Indian J Med Res 141, February 2015, pp 242-244

Correspondence

Spotted fever rickettsiosis in Uttar Pradesh

Sir,

Rickettsiosis consists of a spectrum of vector borne diseases caused by small Gram-negative obligate intracellular bacteria which includes epidemic typhus, scrub typhus and spotted fever. Rickettsial diseases have been reported from various parts of India namely Jammu and Kashmir, Uttarakhand, Maharashtra, Kerala, Tamil Nadu, Assam and West Bengal[1-3]. Cases described here were admitted in Paediatrics ward of King George's Medical University, Lucknow, Uttar Pradesh, India, in November 2013, and referred to the department of Microbiology for investigations. There were four confirmed cases belonging to ''spotted fever'' group which includes tick borne agents *Rickettsia rickettsii*, *R. conorii* and mite transmitted *R. akari.* All were from rural areas within 100 km of Lucknow (district- Hardoi, Raebareli, Sultanpur and Sitapur). Information related to demography, clinical presentation, vital parameters and routine haemogram done at the time of admission, is given in Table I. Inoculation eschar was not noted in

Table I. Clinical features and haemogram at the time of admission of patients

Features	Case 1	Case 2	Case 3	Case 4
Weight (kg)	10	30	40	15
Age (yr)	1	12	16	2
Sex	Male	Male	Male	Female
Duration of fever (days)	7	12	10	3
Duration of rash (days)	7	10	8	5
Duration of myalgia (days)	-	12	10	-
Duration of nausea/vomiting (days)	6	10	10	-
Duration of coryza and cough (days)	-	10	-	6
Duration of headache (days)	-	12	10	-
Duration of anasarca (days)	5	7	-	4
Duration of abdominal pain (days)	6	-	5	4
Duration of bloody nasal discharge (days)	-	-	-	2
Splenomegaly	Present	Present	-	Present
Haepatomegaly	Present	Present	Present	Present
Hemoglobin (g%)	8.1	9.9	10.3	9.9
Total white cell count/µl	13,400	12,000	12,500	11,000
Pulse rate/min	150	140	146	144
Respiratory rate/min	34	58	38	44
Blood pressure (mm Hg)	90/60	110/60	110/70	90/60

(-), represents that concerned clinical feature was not present

Table II. Results of rickettsial serology

Test		Case 1	Case 2	Case 3	Case 4
R. conorii IgG by ELISA	Day 1	-ve	-ve	-ve	-ve
	Day 6	-ve	-ve	-ve	-ve
R. conorii IgM by ELISA	Day 1	+ve (AI 18.334)	+ve (AI 12.654)	+ve (AI 19.1)	+ve (AI 14.5)
	Day 6	+ve (AI 21.9)	+ve (AI 13.01)	+ve (AI 28.005)	+ve (AI 15.489)
Weil Felix test (OXK, OX2 & OX19 antigen)	Day 1	+ve (Titre 1:160) for both OXK&OX2	+ve (Titre 1:160) for OX19	+ve (Titre 1:320) for both OX2&OX19	+ve (Titre 1:160) for both OXK&OX2
	Day 6	+ve for OXK (Titre 1:160) and OX2 & OX19 (Titre 1:320)	+ve for OXK (Titre 1:160) and OX2 & OX19 (Titre 1:320)	+ve for OXK (Titre 1:160) and OX2 & OX19 (Titre 1:320)	+ve for OXK (Titre 1:160) and OX2 (Titre 1:320)

-ve, +ve, and AI represent negative, positive and antibody index, respectively

any of the patients. None reported pallor, cyanosis or icterus, and central nervous system examination was within normal limits. The institutional ethics committee approved the study.

Serology for typhoid (Typhidot, AB Diagnopath Manufacturing Pvt. Ltd, New Delhi, India ; Widal; in-house), malaria (antigen detection, Optimal, Bio-Rad Laboratories India Pvt. Ltd., Gurgaon, Haryana, India) and dengue (NS1 antigen, Microlisa, J. Mitra & Co. Pvt. Ltd., New Delhi, India) was negative and blood cultures were sterile even after seven days of aerobic incubation. Blood (4 ml) was drawn from each patient on days one and six of admission and serum was separated. Serum samples were tested for *R. conorii* IgG and IgM by ELISA (Vircell Microbiologists, Spain); antibody index (AI) was calculated as per the manufacturer's instructions. Further, serum samples were also tested for Weil Felix test (Tulip Diagnostics, Goa, India). All serological tests for rickettsiosis were done in paired samples (*i.e.* on days 1 and 6 of admission); results are presented in Table II.

All patients were empirically treated with injection ceftriaxone and amikacin. Once serology reports were available on day two, patients were also given oral doxycycline 5 mg/kg/day in two divided doses for 5-7 days. There was rapid improvement in patient's condition and all became afebrile within 24-48 h and were discharged within next 7-9 days.

The disease spectrum of rickettsiosis is wide. In most patients it is mild; however, serious complications and fatalities have also been reported[4,5]. Establishing the aetiological diagnosis is difficult during the acute stage of illness and the clinical features may be confused with atypical measles, dengue, malaria, sepsis, meningococcaemia, leptospirosis and vasculitis syndromes. These were ruled out clinically and by investigations in our patients. Definitive diagnosis usually requires heightened clinical suspicion and examination of paired serum samples for serological evidence[6]. Many cases of rickettsial infection are believed to go undiagnosed due to lack of diagnostic facilities[1,2,4,5].

Here, we reported four confirmed cases of spotted fever group infection; where clinical suspicion followed by examination of paired serum samples for serological evidence, confirmed the diagnosis and prompt treatment led to recovery in all patients.

Acknowledgment

This work is done as part of an ongoing "Rickettsial Serosurveillance" Project with support from ICMR at the department of Microbiology, KGMU, Lucknow.

Mastan Singh[1,*], Jyotsna Agarwal[1], Chandra Dev Pati Tripathi[1] & Chandra Kanta[2]
Departments of [1]Microbiology & [2]Pediatrics,
King George's Medical University,
Lucknow 226 003, Uttar Pradesh, India
[*]*For correspondence*:
drmastansingh@rediffmail.com

References

1. Mahajan SK. Rickettsial diseases. *J Assoc Physicians India* 2012; *60* : 37-44.
2. Shah V, Vaidya V, Bang V, Shah I. Spotted fever in a child in Mumbai, India. *J Vector Borne Dis* 2009; *46* : 310-2.
3. Chaudhry D, Garg A, Singh I, Tandon C, Saini R. Rickettsial diseases in Haryana: not an uncommon entity. *J Assoc Physicians India* 2009; *57* : 334-7.
4. Parola P, Paddock CD, Raoult D. Tick-borne rickettsioses around the world: emerging diseases challenging old concepts. *Clin Microbiol Rev* 2005; *18* : 719-56.
5. Chapman AS, Bakken JS, Folk SM, Paddock CD, Bloch KC, Krusell A, *et al*. Diagnosis and management of tickborne rickettsial diseases: Rocky Mountain spotted fever, ehrlichioses, and anaplasmosis - United States: a practical guide for physicians and other health-care and public health professionals. *MMWR Recomm Rep* 2006; *55* (RR-4) : 1-27.
6. Walker DH, Dumler JS, Marrie T. Rickettsial diseases. In: Longo DL, Fauci AS, Kasper DL, Hauser SL, Jameson JL, Loscalzo J, editors. *Harrison's principles of internal medicine*, 18th ed. New York: McGraw-Hill; 2012. p. 1407-17.