Brucellosis Presented with Fever and Generalized Maculopapular Rash

Hasan Tahsin Gözdaş, Fatma Sırmatel, Hayrettin Akdeniz

Background: Brucellosis is a multisystemic zoonosis that can affect all body organs and systems. Musculoskeletal system is the most affected system; however, cutaneous involvement is quite rare.

Case Report: A 31-year-old male who was previously healthy was admitted with fever and generalized maculopapular rash for the last three days before his admission to the hospital. He was eventually diagnosed with brucellosis based on the clinical history and epidemiological features. Brucellosis treatment was administered for six weeks and the patient recovered completely.

Conclusion: In endemic regions, brucellosis should be included in the differential diagnosis of the patients presenting with fever and generalized maculopapular rash.

Keywords: Fever, maculopapular rash, brucellosis

INTRODUCTION

Brucellosis is a worldwide zoonotic disease affecting all organs and systems. Osteoarticular system is the most affected system. Patients with osteoarticular system involvement usually present with sacroiliitis, spondylodiscitis and peripheral arthritis. In a recent systemic review, the frequency of arthralgia was reported as 62%. However, cutaneous manifestations of brucellosis are less encountered. Papulonodular, maculopapular and erythema nodosum-like lesions are the most frequent cutaneous lesions in the brucellosis. Frequency of cutaneous lesions due to brucellosis was reported in a systemic review as 7%. Moreover, cutaneous involvement as the predominant manifestation of brucellosis was occasionally reported (1–4). In this paper, we present a rare brucellosis case whose predominant manifestation was widespread maculopapular rash.

CASE REPORT

A 31-year-old previously healthy male was admitted with fever and generalized maculopapular rash for the last three days. He lived in the rural area and had a history of tick bite 10 days before presentation. His family history was positive for brucellosis. His throat and conjunctiva were hyperemic, and generalized maculopapular rash was present (Fig. 1a, b). Complete blood count, biochemical tests, C-reactive protein and erythrocyte sedimentation rate were in normal limits. HBsAg, antiHCV and antiHIV were all negative. Neither hepatomegaly nor splenomegaly was detected. Group A β hemolytic streptococci did not grow in throat culture. Due to a history of the tick bite, Mediterranean spotted fever and Lyme disease were suggestive of in the preliminary diagnosis, doxycycline 100 mg twice a day was started orally. Meanwhile, Rickettsia conori and Borrelia burgdorferi antibodies were investigated by an indirect fluorescent antibody test. R. conori IgM and IgG were found positive at 1/96 and 1/40 titers, respectively. B. burgdorferi IgM was negative and IgG was single positive with an indirect fluorescent antibody test. Because fever and rash persisted at the fourth day of doxycycline treatment, brucellosis can mimic every disease which is also endemic in Bolu region of Turkey (1%) and the patient’s positive family history for brucellosis (1, 5), he underwent Brucella tube agglutination test which was found positive at 1/320 titer. We asked the patient whether he consumed raw or unpasteurized dairy products, and he confirmed to do so. At this stage, he was diagnosed with brucellosis and then, rifampicin 600 mg orally once daily was added to the treatment. After three days of brucellosis treatment, his fever returned to normal and his rash disappeared completely, so brucellosis treatment was continued. During his follow-up, acute phase reactants remained normal. Thereafter, he was discharged with a recommendation for outpatient control. At one month control, R. conori IgM and IgG were investigated and found positive at 1/192 and 1/80 titers, respectively. Brucellosis treatment was completed to six weeks and the patient recovered completely. The patient’s consent was obtained for this case report.
There are some pathophysiologic mechanisms that explain brucellar skin lesions. The most widely accepted one is the hematogenous spread of the Brucella bacteria to the skin. Some other arguments can also explain the brucellar skin lesions, such as direct inoculation of Brucella bacteria, hypersensitivity reactions and immune complex depositions (9).

At admission and during follow-up, acute phase reactants (APRs) of our patient were always in normal limits. Although the majority of the brucellosis patients have elevated APRs, a significant proportion may still have normal APRs. Similar to our case, APRs were found normal in some of the patients in a previous study (10).

Brucellosis may affect many organs and systems. Hence, it may present with a wide range of clinical diversity. Early and accurate diagnosis and treatment are of paramount importance to prevent further complications.

CONCLUSION

In endemic regions, brucellosis should be included in the differential diagnosis of patients presenting with fever and generalized maculopapular rash.

Informed Consent: Written informed consent was obtained from the patient who participated in this study.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept – HTG; Design – HTG; Supervision – FS, HA; Resource – FS; Materials – FS; Data Collection and/or Processing – HA; Analysis and/or Interpretation – HTG; Literature Search – HTG; Writing – HTG; Critical Reviews – FS, HA.

Conflict of Interest: The authors have no conflict of interest to declare.

Financial Disclosure: The authors declared that this study has received no financial support.

REFERENCES

1. Mantur BG, Amarnath SK, Shinde RS. Review of clinical and laboratory features of human brucellosis. Indian J Med Microbiol 2007; 25(3): 188-202. [CrossRef]
2. Ariza J, Servitje O, Pallàres R, Fernández Viladrich P, Rui G, Peyri J, et al. Characteristic cutaneous lesions in patients with brucellosis. Arch Dermatol 1989; 125(3): 380-3. [CrossRef]
3. Ayaslioglu E, Koçak M, Bozdogan O. A case of brucellosis presenting with widespread maculopapular rash. Am J Dermatopathol 2009; 31(7): 687-90. [CrossRef]
4. Zheng R, Xie S, Lu X, Sun L, Zhou Y, Zhang Y, et al. A Systematic Review and Meta-Analysis of Epidemiology and Clinical Manifestations of Human Brucellosis in China. Biomed Res Int 2018; 2018: 5712920.
5. Karabay O, Serin E, Tamer A, Gökdoğan F, Alpteker H, Ozcok A, et al. Hepatitis B carriage and Brucella seroprevalence in urban and rural areas of Bolu province of Turkey: a prospective epidemiologic study. Turk J Gastroenterol 2004; 15(1): 11-3.
6. La Scola B, Raoult D. Laboratory diagnosis of rickettsioses: current approaches to diagnosis of old and new rickettsial diseases. J Clin Microbiol 1997; 35(11): 2715-27. [CrossRef]
7. Kaya AD, Parla AH, Ozturk CE, Bechet M. Seroprevalence of Borrelia burgdorferi infection among forestry workers and farmers in Duzce, north-western Turkey. New Microbiol 2008; 31(2): 203-9.
8. Karaali Z, Başsal B, Poturoğlu S, Kendir M. Cutaneous manifestations in brucellosis. Indian J Dermatol 2011; 56(3): 339–40. [CrossRef]
9. Milionis H, Christou L, Elisaf M. Cutaneous manifestations in brucellosis: case report and review of the literature. Infection 2000; 28(2): 124–6.
10. Pourakbari B, Abdolsalehi M, Mahmoudi S, Banar M, Masoumpour F, Mamishi S. Epidemiologic, clinical, and laboratory characteristics of childhood brucellosis: A study in an Iranian children’s referral hospital. Wien Med Wochenschr 2019; 169(9-10): 232–9. [CrossRef]