

## Peer Review File

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### REVIEWER A

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Comment 1:

Were blood cultures collected at any point?

Reply 1:

We did not collect any blood cultures since the patient did not present fever at any time during the follow-up. We specify this on **page 7, line 117-118**.

Changes in the text:

We have added the reason for not having collected blood cultures. **Page 7, line 117 and 118**.

Comment 2:

It was reported that 6/6 cultures grew E.Coli. I would like clarification on how many cultures grew R. Gnavus. This may help determine if R. Gnavus was the driver of SSI or just incidentally found as E.coli is a much more common driver of SSI.

Reply 2:

We agree with the reviewer, it is not clear in how many cultures R. Gnavus was isolated. It is important to note that all 6 samples were positive for R. Gnavus; indeed E. Coli was only found in one of the samples, so we consider it as a possible contaminant.

Changes in the text:

We have modified our text as advised, we have specified the presence of R. Gnavus strains in all 6 samples (**Page 7, line 128 and 135**).

Comment 3:

The authors conclude that a spine SSI with *R. gnavus* should raise suspicion of GI related disease. Are there any cases in the literature of *R. gnavus* infection leading to a previously unknown diagnosis of GI disease?

Reply 3:

**On Page 11, lines 187 to 194**, we describe the cases previously reported in the literature.

Below I highlight those related to gastrointestinal infections:

12. Hansen SGK, Skov MN, Justesen US. Two cases of *Ruminococcus gnavus* bacteremia associated with diverticulitis. *J Clin Microbiol* [Internet]. 2013 Apr;51(4):1334–6.

13. Kim YJ, Kang HY, Han Y, Lee MS, Lee HJ. A bloodstream infection by *Ruminococcus gnavus* in a patient with a gall bladder perforation. *Anaerobe* [Internet]. 2017 Oct;47:129–31.

15. Lefever S, Van Den Bossche D, Van Moerkercke W, D’Hondt M, Alegret Pampols M del C, Struyve M, et al. *Ruminococcus gnavus* bacteremia, an uncommon presentation of a common member of the human gut microbiota: case report and literature review. *Acta Clin Belg* [Internet]. 2019 Nov 2;74(6):435–8.

18. Roux A-L, El Sayed F, Duffiet P, Bauer T, Heym B, Gaillard J-L, et al. *Ruminococcus gnavus* total hip arthroplasty infection in a 62-year-old man with ulcerative colitis. *J Clin Microbiol* [Internet]. 2015 Apr;53(4):1428–30.

Changes in the text:

We have included a table summarizing all cases previously published, including the authors’ suggested causes related to the development of *R. gnavus* infection.

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## REVIEWER B

Comment 1:

The role of antibiotic coated screws and rods (similar to Codman Bactiseal EVDs) and whether the instrumentation implanted at the authors' institution was antibiotic coated or impregnated. Furthermore, did the authors employ any antimicrobial strategies such as antibiotic wash or vancomycin powder.

Reply 1:

The instrumentation used, Xia 3 System Serrato Stryker, is not antibiotic coated or impregnated. We do not routinely use antibiotic coated instrumentations.

In all primary spinal instrumentations we perform frequent saline and povidone-iodine irrigation, but we do not use Vancomycin powder routinely.

However we do use Vancomycin powder when treating surgical site infections after spinal instrumentation.

In our patient we used one g of Vancomycin powder applied to the subcutaneous tissue after thorough debridement and irrigation was done.

Changes in the text:

We have added information about how we performed surgical debridement and irrigation, as well as how we used Vancomycin powder (**Page 7, lines 122 to 124**).

Comment 2:

Please clarify if the patient was known to have any pre-existing gastrointestinal conditions which may heighten preoperative suspicion

Reply 2:

**On page 5, line 78 and 79** we specified the patient's medical history, the only previous gastrointestinal pathology was atrophic gastritis, without treatment.

Changes in the text:

Does not apply.

Comment 3:

The authors mention previous examples of *Ruminococcus gnavus* infection. A formal literature review and tabulated summary of all previous cases of this rare infection, alongside the operation and the treatment would be very useful to readers.

Reply 3:

We have carried out a review of the literature and provide the eight cases described in the literature previously (**Page 11, lines 187 to 194**).

