Reviewer's report

Title: Pulmonary fungus ball caused by Penicillium capsulatum in a patient with type 2 diabetes: a case report and literature review

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Reviewer: Brunella Posteraro

Reviewer's report:

This is an interesting paper that describes a case of pulmonary infection caused by Penicillium capsulatum in a patient suffering from type 2 diabetes. To the authors’ knowledge, this is the first report of a fungus ball in the lung of a patient at risk for fungal infection, that has been associated with this rare species of Penicillium. Overall, the case is clear and well described, and while discussing the pathogenic potential of P. capsulatum emphasizes the ever-increasing importance of penicilliosis, especially for immunocompromised patients such as AIDS patients in endemic areas (see also the reference [Hu Y, Zhang J, Li X, Yang Y, Zhang Y, Ma J, Xi L. Penicillium marneffei infection: an emerging disease in mainland China. Mycopathologia. 2013;175:57-67], that should be cited). Recently, Lee et al. [Lee PP, Chan KW, Lee TL, Ho MH, Chen XY, Li CH, Chu KM, Zeng HS, Lau YL. Penicilliosis in children without HIV infection--are they immunodeficient? Clin Infect Dis. 2012 54:e8-e19] proposed to regard the penicilliosis as an indicator for underlying immunodeficiency and/or immune defects in HIV-negative individuals (it would be relevant to the article if also this reference would be mentioned).

The reviewer feels that this article can be suitable for publication in BMC Infectious Diseases, provided that some corrections, as suggested below, are done to improve the quality and educational value of the case report. In addition, some parts and/or sentences need to be reedited and, to this end, the authors are asked to find a native English speaker, or an editing service, to help in rewriting them.

Minor essential revisions

Abstract

Background. Delete the first sentence. The Abstract should start with: “Following the recent transfer of all accepted species of Penicillium subgenus Biverticillium to Talaromyces, including Talaromyces marneffei (formerly Penicillium marneffei), ……..even more rare as causative agents of invasive fungal infection.”

Case presentation, penultimate sentence “…..based on the morphological analysis of microscopic and macroscopic features and on the ribosomal internal transcribed spacer (ITS) sequencing.”

Conclusions. Rephrase to reduce all to a unique sentence.
Text

Background, combine second and third sentences. “…………..penicilliose, in both immunosuppressed hosts, such as AIDS patients, and otherwise healthy individuals [1, and the above reference (Lee et al., 2012)], but together with other Penicillium species belonging to the subgenus Biverticillium, this species was recently transferred to the genus Talaromyces [cite Samson et al., 2011, reference no. 4 of the present manuscript]. Thus, excluding Talaromyces marneffei, systemic infections caused by……….”

Background, penultimate sentence “…………..type 2 diabetes who developed a fungus ball …..”

In addition, revise the entire Background section for English editing.

Case Presentation

“…………the fungal strain was identified as Penicillium capsulatum by means of micro- and macro-morphology examination and of molecular sequence analysis.”

With regard to the growth on CYA and YES, which the authors mention, was the fungus non-sporulating on these media? Please specify why the microscopic analysis of the fungus was performed only with the strain grown on MEA. Is the fungus morphological appearance on CYA or YES similar to that on MEA? Also, the sentence starting with “Growth on MEA plates incubated at ……..” needs to be referenced with the Figure 3.

With regard to the Figure 4 comment, it should be useful to readers to known some taxonomic details about the cited Ramigena section, which are not evident from the Figure 4 illustration. Also, include after the term “Ramigena section” the reference [10], which is cited below.

In addition, as for the Background one, revise the entire Case Presentation section for English editing.

Conclusions

Delete the first sentence. Start the section with the sentence (2nd in the first paragraph) modified as suggested: “As reviewed by Lyratzopoulos et al. ……..caused by species…..had been linked to the Penicillium genus until, more recently, ……………..to be associated with these infections [6-9]. Modify the last sentence of the first paragraph as suggested: “However, when applying the current taxonomic concepts [4], the latter two Penicillium species now belong to the Talaromyces genus, namely T. purpurogenus and T. piceus, respectively.

Second paragraph. In the first sentence, substitute “and” with “but”. Also, the sentence starting with: “These species……..” reiterates an assertion already stated a few lines above. It should be modified as follows: “……, and some of these species are causal agents of invasive infections, as stated above [5,13]”. Continue with the sentence modified as follows: ”Our clinical P. capsulatum isolate …”; in the same sentence deleted the figures within the parentheses.

Third paragraph. Delete or clarify the sentence starting with “In this case, ……..infection.” In addition, the English editing of entire paragraph needs to be
ameliorated. Also, in the last sentence, substitute the term “symptoms” with “clinical manifestations”.

Fourth paragraph. Revise it for English editing.

Minor issues not for publication.

Modify the list of the references according to new insertions, and the reference numbers within the text.

Legends.

Figure 2. “Histological” instead of “Histologic”.

Figure 4. What does mean “NT”? Perhaps, “Non-type”. In the image, “T” means “Type”. All this needs to be specified.

**Level of interest:** An article of importance in its field

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

**Statistical review:** No, the manuscript does not need to be seen by a statistician.