

To the reviewers:

Thank you for reviewing our manuscript. We appreciate your time and valuable insight.

We have incorporated the suggested article by Matei et al., 2021. We used information from this article to emphasize the importance of hepatic hydrothorax on survival in patients with cirrhosis.

We have incorporated the suggested article by Jiménez-Gutiérrez et al., 2021. We used information from this article to emphasize outcomes at one year and the impact of having SBE. We specifically noted the increased likelihood of death and transplantation at one year.

We have incorporated the suggested article by Avula et al., 2021. We listed the situations in which indwelling pleural catheters (IPCs) may be used and their lower complication rate compared to chest tubes.

We have included data regarding SBE outcomes from the articles included in our meta-analysis. The mortality rate in patients receiving treatment for SBE was listed as a range according to results found in Makhoul 2012, Chen 2003, Chen 2011. We listed the outcomes after patients with SBE received liver transplantation presented in Xiol 1996. Using results from Chen 2011, we listed the specific variables which have been associated with mortality in patients with SBE and their respective odds ratios. Lastly, factors associated with both SBP and SBE were listed in order of contribution.

We have included discussion regarding management options and success. We discuss the variable effect of antibiotics and the most frequently utilized antibiotics in order of decreasing frequency. Most patients in the included studies received 3rd generation cephalosporins. Response to antibiotics was noted in 72% of patients; however, repeat aspiration and second-line antibiotics were frequently indicated. We emphasized the mortality associated with this condition as nearly 43% of patients died before second line therapy could be provided. A review of all the patients treated in the studies revealed only one patient required a chest tube and this was for empyema.

Regarding discussion length, points mentioned in our discussion have been made keeping in mind all reviewer comments and to highlight not only the strengths but also the limitations of our analysis. We would kindly request the reviewer to review our revised submission and suggest any additional omissions to the discussion text.

We included the latest EASL guidelines for the diagnosis of SBE. The consistency of the diagnostic criteria for SBE by cell count parameters were noted and this was compared to the widely accepted EASL definition.

We have adjusted the conclusions provided in the abstract section to reflect the findings of this study. We have omitted discussion regarding prophylaxis for SBP and ESBL rates as neither of these were directly concluded by the studies included in the analysis. Brief mention of ESBL was left in the discussion.

No case reports were used. The methods portion of the manuscript has been updated to reflect this.

Regarding the sum of males and females not matching the total number of included patients: 8999 patients were included; however, the sum of females and males does not match (110+270) as not all studies reported sex.

Regarding heterogeneity, we didn't mention it in the abstract as a Tau variance was not obtained to guide the degree of heterogeneity.

Regarding the comment "incidence of SBP in all patients with cirrhosis" Yes the reviewer is correct, that we looked at incidence of SBP from patient cohorts of only the included studies, not all cirrhosis patients in general. We report the SBP incidence as our secondary outcome only. We have adjusted the wording in the manuscript to reflect this.

We have changed the abstract and conclusion to reflect the reviewer comments regarding conclusions. We agree, thoracentesis should be performed in decompensated cirrhosis (also in patients without ascites) only after exclusion of other causes of pleural effusion (e.g., cardiac failure) and when there is a high suspicion of infection.

We have moved the figures to PowerPoint and added appropriate Copyright acknowledgment. Regarding the request for original figure documents, the initial figures are auto generated by the statistical software which will prevent editing of the figures and the text in it. If there are additional changes that need to be made to the figures please let us know.

We hope the reviewers find our response and revisions acceptable. Thank you for your time and consideration.

Sincerely,

William Reiche