Reviewer’s report

Title: Brucellosis caused by the wood rat pathogen Brucella neotomae: two case reports

Version: 0 Date: 02 Aug 2017

Reviewer: Edward Young

Reviewer’s report:

1. Do you believe the case report is authentic?

Yes

2. Do you have any ethical concerns? Please consider if local Institutional Review Board approval or ethical approval was obtained (if appropriate) and if the patient (or their parent or guardian in the case of children under 18) gave written, informed consent to publish this case and any accompanying images. A statement to this effect should appear in the manuscript.

Comments: This is the second report of the two patients (and they differ in some regards)

3. Does the Introduction explain the relevance of the case to the medical literature?

Yes

4. Does the article report the following information? Where information is missing, please specify.

a. The relevant patient information, including:

- De-identified demographic information (age, gender, ethnicity) yes

- Main symptoms of the patient yes

- Medical, family and psychosocial history yes

- Relevant past interventions and their outcomes N/A

b. The relevant physical examination findings yes

c. Important dates and times in this case (if appropriate, organized as a timeline via a figure or table); if specific dates could lead to patient identification, consider including time relevant to initial presentation, i.e. initial presentation at T = 0, follow up at T = 1 month. yes
d. Diagnostic assessments, including:

- Diagnostic methods yes

- Challenges (e.g., financial, language/cultural) N/A

- Reasoning and prognostic characteristics (e.g., staging), where applicable yes

e. Types and mechanism of intervention yes

f. A summary of the clinical course of all follow-up visits yes

Comments:

5. Is the interpretation (discussion and conclusion) well balanced and supported by the case presented? no

Comments: It is not clear why there was a delay of 5 years between isolation and identification of the organism. (see comments below for other issues)

6. Is the anonymity of the patient protected? Please consider any identifying information in images such as facial features or nametags, whether the patient is named etc. If not, please detail below.

Yes

7. Is the Abstract representative of the case presented? yes

Comments:

8. Does the case represent a useful contribution to the medical literature? yes

Comments:

9. Additional comments for the author(s)?

1) The two patients were already reported in your paper in Emerg Infect Dis (June 2017) and there appears to be differences in details. For example, in the cited paper you state that BOTH patients showed clinical signs compatible with neurobrucellosis; however, in this MS Case #2 had the organism isolated from blood and there is no mention of CSF nor clinical findings
suggestive of CNS involvement other than headache and disorientation that are non-specific findings.

2) The crux of the papers, and the only original finding is human infection with B. neotomae; an organism previously considered to be non-pathogenic for humans since no cases had been identified. The identification is based on complex molecular techniques, none of which is detailed in the MS, but is detailed very convincingly in the EID publication. Without that reference one is left wondering how you made this diagnosis. Some comment regarding the reproducibility and predictive values of the techniques used might be useful.

3) In Background section, you mention rare human cases of B. inopinata. You might also mention rare human cases of marine mammal brucella sp. It is interesting that most of these cases have relied on molecular methods to make the diagnosis despite, in many cases no epidemiologic information to explain the source or method of transmission from animal to human.

4) The MS needs editorial attention regarding English usage and spelling. For example, also in Background (line 56) should read "virulence" arsenal not "virulent". Also (line 63-66) is a run-on sentence.

5) Case 1 (line 78) you state that "after hospitalization the patient showed some improvement....did the patient receive any antibiotics during that first admission?

6) Case 1 (line 80-83) Initial blood cultures were negative after 3 days (in view of the difficulty growing brucellae in vitro) were these cultures maintained for longer than 3 days? Also you state that blood culture was repeated and became positive AFTER 3 DAYS; what blood culture system was used?

7) Case 1 (line 89) doxycycline and streptomycin were administered and you state they were administered for 4 weeks and 12 weeks respectively (should this not be the reverse?)

8) Case 1 (line 93 and line 115) please define MLVA16.

9) Case 2 (line 107) you state (in both cases) that Rose Bengal agglutinations were positive. This is a rapid screening test but should be confirmed by serum agglutination. Was this done?

10) Case 2 (line 107) you state that brucellae were isolated from blood but in the previous publication you state it was from CSF. Which is correct and why the confusion?

11) Discussion (line 142) you mention the need for culture of CSF; was brucella serology performed on the CSF? The presence of brucella antibodies in CSF can be confirmative of neurobrucellosis.

12) Discussion (line 145) you imply that the organism retained susceptibility to doxycycline, aminoglycoside and rifampin based on clinical response; were in vitro sensitivity studies performed on the organisms?
13) If desert wood rats are not found in Costa Rica but you propose that other rat species may be a reservoir for brucellae, are there data to support this hypothesis? And if so, how do you propose that the patients contracted the infection?

**Level of interest**
Please indicate how interesting you found the manuscript:

An article of importance in its field

**Quality of written English**
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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