

CASE REPORT

RICKETTSIAL MENINGITIS: FUNDOSCOPY AS DIAGNOSTIC TOOL

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ABSTRACT: **BACKGROUND:** Mediterranean spotted fever (MSF), also known as boutonneuse fever, is caused by *R. conorii*. The onset of MSF is typically abrupt. Almost all patients have fever, headache, and a rash. Neurological complications are rarely described. **AIM:** We report a rare case of meningitis of rickettsial origin. Suspected and later confirmed on the basis of fundoscopy findings. **METHODS:** 31yr old female presented with fever, headache and altered sensorium of abrupt onset past one day. On examination she had signs of meningitis. Fundus examination revealed haemorrhages and cotton wool spots. Cerebrospinal fluid examination revealed normal protein and sugar, with 2 lymphocytes and no polymorph nuclear cells on cytology. Weil- Felix test showed significantly raised titres to proteus antigen (ag) OX 19 (1:320) and proteus Ag OX 2 (1:640), suggestive of rickettsia of spotted fever group. Later confirmed with PCR based detection. Patient was started on Doxycycline and responded well. **CONCLUSION:** Meningitis of rickettsial origin require a high index of suspicion and Ocular involvement in rickettsioses is common, easily overlooked. Typical ocular manifestations are helpful in diagnosing a rickettsial disease, would increase the frequency with which rickettsial diseases are diagnosed.

KEYWORDS: Rickettsia, Spotted fever, Weil-Felix test.

INTRODUCTION: Rickettsia of the Spotted Fever Group (SFG), a class of arthropod-transmitted diseases, cause human disease and are heterogeneous group of small, obligate intracellular, gram negative coccobacilli and short bacilli. Regardless of species, infection with one of these Rickettsia leads to fever, headache, and intense myalgias, often in association with a rash or localized eschar. Rickettsial fevers with neurological involvement, in the form of encephalitis or meningitis as evident on cerebrospinal fluid examination are extremely uncommon.^{1,2}

Ocular involvement in rickettsioses is common, but is easily overlooked. Retinal vascular lesions in patients with rickettsial disease may include focal or diffuse vascular sheathing, vascular leakage, intraretinal, white-centered, or subretinal hemorrhages, and retinal vascular occlusions.³⁻⁵ Typical ocular manifestations are helpful in diagnosing a rickettsial disease, and would help to have high index of suspicion.⁶

CASE REPORT: A 31 years old female presented to our hospital with a 1-day history of fever, headache and altered sensorium. She had no convulsions, weakness or history suggestive of any cranial nerve involvement. On physical examination, pulse rate was 120 beats per min, blood pressure was 110/70 mm Hg and body temperature was 38.2°C. She was unconscious (Her Glasgow coma score was 11). Neurological examination showed signs of meningeal irritation as neck rigidity and Kerning's sign. Fundus examination revealed haemorrhages and cotton wool spots. laboratory findings were a leukocyte count of 14 200/mm³, with 91% neutrophils, a hemoglobin level of 11.7g/dl, a platelet count 71000/mm³, a glucose level of 110mg/dl, a blood urea nitrogen level of 24mg/dl, a creatinine level of 1.9mg/dl, an alanine amino transferase level of 250 U/l, an aspartate

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amino transferase level of 46 U/l, a total bilirubin level of 1.2mg/dl. Tested negative for retroviral disease. Chest X-ray revealed normal lung fields. Her peripheral blood smear was negative for malarial parasite. Cranial computed tomography (CT) revealed diffuse edema. Magnetic resonance imaging of brain and orbits with revealed no abnormalities. Her Cerebrospinal fluid examination revealed normal protein (16mg%) and sugar (62mg%), with 3 lymphocytes and no polymorphonuclear cells on cytology. After blood and CSF cultures were drawn; combination therapy with intravenous ceftriaxone 2grams twice daily, intravenous acyclovir 750mg three times daily was started as empirical therapy with the Clinical diagnosis of meningitis. On the 2nd day of treatment, ceftriaxone treatment was stopped and meropenem treatment was started because of general clinical presentation of the patient worsened. On 5th day patient developed maculopapular rashes over extensor aspects of upperlimb and over trunk. On enquiry with her husband gave history of tick bites.

Weil- Felix test showed significantly raised titres to proteus antigen (ag) OX 19 (1:320) and proteus Ag OX 2 (1:640), suggestive of rickettsia of spotted fever group. Later confirmed with PCR based detection. Serological tests for malaria (Antigen assays), leptospira, salmonella and dengue were negative. Blood culture failed to show any growth.

After these results were obtained, acyclovir and meropenem therapy was stopped, Patient was started on Doxycycline 100mg twice daily by nasogastric tube. She responded well. Her general condition improved and vital signs were normal.

DISCUSSION: This patient had a typical clinical presentation of bacterial meningitis-Fever, Headache, Drowsiness and neck rigidity. The majority of rickettsial organisms are known to invade small blood vessels causing endothelial injury and tissue necrosis, with subsequent development of a host mononuclear-cell tissue response and stimulation of coagulation process, resulting in a systemic edematous and occlusive vasculitis.⁷ Rickettsial infections are suspected in patients presenting with classical triad of Fever, Headache and skin rash. Complications including neurological involvement are rarely described.² Rash is considered hall mark of rickettsial disease, however it is neither seen at presentation nor in all patients.⁸ Ocular signs of rickettsial disease are more common.⁹ our patient had ocular involvement before development of characteristic rash. Rickettsiosis my effect any part of eye, Posterior segment manifestations are more common however most of patients are asymptomatic. Mild vitritis, retinal vasculitis, optic disc staining, white retinal lesions, retinal hemorrhages, and multiple hypo fluorescent choroidal dots are the most common manifestations of MSF. Posterior segment changes in a patient with fever and/or skin rash living in or returning from a specific endemic area, especially during the spring or summer, strongly suggest *R. conorii* infection.⁹ Typical ocular manifestations are helpful in diagnosing a rickettsial disease, while serologic testing is pending. Systematic fundus examination should be part of the routine evaluation of any patient who presents with fever and / or skin rash living in or returning from a specific endemic area.⁶ Meningitis of rickettsial origin require a high index of suspicion⁷ and Ocular involvement in rickettsioses is common, easily overlooked. Typical ocular manifestations are helpful in diagnosing a rickettsial disease, would increase the frequency with which rickettsial diseases are diagnosed.

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