

Coinfection of Leptospirosis with Scrub Typhus in a Lactating Mother in a Rural Medical College setup in South India

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Abstract

Leptospirosis aspirochetal disease with seasonal variation is seen especially in coastal regions and with abattoir workers. Rickettsial disease, viruses like dengue and hantavirus have epidemiological and clinical features similar to leptospirosis. Patients with leptospirosis not recovering after specific antibiotics should be suspected for dual infection or coinfection. Here, we report a case of Coinfection, leptospirosis with scrub typhus which presented with fever, myalgia and profound thrombocytopenia.

Introduction

Leptospirosis is a zoonotic disease, caused by leptospira that belong to the order Spirochaetales, family **Leptospiraceae**. It has worldwide distribution but occurs most commonly in tropics and subtropics because the climate and poor hygiene conditions favor the survival and distribution of pathogens. Transmission of leptospirosis follows direct contact with urine, blood, or tissue from an infected animal and meat (rodents). Clinical manifestations varying from asymptomatic infection to fulminant, fatal disease. A mild form of leptospirosis presents as fever, headache, and myalgia. Severe leptospirosis characterized jaundice, renal dysfunction and hemorrhagic diathesis often referred to as Weil's syndrome.[1]

Scrub typhus, is caused by *Orientia tsutsugamushi* and transmitted by bites of infected chiggers (larval mites). It is a rickettsial zoonosis. *O. tsutsugamushi* differs from rickettsia species both genetically and in cell wall composition. *O. tsutsugamushi* is transmitted by transovarial transmission in trombiculid mites.

The infection of scrub typhus occurs mostly in the rainy season.[1]

Case report

Here, we report a case of Leptospirosis with Scrub typhus with interesting clinical features. A 27 years female who is a lactating mother for 6 months came with chief complaints of acute febrile illness which is of the high-grade continuous type associated with chills and rigors for 10 days, headache, myalgia. The patient has no history of bleeding manifestations, itching, hematuria, melena. On examination the patient is febrile (103 F), pulse rate-106bpm, blood pressure -100/70 mm of hg, no skin manifestations were seen.

Systemic examination

Cardiovascular system: S1S2 heard, no murmurs. Respiratory system: normal vesicular breath sounds, Bilateral air entry present.

Abdomen: so Z, mild tenderness over right hypochondrium.

Central nervous system: No focal neurological deficit.

After complete history taking and laboratory and radiological examination, the fever profile went along with clinical suspicion of leptospirosis & scrub typhus. IgM positive for both leptospirosis & scrub typhus. Dengue, Malaria and Typhoid screening were negative. A complete blood picture showed anemia and thrombocytopenia.

The patient was started with antibiotics (IV Ceftriaxone, oral Doxycycline). The patient had improved symptomatically, no fever spikes, myalgia and headache subsided. The patient had thrombocytopenia which required blood

transfusion as it went to 6000/ cm³ despite three platelets transfusions, the platelet count had fluctuant crest and trough levels

Investigation

Test	Result
CBC	Anemia (10 g%); Thrombocytopenia (96000/ cm ³)
Blood G&T	O positive
Leptospira IgG	Positive
Leptospira IgM	Positive
Scrub typhus IgG	Negative
Scrub typhus IgM	Positive
Malaria	Negative
Widal	Negative
Dengue IgG& IgM	Negative
LFT	Normal
Clotting time	Normal
Bleeding time	Normal
PT ,INR	Normal
ECG	WNL
Chest x ray	Normal
Peripheral smear	Normocyticnormochromic anemia.

Discussion

In view of coinfection despite the absence of eschar patient was concurrently treated for scrub typhus. Platelet count was monitored for the next month and after that gradual increase in platelet count was observed.

Coinfection in a tropical country is not rare. A clinician should have a keen eye to look for things that are more than obvious. Seasonal variation, habitat, and socioeconomic status of the patient has to be taken into account while evaluating the patient. Absence of pathognomonic symptoms and signs should make the physician more observant and vigilant

Dual infection of malaria, dengue and chikungunya are mostly seen in tropical countries. As all three have a common vector for transmission (a mosquito-borne disease). Dual infection with scrub typhus, malaria, dengue and leptospirosis have been reported [2].

Rickettsial diseases are recognized in most parts of India. Scrub typhus has reemerged to be predominant rickettsial disease mostly seen in the rainy season. Leptospirosis is also a seasonal disease that is reported mostly during the rainy season or after rainy season as water is contaminated with urine and body fluids of infected animals.[2]

In our case, profound thrombocytopenia which recovered after one month was observed which indicates a thorough follow up is needed even after the discharge from the hospital. The other difficult decision in our case was the continuation of lactation, which was done so with continuous monitoring of infants by admitting in the pediatric ward of our hospital.

Breast milk protects the child from many infections. Sometimes children get infection from the mother who has an infection that is transmitted by breast milk. The literature says that a mother who has HIV and T lymphotropic human viruses type(1) should not breastfeed. For other diseases, breastfeeding can be encouraged but necessary precautions should be taken. [3]

Coinfection with leptospira and scrub typhus was first reported in a farmer in North eastern Thailand. Later cases were also reported in Taiwan and India.[4]

Recently a case report by Vibha Mehta et al. showed severe leptospirosis with scrub typhus co-infection from Indian Himalayas.[5]

In 2016 a poster was presented by S.Kanagasabai et al. reported that out of 354 serum samples collected from a patient with Acute febrile illness only 23 showed positive for both scrub typhus and leptospira. Canicola was the commonest serovar of leptospira coinfecting with

scrub typhus. This is the only study published in south India.[6]

Studies conducted by Mahaj et al. 2012, Diwan et al. 2014. Biswajyoti et al. 2016, Gupta et al. 2016 are also reported coinfection of scrub typhus and leptospirosis in India.[7,8,9,10]. The coinfection of leptospira with scrub typhus is very much less when compared to mosquito-borne coinfection. The above-published reports showed co-infection of leptospirosis and scrub is mostly from North India.

Conclusion

We conclude that the physician practicing in endemic infection regions should have an eye on dual infection where the prevalence of more than one infection at the same time with similar epidemiological features can occur.

The mother who is exposed to infectious diseases may transmit pathogenic agents through breast milk. So case to case the individualistic approach should be made regarding lactation. Except under a few circumstances, breast milk feeding is encouraged.

Profound thrombocytopenia is common in dual infection which requires regular follow up till platelet count increases to the desired level.

Coinfection has high morbidity and mortality, hence early clinical suspicion with confirmatory investigations and early initiation of treatment will give a better outcome.

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