunction syndrome	Ceftriaxone, penicillin G	

Cases are expressed as number/gender/age for each patient. F: female; M: male; DFE: dark field examination; LAG: latex agglutination test; MAT: microscopic agglutination test; LC: leptospirosis culture; URTI: Upper respiratory tract infection;
*Empirical antimicrobial use until the confirmation of leptospirosis.

Epidemic of Leptospirosis : An ICU Experience

V Chawla*, TH Trivedi**, ME Yeolekar***

Abstract

Aims : To study the clinical profile and outcome of critically ill patients suffering from leptospirosis with organ dysfunction and correlate mortality with individual risk factors.

Methods : A study of critically ill patients suffering from leptospirosis was carried out in the Medical Intensive Care Unit of a tertiary centre of a metropolitan city between 1st June 2002 and 31st May 2003. All the patients in whom diagnosis was confirmed by ELISA IgM antibody testing underwent thorough clinical examination and necessary biochemical investigations. They received standard antimicrobial therapy and extensive supportive therapy as required. Mortality was correlated with individual risk factors.

Results : Out of 834 total admissions in this period, 60 (7.2%) patients suffered from leptospirosis. There were 48 males and 12 females with age ranging from 12 to 60 years, mean age being 40 years. The clinical manifestations varied from fever (58 patients), jaundice (38), subconjunctival haemorrhages (24), to altered sensorium (22). All the patients had evidence of severe sepsis. Forty six patients had multiple organ dysfunction syndrome (MODS) and 26 required ventilatory support. The total mortality in leptospirosis patients was 52% which was much higher compared to the total MICU mortality (31.4%) in the same period.

Conclusion : Leptospirosis is an important infection associated with high mortality when associated with organ dysfunction. The poor prognostic factors are preponderance of male sex, alcohol dependence, age group > 50 years, MODS, acute respiratory distress syndrome (ARDS), presence of acidosis and need for mechanical ventilation. However, timely intervention and intensive therapy can save many young lives. ©

LEPTOSPIROSIS & MENINGITIS
Immunogenic Phase

- Aseptic meningitis, w / wo sx is characteristic of the immune phase of the Leptospirosis.

-Silva HR et al. Aseptic meningitis syndrome due to enterovirus and *Leptospira* spp. in children of Salvador, Bahia. Rev Soc Bras Med Trop. 2002;35(2):159-65.

LEPTOSPIROSIS & MENINGITIS
Immunogenic Phase

- Pleocytosis is found in CSF of 90% of all cases
- But 50 % of these cases are asymptomatic

  – Edwards GA, Domm BM. Human Leptospirosis, Medicine 1960; 39: 117-156.

LEPTOSPIROSIS & MENINGITIS
Immunogenic Phase

- **CSF**
  - Opening pressure is N
  - Lymphocytic Predominance
  - Protein is mildly increased
  - Glicorrhage is N
  - WBC < 500 cells/mm^3
    - ✓ Resembles viral meningitis

- Cargill WH, Beeson PB. The value of spinal fluid examination as a diagnostic procedure in Weil's disease. Ann Intern Med 1947; 27 : 396-400.

Leptospirosis & Meningitis

- Leptospira meningitis is responsible from 5% to 40 % of all aseptic meningitis cases.

  - Buzzard EM, Wylie JAH. Meningitis leptospirosa. *Lancet* 1947; *2* : 417-20.
  - Romero EC et al. Detection of Leptospira DNA in patients with aseptic meningitis by PCR.
  - Clin Microbiol 1998; 36 : 1453-5.
  - Sperper SJ, Schleupner CJ. A forgotten cause of aseptic meningitis and multisystem febrile illness. South Med J. 1989; 82: 1285-1287.

