**Abstract**

**Purpose:** Adhesion formation after endometriosis surgery is a severe problem affecting up to 90% of patients. Possible complications include chronic pain, ileus, and secondary infertility. Therefore, effective adhesion prophylaxis is desirable, for which the adhesion barrier 4DryField® PH is evaluated in the present clinical study. It is a starch-based powder that forms a gel after irrigation with saline solution and thus separates surgical sites as physical barrier for adhesion prevention.

**Methods:** Fifty patients with extensive and deep infiltrating endometriosis were included in this prospective, randomized, controlled clinical trial with two-staged laparoscopic approach. The patients were randomized into two groups, one receiving 4DryField® PH and the other irrigation with saline solution for adhesion prevention. Adhesion formation was directly scored during second-look interventions considering incidence, extent, and severity. Adhesion prevention treatment in the second surgery was performed corresponding to the first intervention to evaluate the long-term outcome in the later course.

**Results:** Both groups were comparable with respect to relevant patient parameters. Severity and extent of adhesions were significantly reduced by 85% in the 4DryField® PH group compared to the control group (mean total adhesion score 2.2 vs. 14.2; p = 0.004). Incidence of adhesion formation based on the number of affected sites was significantly reduced by 53% in the intervention vs. control group (mean 1.1 vs. 2.3 sites; p = 0.004). Follow-up of secondary endpoints is not yet completed; results will become available at a later stage.

**Conclusion:** Adhesion formation could be reduced significantly by 85% by application of the adhesion barrier 4DryField® PH.