

# Coagulase negative staphylococcal coinfection with leptospirosis



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Dear Editor,

As you are aware that leptospirosis has become a globally important zoonotic disease, and is commonly seen in tropical and subtropical regions, probably because of poor hygiene and favourable climate. It is transmitted by direct contact with urine, blood or tissue of infected animals; with water being an important medium. Abrasions or cuts in skin, and mucous membranes especially conjunctiva and oral mucosa are the doors of entry. Clinically, leptospirosis has a biphasic nature - a leptospiremic phase characterized by 3 to 10 days of fever and an immune phase characterized by resolution of symptoms and appearance of antibodies. The common symptoms include fever, headache, nausea, vomiting and conjunctival suffusion, along with calf and back muscle tenderness. Hepatomegaly, splenomegaly and meningism may be present clinically. Hemorrhagic spots, macuopapular rashes, jaundice and lung crepitations are other findings. Weil's syndrome is a severe form of leptospirosis characterized by haemorrhage, jaundice and acute kidney injury. The diagnosis is based on Modified Faine's criteria (Figure 1). Penicillin, ceftriaxone, amoxicillin and doxycycline form the mainstay of treatment.<sup>1</sup>

Coagulase-negative staphylococcus (CoNS) are less virulent than staphylococcus aureus and are often associated with prosthetic device infections. Staphylococcus epidermidis is the most common among human pathogens and is a component of normal human skin flora.<sup>2</sup>

The case being reported is of a 32 year old lady, hailing from a rural area in Kerala, India, who had history of fever and myalgia for 6 days. She went to nearby hospital and was diagnosed to have leptospirosis. She was started on intravenous Penicillin 1.5 million units. Following 2 days of therapy, she continued to have fever and was referred to our hospital for further management. On admission, she was conscious, oriented and febrile with temperature of 101°F. She had mild dyspnoea but saturation was 96% in room air. She was not icteric. Her vitals and systemic examinations were normal. Her complete blood count showed mild thrombocytopenia of 122,000/cmm

(150,000-450,000). She had elevated SGOT 96 U/L (12-38) and SGPT 72 U/L (7-41) but normal bilirubin, proteins and albumin. Prothrombin time, INR and activated partial thromboplastin time were within normal range. Her renal parameters and electrolytes were normal. Her urine microscopy showed only 2-3 pus cells and chest Xray was normal. Ultrasound abdomen showed mild hepatomegaly. Malarial card test and Dengue serology were negative and leptospira IgM (ELISA) was positive. She also satisfied the Modified Faine's criteria with a score of 31. Intravenous Penicillin was continued with addition of ceftriaxone. She continued to have fever spikes (101-102°F). Her blood culture grew CoNS. She was started on linezolid as per culture sensitivity reports; and within 24 hours she became afebrile. She was given the full course of Penicillin and 7 days of linezolid and was discharged after being afebrile for 48 hours.

Only a handful of cases of coinfections with leptospirosis have been reported. Of these, majority were with dengue.<sup>3,4</sup> There are reports of coinfection with scrub typhus and melioidosis.<sup>5,6</sup> This might be the first reporting of a coinfection between leptospirosis and CoNS. This case

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Clinical data (Part A)	Epidemiological factors (Part B)	Bacteriological and laboratory findings (Part C)	
Headache	2 Rainfall	5 Isolation of leptospira in culture—Diagnosis certain	
Fever	2 Contact with contaminated Environment	4 PCR	25
Temperature >39°C		Positive serology	
Conjunctival suffusion	4 Animal contact	1 Elisa IgM positive*	15
Meningism	4 Total	10 SAT-Positive*	15
Myalgia	4	Other rapid tests**	15
Conjunctival suffusion + Meningism + Myalgia	10	MAT: Single positive in high titer*	
Jaundice	1	MAT - Rising titer/seroconversion (paired sera)	15
Albuminuria/Nitrogen retention	2	* Any one of the tests only should be scored	25
Hemoptysis/Dyspnea	2	** Latex agglutination test/Lepto dipstick/Lepto Tek lateral flow/Lepto Tek Dri-Dot test	
Presumptive diagnosis of leptospirosis is made of: Part A or Part A and Part B score : 25 or more Parts A, B, C (Total) : 25 or more A score between 20 and 25 suggests leptospirosis as a possible diagnosis.			

Abbreviations: PCR, Polymerase chain reaction; MAT, Microscopic agglutination test; SAT, Slide agglutination test

Figure 1: Modified Faine's criteria

also highlights the need to rule out other coinfections in patients diagnosed to have leptospirosis.

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## REFERENCES

1. Hartskeerl RA and Wagenaar JFP. Leptospirosis. In: Kasper, Fauci, Hauser, Longo, Jameson, Loscalzo (ed). Harrison's Principles of Internal Medicine. 19<sup>th</sup> ed. McGraw Hill education. pp. 1140-1145.
2. Lowy FD. Staphylococcal Infections. In: Kasper, Fauci, Hauser, Longo, Jameson, Loscalzo (ed). Harrison's Principles of Internal Medicine. 19<sup>th</sup> ed. McGraw Hill education. pp. 960.
3. Sharma KK, Latha PM and Kalawat U. Coinfection of leptospirosis and dengue fever at a tertiary care center in South India. *Scho Res J* 2012; 2:12-16.
4. Singh R, Ghatak T, Saigal S and Baronia A. Comparison between Three Rare Cases of Co-Infection with Dengue, Leptospira and Hepatitis E: Is Early Endothelial Involvement the Culprit in Mortality? *Annals of Medical and Health Sciences Research* 2014; 4(Suppl 1):S32-S34.
5. Lee CH and Liu JW. Coinfection with leptospirosis and scrub typhus in Taiwanese patients. *Am J Trop Med Hyg* 2007; 77(3):525-527.
6. Hin HS, Ramalingam R, Chunn KY, Ahmad N, AbRahman J and Mohamed MS. Fatal co-infection--melioidosis and leptospirosis. *Am J Trop Med Hyg* 2012;87(4):737-740.