Leptospirosis & Meningitis

Pts with "acute neurological illness" which is diagnosed as leptospirosis after that;

40 primary neuroleptospirosis cases;

- aseptic meningitis (13 cases)
- myeloradiculopathy (7 cases)
- myelopathy (7 cases)
- Guillain Barre Syndrome (3 cases)
- meningoencephalitis (3 cases)
- intracerebral hemorrhage (2 cases)
- cerebellar dysfunction (2 cases)

iridocyclitis (2 cases), tremor/rigidity (1 case)

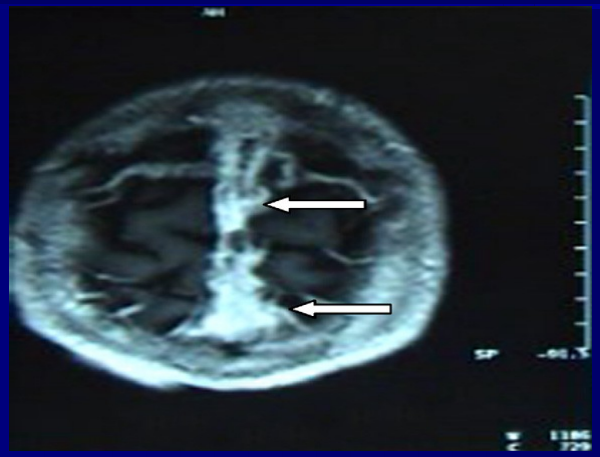
-Panicker et al-1996- 1999, Kerala & India.
Post Grad Med J 2001: 77: 589–590.

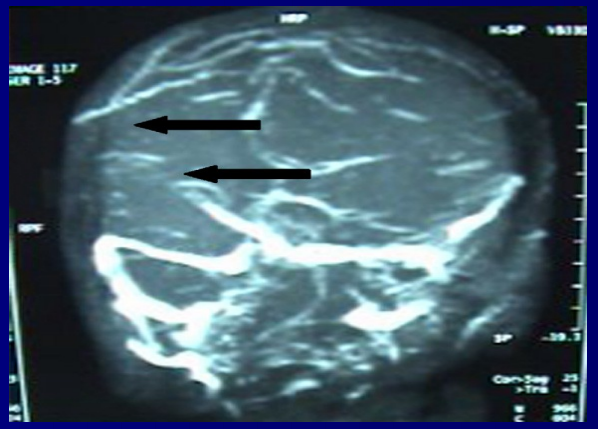
Cerebral venous thrombosis as a complication of Leptospirosis.

Turhan et al./TR. J of Infection (2006).

- Unusual neurological manifestations

- …No study has been reported on the progression of cerebral venous thrombosis (CVT) in patients with leptospirosis so far. An acutely developed leptospirosis and post-infectious CVT in a 21-year-old soldier is described ….

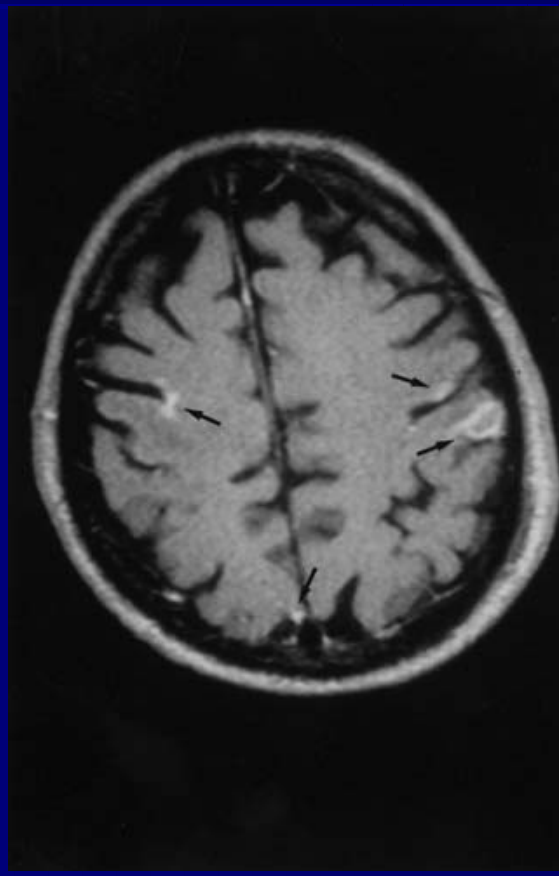




Leptospirosis presenting with encephalitis-induced coma.

