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# Evaluation of the impact of biological glues on the vascular wall in an aortic dissection model

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**Introduction:** the use of biological glues and their application between the two dissection layers and into the anastomosis region is a common integral part of surgical management of thoracic aortic dissection.

**Aim:** The aim of the experimental study was to assess and evaluate histopathological changes of vascular wall following deposition of the following three types of glue – GRF, Tissucol, Bioglue, based on qualitative and quantitative parameters. The secondary aim of the study was to assess dynamics of these changes depending on the glue effect duration and to formulate expected behaviour of the vascular wall during the time beyond the experimental period.

**Methodology:** The dissection model was performed with pigs of the same gender and age, assigned to four groups. Different glues were used to close artificial infrarenal aortic dissection in Group 1-3, while direct suturing and no glue was used to close false lumini in Group 4. Samples of the dissected aorta were then collected at Month 1, 6 and 12 and then histologically examined.

**Results:** Upon assessment of the whole group of qualitative and quantitative parameters, the most significant changes in the smooth muscle histological picture were observed with the use GRF glue. The smooth muscle changes following the Bioglue application and, in particular, Tissucol glue application, are similar to changes observed in Group 4, where no glue was used.

**Conclusion:** Based on the results, the authors present a hypothesis that, in a long-time horizont, vascular wall destructions, eventually redisections, are likely to occur more frequently in patients, in whom GRF glue is used.