

Mysteries on the Menu: A Traveller's Health Misadventure

F. Hussain¹, K. O'Brien¹, C. Kerr^{4, 5}, A. Gerada^{6, 7}, S. Bergin², A. Colgan⁸, P. McKeown⁹, D. Kane^{3, 4}, C. Bannan^{4, 5}, S. Waqas^{1, 4}

1. Department of Infectious Diseases, Tallaght University Hospital, Tallaght, Dublin 24, Ireland.
2. Department of Microbiology, Tallaght University Hospital, Tallaght, Dublin 24, Ireland.
3. Department of Rheumatology, Tallaght University Hospital, Tallaght, Dublin 24, Ireland.
4. Clinical Medicine; School of Medicine, Trinity College Dublin, College Green, Dublin 2, Ireland.
5. Department of Infectious Diseases, St. James's Hospital, Dublin 8, Ireland.
6. Brucella Reference Unit, Department of Infection and Immunity, Liverpool Clinical Laboratories, Clinical Support Services Building (CSSB), Liverpool University Hospitals NHS Foundation Trust, Liverpool, United Kingdom.
7. Antimicrobial Pharmacodynamics and Therapeutics Group, Pharmacology Department, Institute of Systems, Molecular & Integrative Biology, University of Liverpool, Liverpool, United Kingdom.
8. Gastroenteric, Zoonotic and Vectorborne Diseases Team, HSE-Health Protection Surveillance Centre, Ireland.
9. Public Health Medicine, National Health Protection, HSE Public Health: National Health Protection Office, Ireland.

Abstract

Presentation

A 32-year-old male presented to the hospital with over four months of fevers, myalgia, headaches, and 5kg weight loss, after travelling to India. His symptoms persisted despite receiving empiric antibiotics. He handled buffaloes and drank unpasteurised goat milk in India. Clinical examination was normal, apart from tachycardia(110bpm).

Diagnosis

Routine bloods only revealed a raised CRP(51mg/L). CT Thorax, Abdomen, and Pelvis (CT TAP) showed mild splenomegaly. *Brucella* IgM, IgG serology, and PCR(Polymerase Chain Reaction) confirmed acute brucellosis.

Treatment

He received 6 weeks of rifampicin and doxycycline for the treatment of brucellosis, and was well on follow-up.

Discussion

Brucellosis is rare in Ireland; provisional Health Protection Surveillance Centre(HPSC) data indicates five cases were reported in 2023, and one in both 2022 and 2024¹. This case emphasizes the need for awareness of zoonoses in Ireland, and the importance of careful history-taking in returning travellers.

Introduction

Brucellosis is a zoonotic infection, acquired by consuming unpasteurized dairy/handling animals infected with bacteria from the *Brucella* genus². Although eradicated from Irish cattle in 2009³, brucellosis occurs in the “Mediterranean, Middle East, Central Asia, China, Indian subcontinent, Sub-Saharan Africa, Mexico and Central and South America”.⁴ In Punjab, India, a study showed 15.1% of large ruminants were seropositive for *Brucella*, and one-third of dairy farms had at least one infected animal. 9.7% of humans with direct livestock contact tested seropositive.⁵

Case Report

In April 2023, 32-year-old male patient presented to the hospital with over four months of fevers, myalgias, headaches, and 5kg weight loss, which began in November 2022 after a one-month trip to Punjab, India. He denied arthralgia, gastrointestinal upset, coughing, or genitourinary symptoms. His General Practitioner(GP) treated him with ten days of empiric oral azithromycin(250mg BD) with ciprofloxacin(500mg BD) in November 2022, with some improvement, but symptoms recurred weeks later. Treatment with clarithromycin in January 2023 was ineffective, prompting hospital presentation. In India, he manually handled buffaloes at a farm and drank unpasteurised goat milk. He denied exposure to animal birth products/tuberculosis. He was a married non-smoking, restaurant worker. Physical examination showed tachycardia(110bpm). His CRP was 51mg/L; bloods were otherwise unremarkable. His CT TAP showed mild splenomegaly and 3mm left upper and lower lobe pulmonary granulomas. HIV, syphilis, Lyme, leptospirosis IgM, hepatitis B, hepatitis C, connective tissue disease screen, and Quantiferon tests were negative. Blood cultures were sterile, but *Brucella* IgM and IgG serology returned positive, suggesting acute brucellosis. *Brucella* PCR was positive.(Figure 1).

Date	05/04/23	01/06/23	23/08/23	13/09/23	15/11/23	18/12/23
Clinical Status	Symptomatic, pre-treatment	Symptomatic, pre-treatment	Resolved symptoms, 6 weeks post-treatment	Resolved symptoms, 9 weeks post-treatment	Mild upper respiratory tract infection symptoms (1 month prior to this)	-
Brucellacapt	>1:10240	>1:10240	1:1280	-	1:2560	-
<i>Brucella</i> IgG	>1:2560	>1:2560	1:1280	-	1:320	-
<i>Brucella</i> IgM	1:640	1:320	<1:20	-	1:40	-
<i>Brucella</i> microagglutination test	1:640	1:1280	1:640	-	1:320	-
<i>Brucella</i> spp. PCR (IS711, bcsp)	-	-	-	Positive	-	Negative

Figure 1: Patient's *Brucella* serology titres and molecular results.