Intensive Care Med (2002) 28:1682, GR

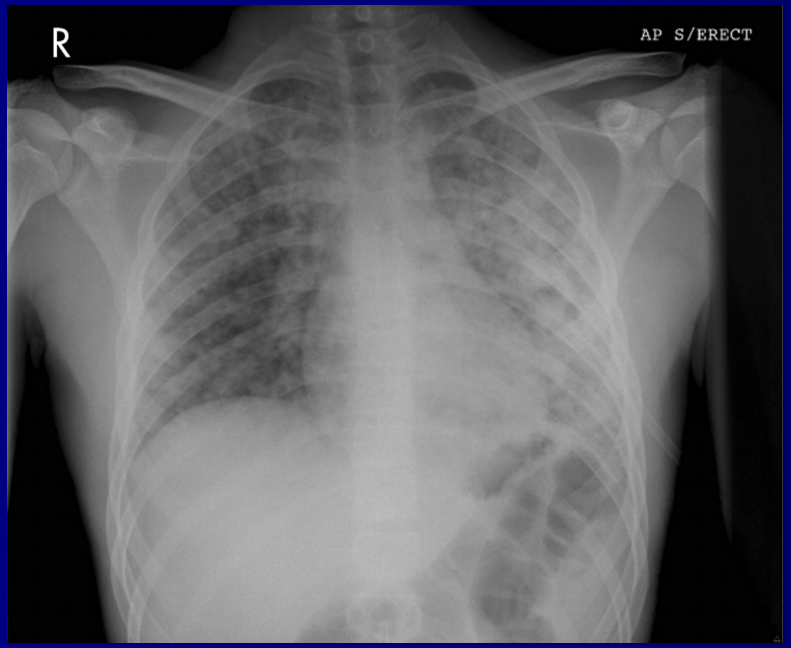
Encephalitis- induced coma as a presenting symptom lasting for weeks is rare, and brain MRI findings in such a case have not been previously reported. Clinical manifestations of leptospirosis usually occur after ab production. Thus the role of the host immune response is significant, while direct tissue damage by the organism seems to be less important. Pathological findings suggest that vasculitis, mainly of the small vessels,is responsible for many symptoms and signs of leptospirosis. Separation of endothelial junctions, expansion of fenestrae, extravasation of inflammatory or RBCs, and necrosis of endothelial cells are prominent features. Angiitis may explain the focal cerebral white matter lesions found on brain MRI in this pt. Similar radiological patterns have been reported in well-documented CNS vasculitis caused by SLE or primary antiphospholipid syndrome.



Pulmonary Involvement & Leptospirosis

the average incidence of pulm. involvement ranges from

16% to 59.1-71%.

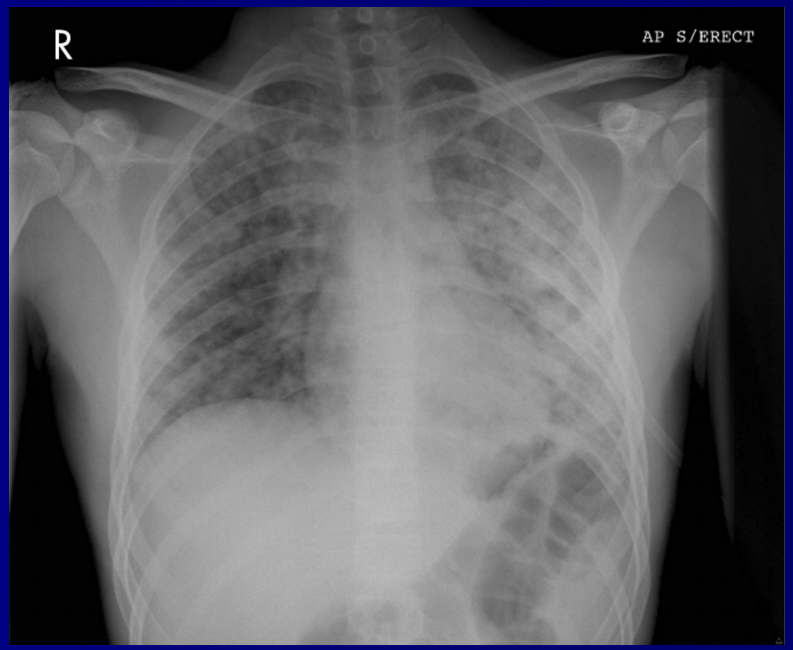


- Vinetz JM: Leptospirosis. Current Opin Infect Dis 2001, 14(5):527-38.
- Bharti AJ, Nally JE, Ricaldi JN, Mathias MA, Diaz MM, et al: Leptospirosis: a zoonotic disease of global importance. The lancet 2003, 3:757-71.

