



## OPEN ACCESS

## Research Article

# All those exanthematous fevers are not Covid-19

Jaseem Sirajudeen,<sup>1,3</sup> Arun Prabhakaran Nair,<sup>2</sup> Rabia Waseem Hassany,<sup>1</sup> Nishan K Purayil,<sup>1,3</sup> Joe Vargheese Mathew,<sup>1</sup> Ihab T Elmadhoun,<sup>1</sup> Mulham Mustafa<sup>2</sup>

<sup>1</sup> Department Of Internal Medicine, Hamad Medical Corporation, Doha, Qatar  
<sup>2</sup> Department Of Infectious Disease, Communicable Disease Centre, Hamad Medical Corporation, Doha, Qatar  
<sup>3</sup> College of Medicine, Qatar university, Doha, Qatar

\* drjaseemsiraj@gmail.com

## ABSTRACT

Fever with a rash is a common case scenario that clinicians encounter in their practice. The ubiquity of the presentation is proportional to the magnitude of the physician's dilemma due to its numerous causes. The diagnosis varies from infectious diseases to non-infectious, life threatening diseases including the current COVID-19 pandemic. Here we present a case of a 31-year-old male, who presented to the Emergency Department with fever and rash and was initially diagnosed and managed as a case of COVID-19 which on further evaluation proved to be brucellosis. This is a case of brucellosis with cutaneous manifestations which had been masquerading as COVID-19.

**Keywords:** covid-19, Brucellosis, fever with rash

## INTRODUCTION

Coronavirus disease 2019 (COVID-19) is an infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) [1]. It was first identified in December 2019 in Wuhan, China, and has since spread globally, resulting in an ongoing pandemic. COVID-19 usually manifests as fever with predominant respiratory symptoms. It is also associated with involvement of other systems. Dermatological manifestations of COVID-19 have been reported but the exact pathological mechanism is not yet understood.

Brucellosis (Mediterranean fever), a zoonotic disease, is endemic in some parts of the world but sporadic infections have been reported in other countries. The principal pathogenic species of *Brucella* worldwide are *B. abortus*, *B. melitensis*, and *B. Suis*. It is transmitted through direct or indirect contact with infected animals or animal products [2,3]. Human-to-human transmission of brucellosis is very rare. The manifestations of brucellosis can be divided into acute brucellosis, localised brucellosis and chronic brucellosis. However, cutaneous manifestations of brucellosis are rare.

Dermatological manifestations in brucellosis and COVID-19 are uncommon, uncharacteristic and infrequent. Here we describe a case of brucellosis with cutaneous manifestations which had been masquerading as COVID-19. The presenting symptoms may not always be due to COVID-19, they can be due to other underlying conditions. As such, the treating physician should consider a differential diagnosis especially when there is atypical presentation.

<http://doi.org/>

Submitted:  
Accepted:  
Published:

© 2021 The Author(s), licensee HBKU Press. This is an Open Access article distributed under the terms of the Creative Commons Attribution license CC BY 4.0 (<https://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

كيساينس  
QSCIENCE

دار جامعة حمد بن خليفة للنشر  
HAMAD BIN KHALIFA UNIVERSITY PRESS

Cite this article as: Al-Mannai MM. All those exanthematous fevers are not Covid-19. Avicenna 2021(1):0. <http://doi.org/10.5339/.2021.0>

## CASE REPORT

A 31-year-old male, driver by profession, presented to Hamad General Hospital with a history of intermittent fever and joint pains since 20 days and skin rash since 5 days. The rash was present over the trunk and arms with mild itching. He also had an occasional unproductive cough. Consumption of unpasteurized sheep milk was revealed on further history taking.

There was no history of any similar complaints, recent travel, contact with any sick person, contact with animals, long term medication or recent antibiotic intake. The patient visited the hospital twice earlier and received only symptomatic treatment. He was screened for COVID-19 during the initial visit and it was negative.

Due to persistent symptoms he was hospitalized during his third visit. At the time of admission, he was febrile and other vital signs were normal. Physical examination revealed disseminated non blanching, erythematous maculopapular rashes (Figures 1 & 2) over the trunk and limbs sparing the face. Upon further examination, he was found to have hepatosplenomegaly.

His initial blood investigations showed deranged liver function test (Table 1). Chest X-ray was suggestive of subtle infiltrates bilaterally and ultrasound of the abdomen confirmed hepatosplenomegaly. Repeat COVID-19 PCR test and blood culture with connective tissue screening was done. The repeat COVID-19 test was positive and the patient was transferred to COVID isolation center for further management.

