Author's response to reviews

Title: The delayed primary closure of contaminated abdominal wall defects with a non-crosslinked porcine acellular dermal matrix compared with conventional staged repair

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Author's response to reviews: see over
Dear Dr. Kidd,

Please find enclosed our manuscript “Delayed primary closure of contaminated abdominal wall defects with non-crosslinked porcine acellular dermal matrix compared with conventional staged repair: a retrospective study,” which has been revised based on the comments of the peer reviewers. Please see the table below for a detailed summary of our responses.

<table>
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<th>Reviewer Comment</th>
<th>Response</th>
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<td><strong>Reviewer 1</strong></td>
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<td>There was no approval of the Ethical committee</td>
<td>Please see the first sentence in Methods Section: Under the approved Ludwig Maximilians University (LMU) of Munich ethical committee protocol, records of patients with contaminated abdominal wall defects treated at the Department of Surgery at Agatharied Academic Teaching Hospital of the LMU were reviewed retrospectively.</td>
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<td><strong>Reviewer 2</strong></td>
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<td>Biologic prosthesis is usually used as a single-stage repair that treats the infection and repairs the abdominal wall defect during the same procedure. The authors proposed to perform a delayed primary closure of contaminated abdominal wall defects using biologic graft. I have the following remarks to make: To be consistent with current scientific evidence, the use of bioprostheses in grade III remains controversial since the use of synthetic implants in such cases has shown no increased risk of infection or gastrointestinal fistula (Souza JM, Surgery. 2013 Mar;153(3):393-9). I think you may want to change your introduction to reflect this fact.</td>
<td>The reference by Souza et al has been added to the Introduction as suggested: “A recent, a retrospective, single-institution study of the use of synthetic mesh in contaminated fields showed no increased risk of infection or gastrointestinal fistula [9]. However, this approach remains controversial, and prospective randomized studies are needed to provide further evidence.” Please note that the Discussion section cites two recent references on the use of synthetic mesh in contaminated fields (references 15 and 16): “Recently, additional experimental [15] and clinical evidence [16] has appeared supporting the use of large-pore synthetic mesh in contaminated surgical fields.”</td>
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<td>Grade III and IV cases were combined (as in RICH study) and the results were not analyzed according to hernia grade sub-groups. This is the main problem with this study.</td>
<td>It is true that patients presenting with infected surgical fields must be classified as having Grade 4 hernias or abdominal defects. However, Grade 4 hernias are never operated on in my department. We always control the intra-abdominal focus and then treat the abdominal wall with debridement NPWT until granulation tissue covers its surface before we close the defect. Therefore, at the time that we close the abdominal wall defect, there is a condition following “a previous wound infection” (ie, Grade 3 hernia). This point might illustrate a fundamental</td>
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difference between the surgical practice of American and German surgeons. I described in detail how we dealt with the patients the **Method** section of the paper under the heading “**Surgical control of intra-abdominal and abdominal wall infection.**” It illustrates that we did not mix Grade 3 and 4 cases (note text in bold and italics): “Intra-abdominal infections resulting from intestinal perforations or other complications in both groups were treated by suturing, resection, or by creating diversion colostomies or ileostomies. The creation of high-risk anastomoses was avoided in most cases. In addition, an abdominal washout was included as a standard procedure. Re-laparotomies and additional washouts were carried out when indicated. In severe cases, intra-abdominal NPWT was used to temporarily close the abdomen. Sharp debridement of devitalized or infected tissue to reduce the wound bioburden was carried out at the level of the abdominal wall. Pulse lavage was applied in six cases (3 in each group) to clean contaminated tissue. **The majority of cases (n=20) received NPWT to the wound only until healthy granulation tissue covered the wound surface prior to closure.**”

I think you are mistaken when you say the presence of enterocutaneous fistula, mesh infection or intestinal perforation is a contaminated field. This is an infected field (grade 4) and is much different. Which recurrences were in true Grade 3 and which were in Grade 4?

As stated above, hernias were only repaired when granulation tissue covered the wounds (ie, Grade 3 hernias). The recurrence was in a Grade 3 hernia patient who presented with a stoma. The recurrence was due to a technical mistake (bridging). Text has been added to both the Methods and Discussion section to clarify that all Grade 4 hernias were rendered Grade 3 hernias before operation: Methods: “**In purulent infection, as described for Grade 4 hernias, no reconstruction was carried out before the wound was converted to a Grade 3 hernia using debridement, washout, and NPWT**”; Discussion: “In contrast to this in the present series, all wounds in Group 1 were cleaned and conditioned with NPWT to the point where granulation tissue covered the surface, before PADM was used. **This converted Grade 4 hernias to Grade 3 hernias (ie, those that “may be potentially contaminated due to previous wound infection”) [12].**”

I don’t understand what is the interest of the sentence about the 88-year-old patient. Please, explain or delete.

The text has been revised as follows: “**One 88-year-old patient was admitted for incarcerated and perforated bowel in a parastomal hernia and died from persisting systemic sepsis.**”

“Selection process and outcome” section: Too long and duplication should be avoided.

Five sentences have been removed from this section.
Thank you for reviewing the study. We look forward to hearing from you regarding the final decision of the editorial board. Please don’t hesitate to contact me should you need additional information.

With the best regards,
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