Severe Pulmonary Hemorrhagic Syndrome (SPHS) & Leptospirosis

Emerg Infect Dis. 2008; 14: 505–508.

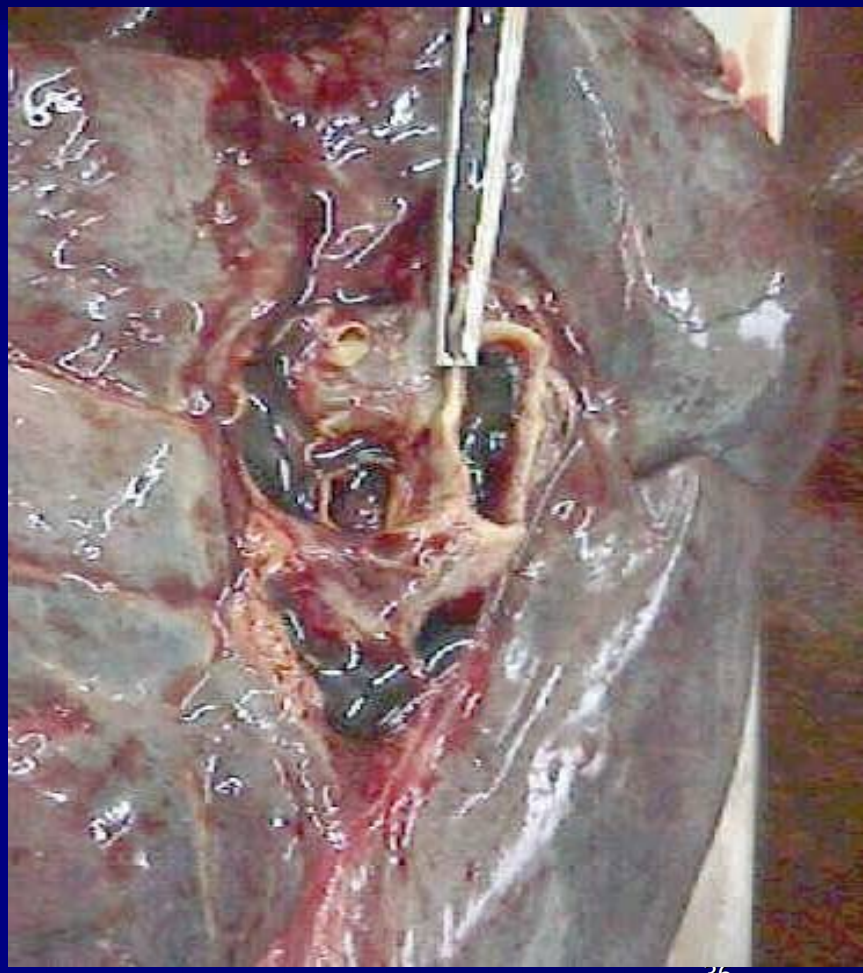
…emergence of leptospirosis-associated SPHS in slum communities in Salvador, Brazil. Although active surveillance did not identify SPHS before 2003, 47 cases were identified from 2003 through 2005; the case-fatality rate was 74%. By 2005, SPHS caused 55% of the deaths due to leptospirosis…



Pulmonary hemorrhage
Severe immune response in Leptospirosis

…an exaggerated immune response of the host, besides vasculitis mediated by toxins, has been postulated as a principal mechanism of "leptospiric pneumonitis" and "Pulmonary Haemorrhage" etc.

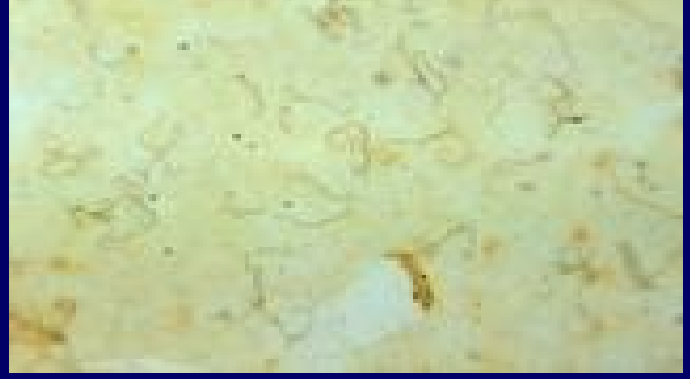
Azevedo AF, Miranda-Filho Dde B, Henriques-Filho GT, Leite A, Ximenes RA. Randomized controlled trial of pulse methyl prednisolone x placebo in treatment of pulmonary involvement associated with severe leptospirosis. BMC Infect Dis. 2011;11:186.