He was started on ceftriaxone 2 gm IV daily, azithromycin 500 mg daily and paracetamol for fever. Hydroxychloroquine was not started because of his altered liver function. During the stay, the fever persisted and later blood culture report was positive for *Brucella Melitensis*. Antibody titre was also positive for *Brucella Melitensis* (1:320).

Antibiotics were changed to doxycycline 100 mg, rifampicin 450 mg and gentamicin. He improved symptomatically and the rash subsided (Figures 3 & 4) after two days of initiating the treatment. He remained afebrile until discharge.

## DISCUSSION

Our case presented with fever and generalised maculopapular rash. The pandemic warranted PCR testing for SARS-CoV-2, which was positive. In a study describing 138 patients hospitalized with COVID-19 in Wuhan; fever, fatigue, dry cough, anorexia, myalgia, dyspnoea, sputum production were the presenting symptoms in the respective order [4]. Cutaneous manifestations were reported in only 20.4% of cases in a study performed by Recalcati et al., of 88 patients [5].

Dermatologic findings in patients with COVID-19 are rare and uncharacteristic. There have been reports of maculopapular, urticarial, vesicular eruptions and transient livedo reticularis [6]. Reddish-purple nodules on the distal digits similar in appearance to pernio (chilblains) have also been described, mainly in children and young adults with documented or suspected COVID-19. The exact pathogenesis of these cutaneous manifestations is not yet completely understood and needs to be studied further.

Galván Casas et al., in a study of 375 COVID-19 cases classified cutaneous lesions into maculopapular eruptions (47%), urticarial lesions (19%), areas of erythema with vesicles or pustules (pseudo-chilblain) (19%), other vesicular eruptions (9%) and necrosis (6%) [7].

In our patient, along with fever with rash, joint pain was also a predominant complaint. This history and a physical finding of hepatosplenomegaly and a remote history of consumption of unpasteurised milk, tempted us to probe further. His blood culture was positive for *Brucella melitensis*. Positive blood culture and a high serum antibody titre for melitensis confirmed a diagnosis of brucellosis.

Brucellosis is a zoonotic disease with multisystem involvement. Human brucellosis usually manifests as insidious onset fever and joint pains. Brucellosis is a systemic infection and complications occurs when the infection involves one or more focal sites. *Brucella Melitensis* is the commonly identified species causing Brucellosis in humans [8]. Consumption or contact with infected animals and animal products are the usual source of infection.

Dermatological manifestations in patients with brucellosis was first described in 1940 [9]. Skin involvement is rare and is seen in about 0.4% to 17.0 % of cases [8]. The skin symptoms are caused because of direct inoculation of the bacteria, hypersensitivity phenomena, indirect skin involvement caused by circulating immune complexes, and direct haematogenous invasion of the skin.

In a review of 436 cases of brucellosis by Ariza et al., 6% of the patients had cutaneous lesions in which disseminated violet erythematous, papulonodular eruption, and erythema nodosum-like lesions were the most frequent eruptions [10].

In a report by Akcali et al., in 140 patients with brucellosis, skin involvements were found in 8 patients (5. 71%) The most frequent were maculopapular eruptions (25%) and erythema nodosum-like lesions (25%) [11]. Artuz et al., studied 50 patients with brucellosis and the commonly observed cutaneous lesions were erythema nodosum and urticaria-like papules [12]. A similar pattern of skin eruptions was reported by Metin et al., in his study of 103 cases [13].

Skin lesions in our patient improved after two days of initiating specific treatment. Nagore et al., described a patient of brucellosis with leukocytoclastic vasculitis whose skin lesions resolved within a similar time period after initiating treatment.

Coinfection of COVID-19 with other infections has been reported which include dengue, influenza and mycoplasma pneumonia [15,16,17]. Coinfection of COVID-19 with brucellosis is very rare. This combination of coinfection was reported only in a recent case report by Felzein et al. [18].

## CONCLUSION

Even amidst the COVID-19 pandemic, it is imperative to keep an open mind when dealing with patients with fever. The treating physician should entertain other possible aetiologies and also differential diagnosis. Brucellosis has been rightly included among the “great imitators of dermatology” due to the non-specificity of the cutaneous lesions.

## Funding Sources

The publication of this article was funded by the Qatar National Library.

