Geburtshilfe und Frauenheilkunde 2016; 76 - BoB3 DOI: 10.1055/s-0036-1583771
Comparison of conventional collagen vs. Modified Collagen for closing a iatrogenic rupture of the membranes in rabbit model

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Congress Abstract

Objective: In the past, tried unsuccessfully with conventional collagen (Lyostypt was ®) which occur an iatrogenic bladder Leap fetoscopic interventions to prevent. An improvement of collagen plugs seems therefore desirable. The aim of this translational study is the comparison between Lyostypt ® and a modified collagen with artificially compacted collagen structure for closing a iatrogenic rupture of the membranes in the rabbit model.

Material and Methods: On day 23 of pregnancy (pregnancy entire duration: 31 d) was in pregnant New Zealand white rabbits performed under general anesthesia using isoflurane laparotomy. Subsequently with a 14 gauge needle, the gestational sac punctured by three fetuses per rabbit and each performed two minutes lasting Fetoscopy. The resulting defect of the gestational sac was closed with either Lyostypt or with the compressed collagen. On day 30 of pregnancy were terminated and an analysis of fetal mortality, amniotic fluid volume (DVP) and a macroscopic and microscopic analysis of the defect of the gestational sac performed. Single electron microscopy (SEM) was used to Vergeich of collagen structures.

Results: In 15 rabbit fetuses resulting from the defect Fetoscopy the gestational sac was treated with compressed collagen and 18 fetuses with Lyostypt ® . Eleven out of 15 fetuses (73%) survived in the group with compacted collagen, and 13/18 in the Lyostypt ® group (72%). Macroscopic leakage of amniotic fluid from the amniotic sac occurred more frequently in the group with compressed collagen on (13/15 vs. 8/18), but were body weight (33.50 g vs. 32.65 g), lung weight (0.78 g vs . 0.71 g) and Lung-to-body-weight ratio (0.022 vs. 0.021) is not different. The amount of amniotic fluid (DVP) at day 30 was 5.29 mm in the Lyostypt group and 3.73 mm in the group with compressed collagen. However, the microscopic analysis showed Enhanced proliferation index (Ki67 immunohistochemistry with) and reduced inflammation when using the modified collagen compared to Lyostypt ® .

Discussion: Despite the microscopic improvement in the modified collagen compared to Lyostypt the leakage of amniotic fluid could be prevented in fewer cases. A further improvement of the plug by molecular biology possibly active components seem necessary.