Lumbar spine x-rays lacked significant spondylitic changes. He received 6 weeks of oral rifampicin(600mg OD) and doxycycline(100mg BD), with significant improvement. Three months post-treatment, he had two episodes of headaches, sore throat, myalgias, and night sweats, though less severe. His GP treated a presumed respiratory tract infection with oral antibiotics; the second episode self-resolved. At the Infectious Diseases clinic one month later, he was asymptomatic. Repeat serology was equivocal; repeat *Brucella* whole blood PCR returned negative. These episodes were considered transient viral/bacterial infections rather than relapsed brucellosis. He remained well at follow-up four months later.

Discussion

Brucellosis is rare in Ireland; five cases were reported in 2023, and one in both 2024 and 2022¹. The 2022 case, and two 2023 cases were associated with international travel. One "2023" case was a delayed notification(infection occurred prior to 2023). Brucellosis has an average onset of 2-4 weeks; the incubation period is 5 days-6 months.⁶ Symptoms include fever, malaise, arthralgias, hepatosplenomegaly, or lymphadenopathy. Severe, multi-systemic complications may develop, including arthritis, sacroiliitis, spondylitis, central nervous system disorders, epididymo-orchitis, endocarditis, hepatitis, respiratory disorders,

and rashes.⁷ Definitive diagnosis is made by culturing *Brucella* spp. It can be serologically diagnosed if a four-fold increase in *Brucella* antibody titres occurs between acute and convalescent serum specimens, or if titres are $\geq 1:160$ by standard tube agglutination test/*Brucella* microagglutination test.⁶ *Brucella* serology has a lab turnaround time of 7 days; confirmatory PCR takes 14 days.⁸ In non-pregnant individuals, brucellosis without spondylitis/neurobrucellosis/endocarditis is treated with 6 weeks of doxycycline, and either a parenteral aminoglycoside for 7-21 days, or oral rifampicin for 6 weeks.⁹ Close clinical monitoring and serologic testing are essential, as relapse rates post-treatment are 5-15%.¹⁰ Had brucellosis not been considered, the patient could have developed serious complications. This case emphasizes the need for awareness of zoonoses in Ireland, and the importance of careful history-taking in returning travellers.

Declaration of Conflicts of Interest:

None declared.

Corresponding author:

Sarmad Waqas,
Department of Infectious Diseases,
Tallaght University Hospital,
Tallaght,
Dublin 24,
Ireland.

E-Mail: sarmad.waqas@tcd.ie

References:

1. Annual Infectious Diseases Notifications in Ireland 2020-2024 [Internet]. Health Protection Surveillance Centre. Health Protection Surveillance Centre; 2025 [cited 2025 Mar 7]. Available from: https://www.hpsc.ie/notifiablediseases/annualidstatistics/Annual_ID_Summary_Report_for_HPSC_Web_v10.0-2020-2024-06022025.pdf
2. Brucellosis [Internet]. Factsheet- Health Protection Surveillance Centre. Health Protection Surveillance Centre; 2010 [cited 2024 Sep 18]. Available from: <https://www.hpsc.ie/a-z/zoonotic/brucellosis/factsheet/>
3. Animal Health Surveillance- Current News [Internet]. Animal Health Surveillance. Department of Agriculture, Food and the Marine; [cited 2024 Sep 18]. Available from: <https://animalhealthsurveillance.agriculture.gov.ie/currentnews/surveillanceforbrucellosisireland2018.html>

4. Bosilkovski M. Brucellosis: Epidemiology, Microbiology, Clinical Manifestations, and Diagnosis. UpToDate [Internet]. 2023 Dec 12 [cited 2024 Sep 19]; Available from: <https://www.uptodate.com/contents/brucellosis-epidemiology-microbiology-clinical-manifestations-and-diagnosis>
5. Holt HR, Bedi JS, Kaur P, Mangtani P, Sharma NS, Gill JPS, et al. Epidemiology of brucellosis in cattle and dairy farmers of rural Ludhiana, Punjab. Munoz-Zanzi C, editor. PLOS Neglected Tropical Diseases. 2021 Mar 18;15(3):e0009102.
6. Centers for Disease Control and Prevention. Brucellosis Reference Guide: Exposures, Testing and Prevention [Internet]. 2017 Feb [cited 2024 Sep 19]. Available from: <https://www.cdc.gov/brucellosis/pdf/brucellosis-reference-guide.pdf>
7. Pappas G, Akritidis N, Bosilkovski M, Tsianos E. Brucellosis. New England Journal of Medicine [Internet]. 2005 Jun 2 [cited 2024 Sep 19];352(22):2325–36. Available from: <https://www.nejm.org/doi/full/10.1056/NEJMra050570>
8. Brucella Service Status [Internet]. NHS University Hospitals of Liverpool Group; [cited 2025 Mar 7]. Available from: <https://pathlabs.rlbuht.nhs.uk/BrucellaServiceRev5.pdf>
9. Bosilkovski M. Brucellosis: Treatment and Prevention. UpToDate [Internet]. 2023 Dec 12 [cited 2024 Sep 19]; Available from: <https://www.uptodate.com/contents/brucellosis-treatment-and-prevention>
10. Ariza J, Bosilkovski M, Cascio A, Colmenero JD, Corbel MJ, Falagas ME, et al. Perspectives for the Treatment of Brucellosis in the 21st Century: The Ioannina Recommendations. PLoS Medicine [Internet]. 2007 Dec 27 [cited 2024 Sep 19];4(12):e317. Available from: <http://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.0040317>