Reviewer's report

Title: The correlation of Ureaplasma urealyticum, Ureaplasma parvum, Mycoplasma hominis and Mycoplasma genitalium infections with male infertility

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Reviewer: Marcia Hobbs

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General
The paper by Gdoura and colleagues shows that DNA from Mycoplasma hominis, M. genitalium, Ureaplasma urealyticum and U. parvum were detected in semen of some infertile men. Few significant differences in the semen and sperm parameters were observed. Men with Mycoplasma hominis DNA detected in semen, but not those with M. genitalium or genital ureaplasma DNA, had lower sperm concentration and fewer normal spermatozoan forms. Nucleic acids from the mycoplasmas and ureaplasmas were detected using a published multiplex PCR in which individual probes that each hybridize to amplified products from only one organism provide the analytical specificity of the test.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

1. The title of the paper is inappropriate. It states that the study assesses the association of infections with these organisms and male infertility, however, all the subjects are described as infertile men, and no control group of fertile men was sampled. Thus, the correlation is with the semen evaluations performed among infertile men. Furthermore, the title implies that there are correlations between the organisms and the measures studied, and this is largely not the case. The title should better reflect the results, and the limitation imposed by the study design should be clearly identified and discussed.

2. In the abstract, line 40, the assertion is made that M. hominis affects sperm indicators of infertility; however, cause and effect cannot be shown in a study such as this in which 2 things are observed at a single point in time. Rather, the presence of M. hominis DNA can be said to be associated with the findings.

3. In the abstract, line 48 and throughout the manuscript, the use of ‘colonization’ and ‘infection’ is confusing. This is addressed to some extent in the Discussion on p. 10, but, it is important to be consistent and clear, at the beginning of the paper, regarding these very different interpretations of the relationships between the organisms and the host.

4. The association of the organisms examined in this study and urogenital infections is inadequately referenced in the Background, line 5.
The first sentence of the Conclusion section suggests that the main purpose of the study was to evaluate the PCR assay, yet most of the text is devoted to issues of the potential pathogenesis of the mycoplasmas and ureaplasmas in infertility and urogenital infection. The last few sentences of the conclusion stray from the results of the present study and may belong in the discussion portion of the paper.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Discretionary Revisions (which the author can choose to ignore)

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article of limited interest

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.

Declaration of competing interests:

I declare that I have no competing interests.