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The Effects of Hyaluronic Acid-Carboxymethylcellulose Membrane(GUARDIX-MB®) Barriers on Prevention of Post-Operative Peritoneal Adhesion in Dog

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Introduction: The aim of this study was to determine the effectiveness of hyaluronic acid-carboxymethylcellulose membrane(GUARDIX-MB®) barriers on prevention of post-operative peritoneal adhesion.

Materials and methods: Fourteen mongrel dogs were divided into two experimental groups: 0.1% hyaluronic acid group(0.1HA) and hyaluronic acid-carboxymethylcellulose membrane group (HA-CMC membrane). In order to induce adhesions, the anti-mesenteric serosa of the ileum was exteriorized and then abraded in a standard manner by scraping with a scalpel blade to create homogenous petechial hemorrhagic surface over a 1×1 cm area. Solution of 0.1HA were simply coated over the abraded tissues, 1.5×1.5 cm HA-CMC membrane was placed under the abraded tissues, allowed to spread across the intra-abdominal organs before closure of the abdomen.

Results: On day 1 before and day 1, 4, 7, 14, and 21 after operation, venous blood specimens were collected for measurement of fibrinogen and total WBC. The adhesions were blindly assessed 3 weeks later by using a computerized tensiometer. The fibrinogen and total WBC values of two groups showed no statistical significances. The mean tensile strength(gram force, gf) of formed adhesions day 21 after surgery was 88.10±55.70 in the 0.1% HA group and 24.85±22.69 in the HA-CMC group. The tensile strength values of adhesion separation HA-CMC membrane group was significantly lower than the 0.1HA group($p<0.05$).

Clinical relevance: HA-CMC membrane reduce peritoneal adhesion compared with 0.1% HA, and HA-CMC membrane may be applicable to preventing post-operative intraperitoneal adhesion in dogs.

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