Differential Diagnosis& Leptospirosis

- Influenza
- Salmonella
- Scrup Thyphus
- Dengue fever
- CCHF
- Trichinellosis (without eosinophila)
- Meningitis (Bacterial & Viral)
- Toxic Shock Syndrome (TSS)
- Legioner Disease (L.pneumophila)
- Malaria
- Kawasaki syndrome
- Hepatitis
- Other infectious diseases associated with nephritis.

Laboratory Dx & Leptospirosis

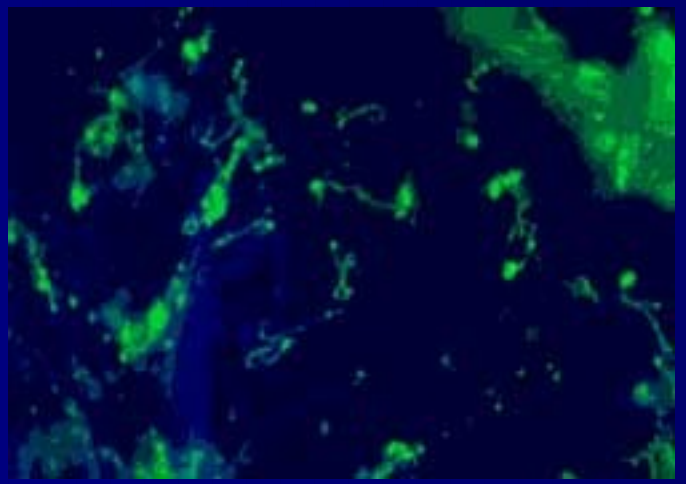


- 1st Wk of the illness;
  - **PCR**
  - **Cultures (Blood and CSF)**
  - EMJH, Korthoff or Fletcher Mediums (30°C & 2-6 wks incub.)
- 2nd Wk of the illness;
  - **PCR, SEROLOGICAL TESTS**
  - **Culture (Urine)**
  - Inoculation at special mediums with 1:10-1:100 dilution

Laboratory Dx &Leptospirosis

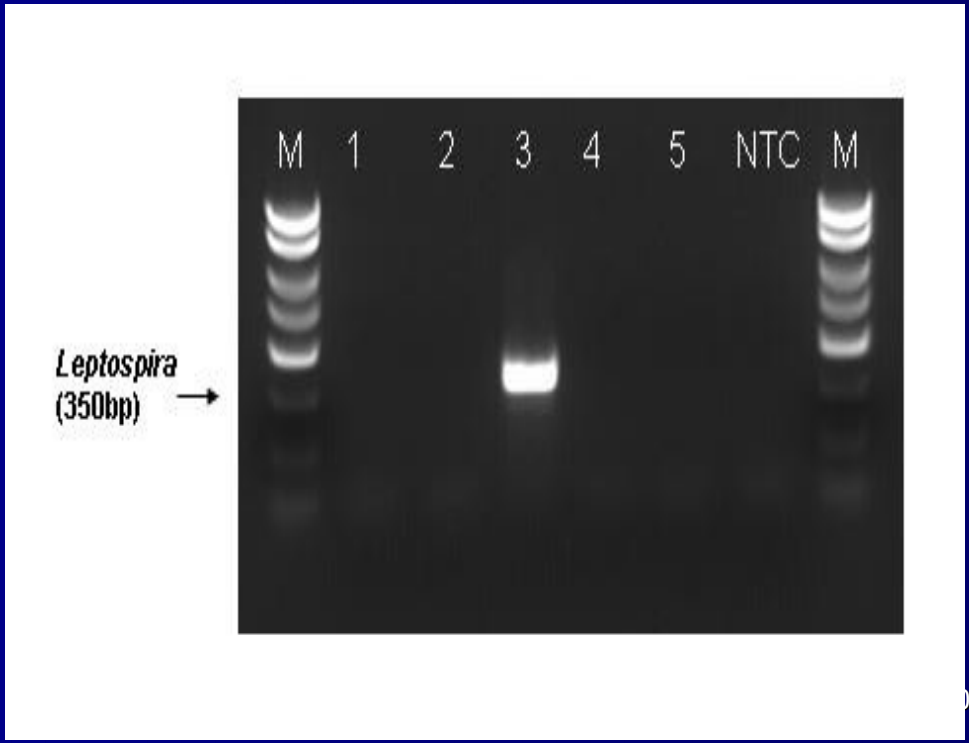
"Cultivation/Cx takes too long so serological diagnosis more important"...

