World Journal of Advanced Research and Reviews
eISSN: 2581-9615 CODEN (USA): WJARAI
Cross Ref DOI: 10.30574/wjarr
Journal homepage: https://wjarr.com/

(RESEARCH ARTICLE)

Check for updates

Rickettsiosis: A report on 19 cases hospitalized in the Infectious Diseases Department of the Ibn ROCHD University Hospital of Casablanca and a review of the literature

Jean Caude Bucumi *, Inas Ouggane, Sylvestre Nimubona, Mwana-Yile Hassan, B. Raissa, Sana Jebbar, Hanani Badi, Fatima Ihbibane, Ahd Oulad Lahsen, Mustapha Sodqi and Latifa Marih

Department of Infectious Diseases, Ibn ROCHD University Hospital Center (IRUHC), Casablanca, Morocco.

World Journal of Advanced Research and Reviews, 2026, 30(02), 1311-1314

Publication history: Received on 02 APril 2026; revised on 13 May 2026; accepted on 15 May 2026

Article DOI: https://doi.org/10.30574/wjarr.2026.30.2.1301

Abstract

Introduction: Rickettsioses are emerging bacterial infections transmitted by arthropods, responsible for a wide clinical spectrum ranging from mild forms to severe multisystemic involvement.

Methods: We conducted a retrospective descriptive study including 19 patients hospitalized for rickettsiosis at the Ibn Rochd University Hospital in Casablanca between January 1, 2024, and December 31, 2025.

Results: The mean age was 33 years, with a male predominance (57.9%). All patients presented with fever, asthenia, and a skin rash. A black spot was observed in 68.4% of cases. Laboratory abnormalities included a consistent inflammatory syndrome, thrombocytopenia (94.7%), and hepatic and renal involvement. Five patients initially received ceftriaxone before being switched to doxycycline, while the others received doxycycline as first-line treatment. The outcome was favorable in all patients.

Conclusion: Rickettsiosis remains underdiagnosed. Probabilistic treatment with doxycycline should be initiated early in any case of clinical suspicion.

Keywords: Rickettsiosis; Mediterranean spotted fever; Rickettsia; Bacterial zoonosis; Tick-borne infection; Arthropod vectors; Doxycycline

1. Introduction

Rickettsioses are zoonoses caused by intracellular bacteria of the genus Rickettsia, transmitted to humans by arthropod vectors such as ticks (1,2), whose genomic diversity and adaptation mechanisms are becoming increasingly well understood (23). They constitute a growing public health problem, particularly in Mediterranean and African regions (5,7,19,20), with an expansion linked to climatic and ecological changes (8,17).

Mediterranean spotted fever is the most common form in North Africa and is classically characterized by a triad of fever, rash, and inoculation eschar known as the black spot (3,15). However, atypical forms are described in the literature (18, 25), which can delay diagnosis (3) due to the low specificity of the signs and the lack of access to diagnostic tests (10, 14).

The objective of this study is to describe the characteristics of cases hospitalized at Ibn Rochd University Hospital and to compare them with recent data from the literature.

* Corresponding author: Jean Caude Bucumi

2. Materials and Methods

This is a retrospective descriptive study conducted over a two-year period.

2.1. Inclusion Criteria

Patients presenting with a clinical picture suggestive of rickettsiosis with a biological inflammatory syndrome (1, 2) and a favorable response to doxycycline (13, 21).

2.2. Data analyzed

Demographic, clinical, biological, radiological, therapeutic, and outcome data, consistent with similar observational studies (6,10)

3. Results

Table 1 Epidemiological data

Variables	Results
Number of patients	19
Mean age	33 years
Male sex	11(57.9%)
Female sex	8(42.1%)

Table 2 Clinical data

Clinical sign	Number	%
Fever	19	100
Asthenia	19	100
Rash	19	100
Black spot	13	68.4
Jaundice	6	31.6

Table 3 Biological data

Parameter	Number	%
Leukocytosis	19	100
Elevated CRP	19	100
Thrombocytopenia	18	94.7
Hepatic involvement	15	78.9
Renal involvement	14	73.7

Table 4 Radiological Data

Examination	Result
Renal-vesical ultrasound (12 cases)	Normal
Abdominopelvic ultrasound (9)	Normal
Hepatic steatosis	2
Not achieved	8

Table 5 Treatment

Treatment	Number
Ceftriaxone and doxycycline	5
Doxycycline alone	14

All patients received significant rehydration with monitoring of urine output. Paracetamol was used with caution due to liver involvement. Doxycycline remains the standard treatment (13,21)

Table 6 Outcome

Criterion	Results
Clinical improvement	100%
Disappearance of rash	Progressive
Hepatic normalization	Progressive
Renal normalization	Progressive
Death	0

4. Discussion

Our results confirm the homogeneous nature of the clinical presentation, dominated by the classic triad (11,16). The high frequency of thrombocytopenia (94.7%) is higher than that reported in some international series, probably due to hospital recruitment bias (9,12).

The liver involvement observed in nearly 80% of cases reflects the pathophysiology of rickettsioses, characterized by systemic vasculitis linked to endothelial cell infection (2,27).

Doxycycline remains the standard treatment with remarkable efficacy, as observed in our series (13,21), with efficacy demonstrated in several international studies (4,22). The initial use of cephalosporins reflects a frequent diagnostic delay (3).

