Reviewer’s report

Title: Establishment and identification of rabbit model of peritoneal carcinomatosis from gastric cancer

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Reviewer: Jens Hartmann

Reviewer’s report:

In the present study authors aim to establish a stable transplanted peritoneal carcinomatosis model of gastric cancer in rabbit and analyze the feature of metastasis. Though always an interesting topic, the study seems to have major methodological problems and there are still some points to be further elucidated.

Major Compulsory Revision

General:

Language should be checked meticulously.

It is overall difficult for the reader to follow the protocol of the study. The authors avoid to mention the several groups with established names such as Group A, B or C, so that the study protocol can be easily misunderstood.

Background section:

It is mentioned: Here we report on a rabbit PC model from gastric cancer, with clinico-pathological progression features very much like the patients with advanced gastric cancer. A VX2-tumour was used to induce PC.

Methods:

It is not quite clear how many animal groups were planned and enrolled in the study. In the abstract the authors mention the following groups: 'laparotomic orthotopic implantation, laparotomic puncture and percutaneous puncture (12 animals per group), 6 were subjected to cancer tissue inoculation and 6 to cancer cell suspension inoculation in each group.'

Does this mean they were 6 groups in total? In the section methods authors give another definition of the animal groups:'Group A of submucosal injection: When the stomach was exposed, 0.1 mL tumor cells (5×1010 vial cells/L) in a 1 mL syringe was injected into the submucosal layer of the stomach, through the serosal layer and the muscle layer, and the injection site was pressed for 1 min to keep the injected tumor cells in place, and the wound was closed. Group B of tumor tissue implantation: When the stomach was exposed, a small piece of fresh tumor tissue about 1.0 mm3 was implanted into the greater omentum immediately beneath the gastric antrum, and the wound was closed. Group C of percutaneous injection of tumor cells: After skin preparation, 0.1 mL tumor cells (5×1010 vial cells/L) in a 1 mL syringe were injected into the greater omentum.'

According to these version 24 animals had tumor cell suspension inoculation (Groups A and C) and only 12 cancer tissue inoculation (Group B). The authors
should clearly define the groups and correct this discrepancy.


The endpoint of the study is not clearly to identify.

Statistical analysis:
The statistical analysis is inappropriate for the small sample size. Non-parametric tests and data as mean+range/CI are recommended.

The calculated tumour index remains unclear. Which nude mice were used? What is the reason for this index - it is not mentioned in the further text.

Results:
It is not mentioned in which groups deaths occured and for what reason.
The decrease of body weight and mortality rate is weakened by the absence of a control group.

Figure 1: The y-scale should start at 0 for preventing of overestimating differences.

Additional Table and Figure 1: Are p-values corrected for multiple testing?

Discussion:
Introduction and discussion should be shortened and focused on the topic of that trial. The paragraphs referring on clinical conditions and results are interesting but should only be information for the background and the development of this study. Comparisons to alternative animal models or used tumour induction algorithms would be more desirable.

Conclusion:
The authors state, that their animal model is more suitable for further investigation and especially surgical intervention than existing small animal models. This conclusion is convincing but can not deduce from this study.

Despite the very interesting topic we can not recommend the manuscript under these conditions for publication because of failing the standards of BMC Cancer and GCP. Particularly major methodological problems or alternatively an inadequate description of the trial are evident.

Level of interest: An article whose findings are important to those with closely
related research interests

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.