Scrub typhus & Dengue Co-infection among patients attending a tertiary care hospital at Puducherry

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Abstract

Background: Scrub typhus & Dengue fever are being increasingly reported from tropical countries including India. Both of them are vector borne with a peak incidence during post monsoon period, although prevalent throughout the year. These infections have a common clinical presentation in the early stages most often except when characteristic 'Eschar' is seen or the patient presents with complications of dengue. Although these infections are common 'Co-infection' have been rarely reported.

Materials and Methods: Patients attending Sri Manakula Vinayagar Medical College and Hospital, were serologically tested for dengue and scrub typhus as suggested by physicians.

Results: A total of 15 cases of dual infection with scrub typhus and dengue is reported in this paper.

Conclusion: A high index of clinical suspicion and failure of therapeutic response should alert the clinician to the possibility of dual infection which carries a high morbidity and mortality and investigation for the same.

Key words: Dengue, Scrub typhus, Dual infection, Puducherry, India

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Introduction

Dengue Scrub typhus, Malaria, Typhoid & Leptospirosis are common causes of acute febrile illness in tropical countries including India. These infections have overlapping clinical manifestation.[1] Scrub typhus a rickettsial infection transmitted by the bite of the vector thrombiculid mite is being reported from all parts of the Indian sub content[2,3]. Dengue is a viral infection transmitted through the bite of the arthropod vector 'Aedes aegypti mosquito is also widely prevalent in India[4]. Co infection of Dengue & Scrub typhus are not common though reported earlier[5,6]. Treatments of these co infections pose a therapeutic challenge to the treating physician because of the difficulty in early diagnosis due to overlapping clinical features. We report herewith a series of cases of dual infection with dengue and Scrub typhus at our hospital over a period of one year.ie. 'Jan' 2015 to 'Dec' 2015.

Materials and Method

A total of 15 patients were serologically diagnosed as co infected with Dengue & scrub typhus. All the patients were admitted with c/o fever of 3-7 days duration. There was no H/O fever, or similar complaints for atleast 3 months prior to the present episode. All the patients were tested for both Dengue & Scrub typhus, typhoid fever and malaria considering the overlapping clinical features and the wide prevalence of all these diseases in our area on request by the treating physician.

Results

Six patients showed a titre of 160 or above for 'Salmonella typhi O' & 'H' antigens in addition to a positive serology for dengue and scrub typhus. The salient investigations of all these cases is summarized in Table 1.The patients age ranged from 22 yr to 50yr. seven of them were male & 8 female. All of them presented with fever of 3-7 days duration. Nine patients had Thrombocytopenia and four had leucopaenia. SGOT & SGPT was increased in two cases. One patient showed gametocytes of *P.falciparum* in the peripheral smear. One patient had bilateral cervical lymphadenopathy. Two patients tested positive for NS1 Antigen & IgM antibodies to dengue fever.

Discussion

Dengue, Malaria & Scrub typhus are being increasingly reported in the Indian sub-continent. All these vector borne diseases have overlapping clinical features and peak season of presentation. Co – infection of two of these diseases are uncommon with a few reports published so far. In view of the wide prevalence of these three diseases and common mode of infection and more common among similar occupational group of people like farmers and casual laborers it is difficult to rule out any one agent in patients with serological evidence of co infection and a clinical picture which is similar in nature. Since IgM antibodies may occasionally persist beyond three months a false positive dengue serology is difficult to rule out.

Similarly a false positive serology for scrub typhus cannot be ruled out in view of some cross reactions. However since all the serological tests were ELISA based and there was no H/O similar complaints for atleast 3 months prior to the episode it may be presumed to be a co infection. In addition failure to respond to treatment directed against one of the agents alone supports the diagnosis of co infection. All the patients were treated with doxycycline for scrub typhus in addition to symptomatic treatment of dengue fever. All the patients responded well to treatment and discharged after treatment for 5 -7 days post admission with appropriate advice for follow-up.

Pancreatitis and multi organ dysfunction syndrome due to scrub typhus & dengue co infection has been reported by Ikbal etal[7]. Co infection with scrub typhus, dengue & malaria has been reported by Suresh Kumar etal[1], Tasawan Singhslarak et al[8]. Response to treatment is of diagnostic significance and hence a patient failing to respond to treatment for any suspected single infection within 48 hrs should be investigated for co infection with other common infections prevalent in the geographic area. The role of cross reacting antibodies and preexisting antibodies should however be borne in mind.

Conclusion

Early screening in suspected cases will help in initiating appropriate treatment and reduce the increased morbidity & mortality associated with these coinfections.

Table 1: Showing Age & Sex distribution & salient laboratory results of cases (N=15) with dual infections

Case No	Age	Sex	Dengue		IgM Scrub typhus	4000 – 10000 Leuocycte in tho/cumm	150-350 Platelet Lakh/cumm	37 SGOT I.U/L	50 SGPT I.U/L	80-300 Alk.phos I.U/L
			NS_1Ag	IgM						
1	50	M	-	+	+	2800	79	82	37	70
2	32	M	-	+	+	13,100	135	39	25	174
3	45	F	-	+	+	4,200	141	15	20	83
4	24	F	-	+	+	11,600	63	53	89	86
5	40	F	-	+	+	6,400	69	-	-	-
6	45	M	-	+	+	3,700	105	144	273	171
7	31	F	-	+	+	7,200	275	140	300	340
8	27	M	-	+	+	3,700	106		-	-
9	38	F	-	+	+	8,400	280	40	17	-
10	32	F	-	+	+	6,500	108	45	40	94
11	45	M	+	+	+	6,400	272	210	150	-
12	37	F	-	+	+	4,000	163	-	-	-
13	50	M	-	+	+	6,400	228	32	35	90
14	22	F	+	+	+	3,500	140	64	66	60
15	33	M	-	+	+	10,300	353	33	26	98

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