Summary of the DVM thesis No: 27549 , Faculty of Veterinary Medicine, Urmia University. The academic year: 2024-2025

Author: Sina Yousefi

Title of thesis: A comparative study of the effect of using different sources of platelet-rich plasma on the healing process of resected wounds in dogs

Summary: Wound healing is a complex and multi-stage process in which platelet-derived growth factors play a pivotal role in accelerating tissue repair. This study was designed to investigate and compare the effects of different sources of platelet-rich plasma (PRP), including autologous, homologous, and heterologous preparations, on the healing of full-thickness excisional skin wounds in dogs. In this experimental study, four circular wounds with a diameter of 30 mm were created on the thoracic-dorsal region of five healthy dogs. Each wound was treated respectively with autologous PRP, homologous PRP, heterologous PRP, or normal saline (negative control). Subcutaneous injections were administered weekly in four sessions. Clinical assessments included digital planimetry at different time points, while histopathological evaluations were performed on days 10, 17, and 28 after wound creation. The results demonstrated that all three types of PRP significantly improved the wound healing process compared with the control group, as evidenced by reduced wound area, enhanced epithelialization, angiogenesis, fibroblast proliferation, and collagen organization. Although no statistically significant differences were observed among the PRP-treated groups, the homologous PRP group showed relatively better performance in certain clinical and histological parameters. These findings are consistent with previous reports and confirm the beneficial effects of PRP in wound healing. The study suggests that under specific clinical conditions, such as limitations in blood collection from diseased animals, homologous or heterologous PRP can serve as acceptable alternatives.

Keywords: Wound healing, Platelet-rich plasma, Dog, Autologous, Homologous, Heterologous, Epithelialization, Histopathology