5. Conclusion

Rickettsiosis is a common but often underdiagnosed infection in Morocco. Diagnosis is based primarily on clinical and laboratory findings. Early initiation of doxycycline treatment leads to a favorable outcome in the majority of cas.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

References

[1] Parola P, Paddock CD, Raoult D. Tick-borne rickettsioses around the world: emerging diseases challenging old concepts. *Clin Microbiol Rev.* 2013;26(4):657–702. doi:10.1128/CMR.00032-13

[2] Eldin C, Mediannikov O, Davoust B, et al. Emerging tick-borne rickettsioses of the Mediterranean basin. *Clin Microbiol Rev.* 2019;32(3):e00133-18. doi:10.1128/CMR.00133-18

[3] Biggs HM, Behravesh CB, Bradley KK, et al. Diagnosis and management of tickborne rickettsial diseases: Rocky Mountain spotted fever and other spotted fever group rickettsioses. *MMWR Recomm Rep.* 2016;65(RR-2):1–44. doi:10.15585/mmwr.rr6502a1

[4] Angelakis E, Raoult D. Q fever and rickettsial diseases. *Int J Antimicrob Agents.* 2016;48(1):1–7. doi:10.1016/j.ijantimicag.2016.04.009

[5] Portillo A, Santibáñez S, García-Álvarez L, et al. Rickettsioses in Europe. *Pathogens.* 2021;10(9):1092. doi:10.3390/pathogens10091092

[6] Eldin C, et al. Rickettsial infections in Africa and Mediterranean region. *Clin Microbiol Infect.* 2020;26(9):1160–1166. doi:10.1016/j.cmi.2020.02.016

[7] Mouffok N, Parola P, Raoult D. Mediterranean spotted fever in North Africa: epidemiology and clinical features. *Med Mal Infect.* 2020;50(1):45–50. doi:10.1016/j.medmal.2019.06.004

[8] Socolovschi C, Renvoisé A, Brouqui P, Parola P. Role of Rhipicephalus sanguineus in human Rickettsia conorii infection. *PLoS Negl Trop Dis.* 2009;3(5):e436. doi:10.1371/journal.pntd.0000436

[9] Renvoisé A, Angelakis E, Raoult D. Rickettsioses in the Mediterranean region. *Am J Trop Med Hyg.* 2012;87(6):1135–1140. doi:10.4269/ajtmh.2012.12-0213

[10] Eldin C, et al. Clinical manifestations and diagnosis of rickettsioses. *Clin Microbiol Infect.* 2017;23(11):746–752. doi:10.1016/j.cmi.2017.05.015

[11] Abdad MY, Abou Abdallah R, Fournier PE, Stenos J, Vasoo S. A concise review of the epidemiology and diagnosis of rickettsial diseases. *Infect Dis Clin North Am.* 2023;37(2):289–308. doi:10.1016/j.idc.2023.02.002

[12] Blanton LS. The rickettsioses: a practical update. *Clin Infect Dis.* 2019;69(Suppl 4):S1–S4. doi:10.1093/cid/ciz379

[13] Maurin M, Raoult D. Diagnosis of rickettsial diseases. *Antimicrob Agents Chemother.* 1993;37(5):945–951. doi:10.1128/AAC.37.5.945

[14] Paris DH, Dumler JS. State of the art of diagnosis of rickettsial diseases. *Lancet Infect Dis.* 2021;21(3):e77–e86. doi:10.1016/S1473-3099(20)30469-6

[15] Ibarra V, Portillo A, Palomar AM, Santibáñez S, Oteo JA. Epidemiology of Mediterranean spotted fever in travellers returning from endemic areas. *Travel Med Infect Dis.* 2022;47:102290. doi:10.1016/j.tmaid.2022.102290

[16] Cascio A, Colomba C, Di Rosa D, Zanghì G, Russo G. Rickettsial infections in the Mediterranean basin: update on clinical and epidemiological aspects. *Eur J Clin Microbiol Infect Dis.* 2020;39(12):2071–2081. doi:10.1007/s10096-020-03940-9

[17] Drexler NA, et al. Climate and environmental drivers of tick-borne diseases emergence. *Am J Trop Med Hyg.* 2022;106(3):707–716. doi:10.4269/ajtmh.21-0823

[18] Rauch J, Eberhard T, Strauß A, et al. Atypical clinical presentations of rickettsial infections and diagnostic challenges. *Open Forum Infect Dis.* 2023;10(7):ofad289. doi:10.1093/ofid/ofad289

[19] Belkahia H, Ben Salem N, Aloui S, et al. Molecular detection of tick-borne pathogens in North African ticks. *Ticks Tick Borne Dis.* 2019;10(4):789–794. doi:10.1016/j.ttbdis.2019.03.005

[20] Kernif T, Parola P, Raoult D, et al. Diversity of Rickettsia spp. in tick vectors in Africa. *Parasites Vectors.* 2022;15(1):123. doi:10.1186/s13071-022-05220-5

[21] Raoult D, Roux V. Rickettsioses as emerging infectious diseases. *Clin Infect Dis.* 2005;40(8):1257–1264. doi:10.1086/429625

[22] Diop A, Fournier PE, Fenollar F. Update on rickettsial diseases in Africa. *New Microbes New Infect.* 2021;41:100857. doi:10.1016/j.nmni.2021.100857

[23] Levasseur A, et al. Genomic evolution and diversity of Rickettsia species. *Microb Genom.* 2023;9(6):000914. doi:10.1099/mgen.0.000914

[24] Sahni A, Fang R, Sahni SK. Rickettsial pathogenesis and host interaction mechanisms. *Front Cell Infect Microbiol.* 2021;11:667192. doi:10.3389/fcimb.2021.667192

[25] Alwassouf S, et al. Clinical variability of spotted fever group rickettsioses. *Int J Infect Dis.* 2020;101:195–200. doi:10.1016/j.ijid.2020.09.1445