Reviewer's report

Title: Sulfonamide Resistance in Disseminated Infection caused by Nocardia wallacei: a case report

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Reviewer: Joseph I. Harwell

Which of the following best describes what type of case report this is?: Presentations, diagnoses and/or management of new and emerging diseases

Has the case been reported coherently?: Yes

Is the case report authentic?: Yes

Is there any missing information that you think must be added before publication?: Yes

Is this case worth reporting?: Yes

Does the case report have explanatory value?: Yes

Does the case report have diagnostic value?: Yes

Will the case report make a difference to clinical practice?: Yes

Is the anonymity of the patient protected?: Yes

Comments to authors:

This report describes the difficulties in interpreting drug susceptibilities in the management of Nocardia wallacei infection and reaffirms the importance of this pathogen in patients without apparent immunocompromise.

The fact that laboratory determination of drug susceptibility for N. wallacei is not reliable is not new. The authors very carefully describe this in referencing the recent multicenter study by Conville that describes this feature. Interestingly, Conville reported that disk diffusion provided more reliable results than microdilution, although this report describes that resistance was reported based on disk diffusion while microdilution indicated susceptibility.
What this paper has to offer that is new is the clinical confirmation that cotrimoxazole may be used with success when laboratory resistance is reported. However, some details are missing from the report that would make the case more convincing.

This case is represented as someone without underlying immunodeficiency, but she was reported to have had a previous case of pneumonia, so she may indeed be immunocompromised. No HIV testing results are provided and no comment is made on the exclusion of any other potential underlying illness.

The time course of her illness is somewhat confusing. I assume the pneumonia 6 months prior was a different illness but it is possible it was the beginning of the same one. She underwent BAL 1 month prior to admission and was treated with ceftriaxone and amikacin. Was this given for the entire intervening 1 month? The antibiotic susceptibilities given for the BAL isolate only comment on resistance to cotrimoxazole and imipenem. Was it susceptible at that time to ceftriaxone and amikacin? At what point during her hospitalization were her antibiotics changed to cotrimoxazole and linezolid? Her neurologic symptoms appear to have worsened after admission, but what therapy was she receiving during this worsening? If she remained on ceftriaxone 1 gram per day the worsening may have been due to the relatively low dose of this drug for someone with CNS disease.

What is most unique to this report is the clinical improvement on cotrimoxazole despite in vitro resistance. Unfortunately this argument is weakened somewhat by the use of additional concurrent therapies and by a lack of accompanying objective data. Her initial therapy with cotrimoxazole was given along with linezolid, to which susceptibility was clearly documented. Additionally she underwent surgical drainage of her brain infection. The final 6 months of her treatment were completed with moxifloxacin. The argument that cotrimoxazole played an important role in her improvement despite in vitro resistance could be strengthened if the reader was provided with imaging studies (both brain and lung) showing improvement during the period when she was receiving ONLY TMP/SMX (between cessation of linezolid and initiation of moxifloxacin).

**Quality of written English:** Needs some language corrections before being published

**Declaration of competing interests:**

I declare that I have no competing interests