

Evaluation of the Motility of Silicone Orbital Implant after Evisceration with Sclerotomies in Dogs

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Introduction: Surgery for artificial eye with motility is currently needed in small animal practice, even in dogs with corneal problems. The purpose of this study was to evaluate the motility of silicone orbital implant in enucleation, evisceration with sclerotomies and primary placement of motility coupling post (MCP) in evisceration with sclerotomies, and to suggest orbital implant surgery in dogs.

Materials and methods: The motility of the implant and prosthesis in enucleation (Group I, n=6), evisceration with sclerotomies (Group II, n=6) and primary placement of MCP in evisceration with sclerotomies (Group III, n=6) using silicone orbital implant were calculated and compared in dogs. The motility of the implants was measured weekly for six weeks and the motility of the prosthesis was measured at week 6. Clinical evaluations were performed three times a week until the histologic evaluation. Three orbital contents were harvested at 8 weeks and three were harvested at 12 weeks after surgery in each group. Each specimen was evaluated histologically for overall inflammatory responses and tissue reaction at the interface between the sclera and silicone orbital implant. The tissue response around MCP was also evaluated in Group III.

Results: The horizontal and vertical implant motility in Group II and Group III was significantly greater than in Group I ($P < 0.01$); however, there was no significance in the horizontal and vertical implant motility between Group II and Group III. The horizontal and vertical prosthetic motility in group III was significantly greater than in Group I and Group II ($P < 0.05$), and the horizontal and vertical prosthetic motility in Group II was significantly greater than in Group I ($P < 0.05$). The chemosis and conjunctival hyperemia was regressed within two weeks in Group I and Group II, and the reduction of these conditions in Group III occurred within three weeks. None of the 18 eyes developed postoperative complications such as orbital infection, protrusion or exposure of the implant, and implant exposure around MCP.

Clinical relevance: The motility of the prosthesis in placement of MCP in evisceration was significantly greater than in other groups. The primary placement of MCP in evisceration using silicone orbital implant would be an technique for orbital implant surgery in dogs with irreparable eye disease.

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