Changes in the text:

We have added a summary table of the eight cases described in the literature.

Comment 4:

A gram stain demonstrating this rare organism which was cultured at the time in this case would be of considerable value.

Reply 4:

Unfortunately, we do not have the Gram stain.

Changes in the text:

Does not apply.

Comment 5:

Do the authors routinely use post-operative antibiotic prophylaxis at their institution?

Reply 5:

Yes, we routinely administer Cefazolin 1g every 8 hours until 3 postoperative doses are

completed. We also administer a preoperative dose and if the surgery lasts more than 3 hours and the patient presents abundant bleeding, we repeat this dose during the operation.

Changes in the text:

We have added the information related to antibiotic prophylaxis, as suggested by the reviewer (**Page 6, lines 98 to 101**)

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### REVIEWER C

Comment 1:

Page 3 lines 41-42. Please cite what technology you are describing.

Reply 1:

Anaerobic bacteria infections are frequently underdiagnosed because of the limitations in our current conventional culture-based testing. In our institution when anaerobic bacteria are found in cultures we routinely perform MALDI TOF MS, when this technique is not conclusive we use 16S rRNA gene sequencing.

Changes in the text:

We have added the names of the new technologies that are helping to improve recognition of anaerobic bacteria (**Page 3, lines 53 to 55**).

Comment 2:

Page 3 lines 44-47. Please cite papers that support the use of clindamycin, etc.?

Reply 2:

Does not apply.

Changes in the text:

We have added bibliography related to antibiotic treatment in BJI due to anaerobic

bacteria.

4. Walter G, Vernier M, Pinelli PO, Million M, Coulange M, Seng P, et al. Bone and joint infections due to anaerobic bacteria: an analysis of 61 cases and review of the literature.

Eur J Clin Microbiol Infect Dis [Internet]. 2014 Aug;33(8):1355–64.

5. CLSI. Methods for Antimicrobial Susceptibility Testing of Anaerobic Bacteria. 9th ed.

CLSI standard M11. Wayne, PA: Clinical and Laboratory Standards Institute; 2018.

Comment 3:

Pages 4-5. Please attach a picture of what kind of surgery was performed.

Reply 3:

Does not apply.

Changes in the text:

We have added preoperative and postoperative anterior standing X- rays.

Comment 4:

Pages 5 lines 87-89. Did the authors not submit a culture of the exudate from the wound?

Reply 4:

In POD 20 the patient underwent surgical irrigation and debridement. Exudate, soft tissue and bone samples were sent to microbiology for culture.

Changes in the text:

We added the information about sampling (**Page 7, line 121**).

Comment 5:

The authors speculate that the immunocompromised state is a risk for infection with anaerobes, but what was the preoperative nutritional status?

Reply 5:

We do not routinely perform an exhaustive analysis of the nutritional status of our patients preoperatively. However, in the preoperative analysis the patient's proteins were in the normal range (6,9 g/dL).

Changes in the text:

We have added some information regarding the patient's nutritional status (**Page 5, lines 80 and 81**).

Comment 6:

There are reports that PNI and Modified Glasgow Prognostic Score were risk factors for infection,<sup>1,2</sup> but what about these? Please cite these papers and add your discussion.

Reply 6:

We agree with the reviewer in the importance of these nutritional scores as risk factors for surgical site infection. We believe that they are especially important since they can be evaluated and solved before surgery.

Unfortunately, we do not have the preoperative data necessary to calculate these parameters.

Changes in the text:

We have added some information regarding these parameters in the introduction as well as the bibliography proposed by the reviewer (**Page 3, lines 39-43**).

We have not added information to the case report or the discussion since the patient we present did not have malnutrition.

Comment 7:

It has been reported that neutrophil counts, lymphocytes, and NLR trends were useful in predicting infection after spinal surgery.<sup>3-5</sup> Please cite these papers and add data and discussion.

Reply 7:

Studies propose the use of these parameters as a means of early diagnosis of infection. In our patient we did not suspect SSI until POD 17, so we did not monitor these parameters in the first 7 days as previous reports recommend for early diagnosis. We believe they would have been useful to have diagnosed the SSI earlier.

Changes in the text:

We have added information about the importance of SSI early diagnosis (**Page 3, lines 43 to 49**).

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