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The Effects of Poloxamer/Sodium Alginate Mixture (GUARDIX-SG®) Barriers on Prevention of Post-Operative Peritoneal Adhesion in Dogs

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This study was performed to determine the effectiveness of poloxamer/sodium alginate mixture(PX/SA) (GUARDIX-SG®) barriers on prevention of post-operative peritoneal adhesion in dogs.

Fifteen mongrel dogs were divided into three experimental groups: non treated group, 2% SCMC treated group and PX/SA treated group. 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 homogeneous petechial hemorrhagic surface over a 1×1 ㎝ area. Solution of SCMC were allowed to spread across the intraperitoneal organs through a catheter using a syringe. PX/SA were simply coated over the abraded tissues.

On day before and day 1, 4, 7, and 14 after operation, venous blood specimens were collected for measurement of RBC, PCV, ALT, AST, total protein concentration, Creatinine, BUN, fibrinogen and total WBC. The adhesions were blindly assessed 3 weeks later by using a computerized tensiometer. The RBC, PCV, ALT, AST, total protein concentration, Creatinine, BUN, fibrinogen and total WBC values of three groups showed no statistical significances. The mean tensile strength(gram force, gf) of formed adhesions on day 21 after surgery was 173.05±113.48 in the non treated group, 111.42±38.25 in the SCMC group, and 69.00±45.07 in the PX/SA group. The tensile strength values for adhesion seperation in PX/SA group was lower than those in SCMC group($p < 0.05$) and significantly lower than those in the non treated group($p < 0.05$).

Our data suggested that PX/SA should be effective on reducing peritoneal adhesion formation in dogs compared with SCMC. PX/SA may be applicable to preventing post-operative intraperitoneal adhesion in dogs.

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