- ✓ Macroscopic Agglutination
- ✓ Microscopic Agglutination (MAT)
- ✓ Immunofluorescent
- ✓ Indirect Hemagglutination
- ✓ Complement Fixation
- ✓ ELISA
- ✓ Nucleic Acid Amplification methods (DNA Prob methods)



Laboratory Dx & Leptospirosis
Molecular methods

- Leptospirosis could be detected by PCR assay from the 3rd-26th day after illness onset.



Laboratory Dx & Leptospirosis
Molecular methods

- The sensitivity of the PCR was assessed with confirmed cases of leptospirosis (by MAT) and found to be 89.5%

- PCR was found to be a powerful tool for diagnosing of leptospirosis
- Romero et al. Aseptic meningitis caused by *Leptospira spp* diagnosed by polymerase chain reaction. Mem Inst Oswaldo Cruz, Rio de Janeiro, 105(8): 988-992, 2010.

Leptospirosis& Treatment

Penicillin G; 6-24 MIU/day
Ampicillin; 4 gr/day
Doxycyclin 200 mg/day
Ceftriaxon; 2-4 gr/day

Piperasillin-Tazobactam,
Ciprofloxacin,
Levofloxacin,
Meropenem, Imipenem, Doripenem etc.

Steroid Therapy & Pulmonary hemorrhage Severe immune response in Leptospirosis

Pts	Death	Mortality	
17	3	% 17	Steroid
13	8	% 61	No steroid
30	11		p=0.025

Methylprednisolone (MP)

IV-1 g/day x 3 ds

PO-1 mg/kg/day x 7 ds

in first 12 hrs of the dyspne

- Shenoy VV et al. Pulmonary leptospirosis: an excellent response to bolus methylprednisolone. Postgrad Med J 2006;82:602–606.
- Azevedo AF et al. Randomized controlled trial of pulse methyl prednisolone x placebo in treatment of pulmonary involvement associated with severe leptospirosis. BMC Infect Dis. 2011;11:186.

Steroid Therapy & Renal Failure
Severe immune response (immune complex) in Leptospirosis

…pts with leptospiral renal failure have been successfully treated without dialysis by administering high-dose pulsed steroids;
MP 30 mg/kg/d, not to exceed 1500 mg
… high-dose pulsed steroids in areas with limited resources where dialysis treatment is unavailable and would involve lengthy medical transport.
renal dose dopamine + steroids / diuretics
has also been described.

Malani J, Pryor J, Lusangulira K. Leptospirosis in Pohnpei (1986-1995): a case series on the use of dopamine/steroid for Weil's syndrome. *Pacific Health Dialog*. 1996;3:153-61.

Platelet Transfusion & Leptospirosis

…1U of PLT concentrate

per 10 kg of the pt's weight,

every 12 or 8 hrs, according to the following criteria:

