

LETTER

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Relapsing fever in young refugees from East Africa

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See related letter by Cutuli et al. <https://ccforum.biomedcentral.com/articles/10.1186/s13054-017-1666-5>

We read with interest the letter by Cutuli et al. [1] describing a case of severe co-infection by *Leptospira* spp. and *Borrelia recurrentis* in a young female refugee from East Africa. We would like to comment on several issues raised by their paper.

First, the authors state “nits were present on her scalp...”. In our opinion, this sentence may mislead readers as meaning that “head lice” (*Pediculus humanus capitis*) are the vectors of louse-borne relapsing fever (LBRF). Indeed, body lice (*Pediculus humanus humanus*) are to date the only demonstrated vectors of the disease. We are aware of only two reports providing proof that head lice can harbor *B. recurrentis* and consequently might act as a vector of LBRF [2, 3]. However, in the study conducted in Ethiopia, body lice had concomitantly infested the patients and thus the authors could not formally exclude that the latter were not implicated as vectors of the disease [2].

The second point that needs clarification is the relative contribution of the two microorganisms (i.e., *Leptospira* and *Borrelia*) to the described clinical picture: shock, acute respiratory distress syndrome (ARDS), renal failure, jaundice, anemia, thrombocytopenia, altered blood coagulation, and high procalcitonin. With the exclusion of ARDS, which may correctly be attributed to severe

leptospirosis, all other findings can be observed in patients with severe clinical presentation of both diseases. However, in the recent wave of LBRF observed in Europe, intensivists were faced with severe cases of LBRF presenting with shock solely as a consequence of the Jarisch-Herxheimer reaction precipitated by administration of antibiotics [4].

A final point that deserves comment concerns the microbiology diagnosis. Molecular biology by means of real-time polymerase chain reaction in this case provided the correct diagnosis of both infections. Although not clearly stated, the authors report that malaria was excluded among other possible differential diagnoses. Thus, we can infer that blood smears examined were negative not only for *Plasmodium* species but also for *Borrelia*. This fact may hint at the possibility that the patient suffered from a relapse and not a first episode of LBRF although Cutuli et al. state that “she had no relevant past medical history”. Given the linguistic barrier encountered with refugees, a previous episode might have been overlooked. Finally, although LBRF was not mentioned in a review dealing with diagnosis and management of critically ill migrants [5], intensivists should be aware of the increasing frequency of this infectious disease.

Authors' response

Salvatore L. Cutuli, Gennaro De Pascale, Alessandra Ciervo and Massimo Antonelli

We are pleased to answer the issues raised by Antinori and coworkers over the case of a young critically ill female refugee who developed ARDS and multi-organ dysfunction (MOD) associated with *B. recurrentis* and *Leptospira* species co-infection [6].

First, we confirm that the patient had plenty of body lice but the nits were first identified on her scalp. Second, we cannot identify the specific role of the single agent (*Borrelia* or *Leptospira*) in the severe clinical picture, although this was not meaningful from a clinical point of view. Lastly, we cannot exclude that the patient suffered from a relapse rather than a first episode of *Borrelia* infection, and the information we retrieved

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from her relatives (who could speak French), were not useful for clarifying this issue.

We are grateful to Antinori and coworkers for their interesting feedback. We think that our experience witnesses the tricky role of medical staff dealing with a life-threatening clinical picture, re-emerging diseases, and difficult health care organization.

Collaboration among infectious disease specialists, microbiologists, and ICU physicians may be key to solving this issue.

Abbreviations

ARDS: Acute respiratory distress syndrome; LBRF: louse-borne relapsing fever

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Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Authors' contributions

SA and MC conceived the study and wrote the manuscript; SA and VC analyzed the literature. SA, VC, and MC reviewed and approved the final version of the manuscript. As the corresponding author, SA has full access to all the data in the study and has final responsibility for the decision to submit for publication. All authors read and approved the final manuscript.

Ethics approval and consent to participate

Not applicable. All data were reported retrospectively.

Consent for publication

Not applicable. All data were collected and reported anonymously. The patient ran away from the hospital and never came back to our ICU follow-up clinic.

Competing interests

The authors declare that they have no competing interests.

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