## REFERENCES

1. de Masson A, Bouaziz JD, Sulimovic L, Cassius C, Jachiet M, Ionescu MA, et al. Chilblains is a common cutaneous finding during the COVID-19 pandemic: A retrospective nationwide study from France. *J Am Acad Dermatol.* 2020;83:667-670.
2. Doğanay M, Aygen B. Human brucellosis: an overview. *Int J Infect Dis.* 2003;7(3):173-82.
3. Doğanay M, Meşe-Alp, E. Bruselloz. *Infeksiyon hastalıkları ve mikrobiyolojisi* (3<sup>rd</sup> ed.). Topcu AW, Söyletir G, Doğanay M (Eds.). Nobel Tıp Kitabevleri, İstanbul. 2008, 897-909.
4. Wang D, Hu B, Hu C, Zhu F, Liu X, Zhang J et al. Clinical Characteristics of 138 Hospitalized Patients With 2019 Novel Coronavirus-Infected Pneumonia in Wuhan, China. *JAMA.* 2020;323:1061-1069.
5. Recalcati S. Cutaneous manifestations in COVID-19: a first perspective. *J Eur Acad Dermatol Venereol.* 2020;34(5):e212-213.
6. Manalo IF, Smith MK, Cheeley J, Jacobs R. A dermatologic manifestation of COVID-19: Transient livedo reticularis. *J Am Acad Dermatol.* 2020;83(2):700.
7. Galván Casas C, Català A, Carretero Hernández G, Rodríguez-Jiménez P, Fernández-Nieto D, Rodríguez-Villa Lario A, et al. Classification of the cutaneous manifestations of COVID-19: a rapid prospective nationwide consensus study in Spain with 375 cases. *Br J Dermatol.* 2020;183(1):71-77.
8. Korkmaz P, Kırdir M, Namdar ND, Özmen A, Uyar C, Değer AN. A Case of Brucellosis with Recurrent Attacks of Vasculitis. *Case Rep Infect Dis.* 2016; 2016:5740589.
9. Milionis H, Christou L, Elisaf M. Cutaneous manifestations in brucellosis: case report and review of the literature. *Infection.* 2000; 28(2):124-126.
10. Ariza J, Servitje O, Pallarés R, Fernández Viladrich P, Rufí G, Peyrí J, et al. Characteristic cutaneous lesions in patients with brucellosis. *Arch Dermatol.* 1989; 125(3):380-3.
11. Akcali C, Savas L, Baba M, Turunc T, Seckin D. Cutaneous manifestations in brucellosis: a prospective study. *Adv Ther.* 2007; 24(4) 706-711.
12. Artuz F, Oram Y, Lenk N. Skin lesions of patients with brucellosis. *Turkish Journal of Dermatology.* 1994; 4: 94-96.
13. Metin A, Akdeniz H, Buzgan T, Delice I. Cutaneous findings encountered in brucellosis and review of the literature. *Int J Dermatol.* 2001; 40(7): 434-438.
14. Nagore E, Sanchez-Motilla JM, Navarro V, Febrer MI, Aliaga A. Leukocytoclastic vasculitis as a cutaneous manifestation of systemic infection caused by *Brucella melitensis*. *Cutis.* 1999;63:25-7.
15. Saavedra-Velasco M, Chiara-Chilet C, Pichardo-Rodríguez R, Grande-Urbina A, Inga-Berrosipi F. [Coinfection between dengue and covid-19: need for approach in endemic zones]. *Rev Fac Cien Med Univ Nac Cordoba.* 2020; 77(1):52-54.
16. Fan BE, Lim KGE, Chong VCL, Chan SSW, Ong KH, Kuperan P. COVID -19 and mycoplasma pneumoniae coinfection. *Am J Hematol.* 2020; 95(6): 723-724.
17. Wu X, Cai Y, Huang X, Yu X, Zhao L, Wang F. Co-infection with SARS-CoV-2 and Influenza A Virus in Patient with Pneumonia, China. *Emerg Infect Dis.* 2020; 26(6):1324-1326.
18. Elzein F, Alsherbeeni N, Almatrafi K, Shosha D, Naooufel K. COVID-19 co-infection in a patient with brucella bacteremia. *Respir Med Case Rep.* 2020; 31: 101183. doi: 10.1016/j.rmcr.2020.101183

**LEGENDS**



**Figure 1.** Disseminated non blanching, erythematous urticaria like maculopapular rashes over the trunk



**Figure 2.** Disseminated non blanching, erythematous urticaria like maculopapular rashes over the lower limbs



**Figures 3, 4.** Rashes after initiation of treatment

**TABLE 1 – LAB REPORTS**

Urea	3.47 mmol/L
Creatinine	55.0 umol/L
Bilirubin T	43.4 umol/L
Bilirubin D	21.2 umol/L
Albumin	28 gm/L
AlkPhos	500.0 U/L
ALT	327.4 U/L
AST	263 U/L
WBC	4.1 x10 <sup>3</sup> /uL
Hgb	10.1 gm/dL
Platelet	192 x10 <sup>3</sup> /uL
Virology- COVID-19 PCR	POSITIVE