a PLT count (PC) ≤ 20,000/mm³

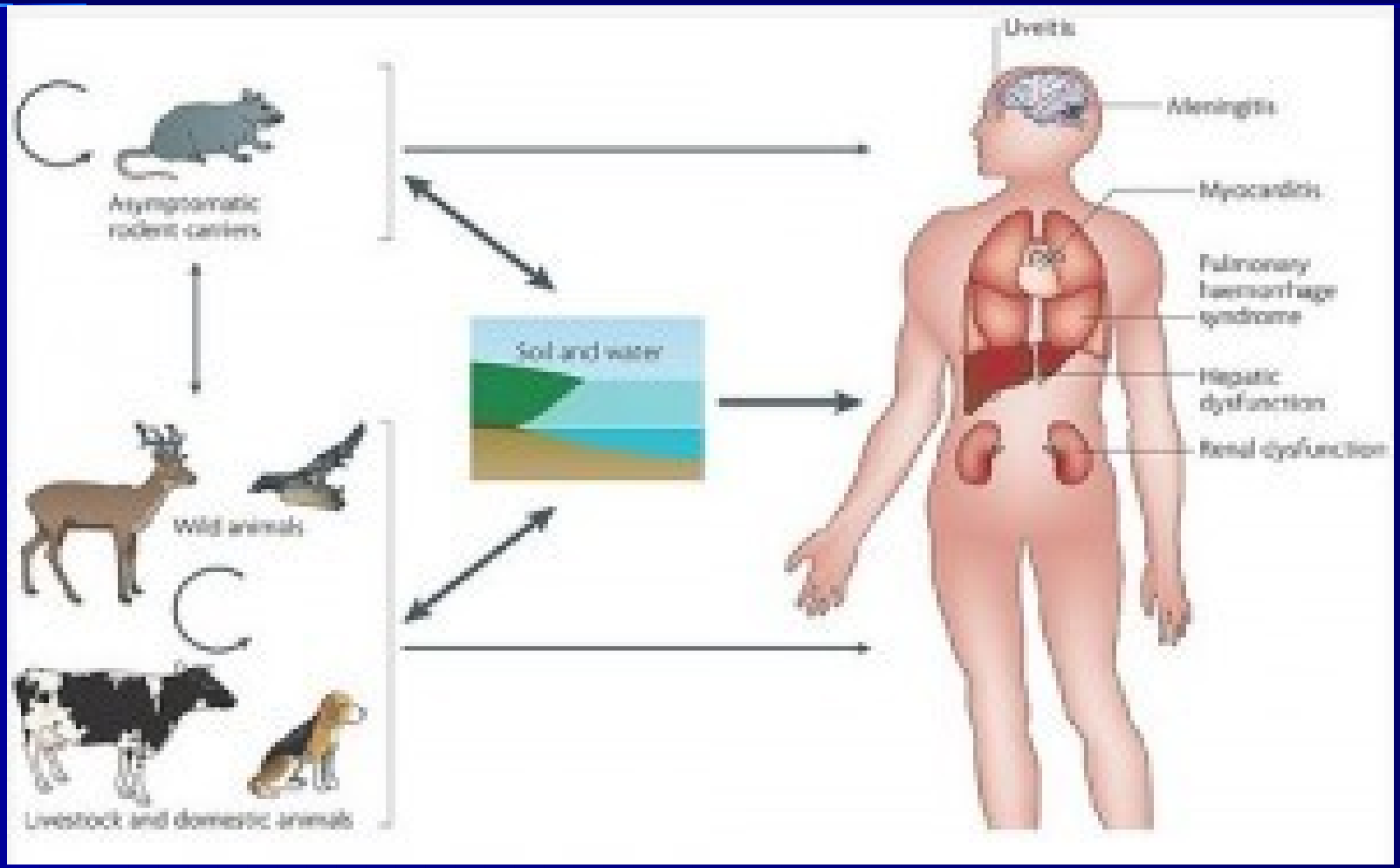
even in the absence of bleeding;

a PC of ≤ 50,000/mm³ in cases of more severe bleeding and/or when invasive surgery or biopsies are required and PC<100,000/mm³ in cases where major surgery has been performed.

The major take-home messages…

- Where the leptospirosis is looked for it is commonly found.
- in endemic areas a significant portion of **ARF** ± **Aseptic meningitis** ± **Pulmonary Hemorrhage** cases may be caused by leptospirosis**.**
- In the 1st Wk ⇒ **Cx**, **PCR**
- After the 1st Wk ⇒ **Serological tests** (ELISA, MAT..) **PCR**
- **Renal** and **Pulmonary support** may be indicated
- **Antibiotherapy** still important
- **Pulse steroid** in first 12 hrs of dyspne in **ICU pt** might be a life saving tx

Leptospirosis is a febrile vasculitic disease characterised with multisystemic involvement including aseptic meningitis/pulmonary hemorrhage etc.



Thank You...