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بسم اللّه الرحمن الرحيم

مركز الشبكات وتكنولوجيا المعلومات

قسم التوثيق الإلكتروني

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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم باللّه العظيم أن المادة التي تم توثيقها وتسجيلها

علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

Cairo University
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Brief on Canine Carpal Arthrodesis (experimental study)

Thesis Presented by

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(BVSc, Cairo University, 2018)

For the Degree of Master's in Veterinary Sciences

(Surgery, Anesthesiology, and Radiology)

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ABSTRACT

A novel application of mesenchymal stem cell-derived microvesicles (MSC-derived MVs) with arthrodesis in dogs is described, radiographic osseous union, lameness score, histological findings, and complications following surgery are assessed. This study compared the procedure type in 20 cases of pan carpal arthrodesis in a canine model. 20 apparently healthy mongrel dogs of both sexes, 1 -2 years old were randomly allocated in four main groups; 5 animals for each; Group I: cancellous bone graft group BG (treated with pan carpal arthrodesis and received autologous bone graft) Group II: mesenchymal stem cell-derived microvesicles group MVs (treated with pan carpal arthrodesis and received MSCs derived MVs only) and Group III: mixed group (treated with pan carpal arthrodesis and received cancellous bone graft seeded with MSCs derived MVs). Another group is the control negative group (received nothing). that's only treated with pan carpal arthrodesis without receiving any healing enhancement material. Radiographs were reviewed at 4, 8, and 12 weeks after surgery to compare the score of the radiographic osseous union. and the obtained results showed that group 2 (MSCs derived MVs) had a higher radiographic score than other groups followed by the mixed group while the (Bone Graft) and (control) groups show the lowest scoring. The BG group had significantly more major complications that required re-operation for implant removal or treatment of a deep infection compared to the other groups. Overall, mesenchymal stem cell-derived microvesicles may be used to augment arthrodesis in dogs without significant morbidity.

Keywords: arthrodesis, pan-carpal, microvesicles, stem-cells.

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Dedication

To my family (Dad, Mum, sisters, and brother), to say thanks seems so small but, thanks for everything... their continuous support, encouragement, and helping me.

Contents

List of Abbreviations

Abbreviation	Complete words
MSCs	Mesenchymal stem cells
MVs	Microvesicles
BG	Bone graft
AC	Antebrachio Carpal
ACB	Accessory Carpal Bone
PCA	Pan Carpal Arthrodesis
PtCA	Partial Carpal Arthrodesis
DCP	Dynamic compression plate
CLP	CastLess plate
HDCP	Hybrid dynamic compression plate
LCP	Locking compression plate
CESF	Circular external skeletal fixation
RC	Radiocarpal
IC	Intercarpal
CM	Carpometacarpal
CPM	Calcium phosphate matrix
Rh BMP	Recombinant human bone morphogenic protein
BMP	Bone morphogenic protein
DBM	Demineralizes bone matrix

	limb function in stress positions.	
25	(A) Photograph of a dog from GIV at 6 weeks P.O. showing Toe-touching lameness. (B) Photograph of a dog from GIV at 10 weeks P.O. showing Weight-bearing lameness, typically with distinct "head bob".	**42**
26	(C) Photograph of a dog from GIV at 12 weeks P.O. showing full limb function in stress positions. (D) Photograph of a dog from GIV at 12 weeks P.O. showing full limb function in stress positions.	**43**
27	(A) Latero-medial (LM) post-operative (P.O) radiographic image of a dog of GI at 4 weeks showing adequate metal-implant stability i.e., the bone was fixed with 6 cortical bone screws, 3 placed on distal radius bone, 1 in radiocarpal bone, and 3 in the third metacarpal bone the joint space still clear with no visible mineralized (bone) tissue in the joint space. (B) Latero-medial (LM) post-operative (P.O) Radiographic image of a dog of GI at 8 weeks showing Cancellous bone bridging the joint space, but joint space still clearly visible.	**45**
28	(C) Latero-medial (LM) post-operative (P.O) radiographic image of a dog of GI at 12 weeks showing Bony bridging of joint space in both intercarpal and carpometacarpal joint. But the subchondral bone plate is still clearly visible. RC show filled with cancellous tissue but the joint space is still clear. (D) Latero-medial (LM) post-operative (P.O) radiographic image of a dog of GI after 16 showing Bony bridging of joint space but the subchondral bone plate appears to be disappeared.	**46**
29	(A) Latero-medial (LM) post-operative (P.O) radiographic image of a dog of GII showing adequate metal-implant stability i.e., the bone was fixed with 6 cortical bone screws, 3 placed on distal radius bone, 1 in radiocarpal bone, and 3 in third metacarpal bone. The forelimb was placed in a bandage. (B) Latero-medial (LM) post-operative (P.O) radiographs of a dog of GII at 4 weeks showing Cancellous bone bridging the joint space, but joint space still clearly visible.	**46**
30	(C) Latero-medial (LM) post-operative (P.O) radiographic image of a dog of GII at 8 weeks showing Bony bridging of joint space but the subchondral bone plate still clearly visible. In both intercarpal and carpometacarpal joint but non involve the radiocarpal joint. (D) Latero-medial (LM) post-operative (P.O) radiographic image of a dog of GII at 12 weeks showing Bony bridging of all joints	**47**

List of Tables