

## Opponent review of doctoral dissertation

**Work title:** Use of nanomaterials in fortification of anastomoses on the gastrointestinal tract

**Author:** MUDr. Jáchym Rosendorf

**Supervisor:** Prof. MUDr. Václav Liška, PhD

**Opponent:** Steven D. Wexner, M.D., PhD(Hon)

Thank you for allowing me to be an opponent to the dissertation thesis of your post graduate student, Jáchym Rosendorf. I read with great interest his thesis on this very timely important topic. I congratulate him upon his very well designed studies as well as his expert analysis, authoritative referencing, and incisive insightful discussion.

I have several comments which I can offer. Firstly, in section 1.5 I believe that the thesis would have been strengthened by the inclusion of the compression anastomosis as well as by a discussion of predicate data regarding anastomotic glue. Although literature relating to human application of compression anastomosis is far greater than is the body of literature around tissue glue the latter area is much more germane to this thesis. Moreover, since the majority if not all of the work in tissue glues has been undertaken in animal models and this thesis regards animal models I believe that a correlation between the two methods would have been useful.

Also in section 1.5 I am unsure as to why a discussion of the treatment of leaks was needed. However, if Jáchym Rosendorf and his mentors opine that such inclusion is important, then I would also add some of the other issues related to leaks such as the financial cost, the markedly decreased postoperative function after pelvic anastomotic leaks, as well as the body of data suggesting compromise of both local recurrence and overall survival following anastomotic leaks in patients with cancer. In other words, the financial, functional, and oncologic costs of leaks should also be included.

Within section 2.2 I think that the study would have been strengthened by the inclusion of bursting strength as well as radiographic/imaging assessment perhaps using water soluble contrast dye. Furthermore, the histologic analysis would have been strengthened by evaluation of the specimens by blinded pathologists using image analyzers to allow more objective quantification of what are otherwise rather subjective findings.

I am also somewhat perplexed by the extent of discussion throughout the study of adhesions. Although certain adhesions are related to leaks in that a natural defense mechanism to protect the individual against the ravages of leaks is to perform perianastomotic adhesions, I do not think that this discussion is particularly germane in the context of this current thesis.

Once again, thank you for having invited me to review this impressive thesis and to serve as an opponent to Dr. Jáchym Rosendorf. I look forward to our further discussion on May 19. Please send the information as soon as possible as to the exact time so that I can try to adjust my calendar to help ensure my availability.

I recommend it to be defended according to the law of the Czech Republic, Act No. 111/1998 Coll., section 47.

**Date:** March 18, 2021

**Place:** SA

**Signature:**

