Faculty of Veterinary Medicine
Department of surgery, Anaesthology
and Radiology.

Cranial Cruciate Ligament Rupture Repair in Dogs (An Experimental Study)

Thesis
Presented by

Ahmed EL-Sayed Ashour EL-Sayed
B.V.Sc., 2009
M.V. Sc., Faculty of Veterinary Medicine, 2013,
Cairo University

For
Ph. D. Degree
(Surgery, Anaesthesiology & Radiology)

Under Supervision of

Prof. Dr. Inas Nabil El-Hosseiny
Prof. of Surgery, Anaesthesiolgy & Radiology.
Faculty of Veterinary Medicine
Cairo University

Prof. Dr. EL- Dessouky Mohamed EL- Dessouky Sheta
Prof. of Surgery, Anaesthesiolgy & Radiology. Faculty of Veterinary Medicine
Cairo University

Prof. Dr. Haitham Ali Mohmed Fargali
Prof. of Surgery, Anaesthesiolgy & Radiology
Faculty of Veterinary Medicine
Cairo University

Cairo University 2018

Cairo university

Faculty of Veterinary Medicine

Department of Surgery, Anaesthesiology & Radiology

Name: Ahmed El-Sayed Ashour El-Sayed.

Birth date: 15/10/1986

Place of birth: Giza

Nationality: Egyptian

Scientific degree: Ph.D. of Veterinary Science

Specification: Surgery, Anesthesiology & Radiology

Thesis Title: Cranial Cruciate Ligament Rupture Repair in dogs

(An experimental Study)

Supervisors:

Prof. Dr. Inas Nabil EL-Husseiny

Prof. of Surgery, Anaesthesiology & Radiology, Faculty of Veterinary Medicine, Cairo University

Prof. Dr. El-Dessouky Mohamed Sheta

Prof. of Surgery, Anaesthesiology & Radiology, Faculty of Veterinary Medicine, Cairo University

Prof. Dr. Haitham Ali Mohamed Faragali

Prof. of Surgery, Anaesthesiology & Radiology, Faculty of Veterinary Medicine, Cairo University

Abstract

This study included twenty-one adult apparently healthy mixed breed mongrel dogs of variable sexes, ages, and weights. The present study was designed to compare between lateral fabello tibial suture technique (LFS), over- the- top and tibial plateau leveling osteotomy (TPLO) techniques to choose the best one for the management of cranial cruciate ligament rupture (CrCLR).

The results of this study showed that, TPLO technique appeared to provide better early limb function, a more rapid return to weight-bearing of dogs in comparison with LFS and over-the-top methods.

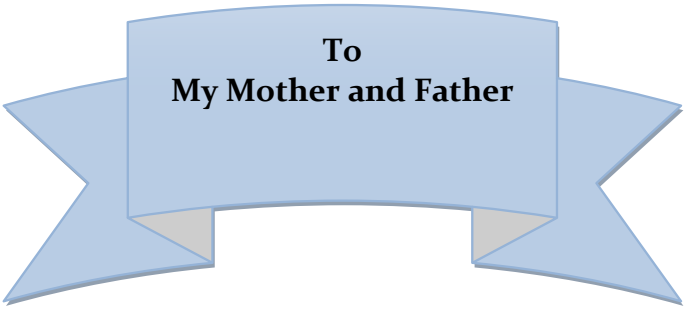
Also, it was found that, the degree of laxity of the stifle joint in dogs with CrCLR repair by LFS to some extent higher than those managed by over-the-top technique. Minimal radiographic osteoarthritic changes were observed at 3 months post-operative and still in its progression till the end of 6 months in dogs managed by LFS technique. No osteoarthritic changes were observed in other two groups managed by over-the-top and TPLO techniques.

It was identified after ultrasound scanning post-operatively, presence of joint effusion, with variable degrees according to the used technique. Concerning the used MRI in this study, it was found that MRI is an essential tool for diagnosis of the intact and ruptured CrCL.

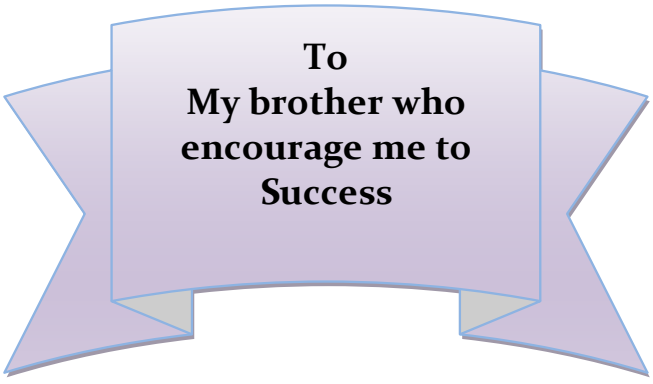
The most common post-operative complications that have been recorded in this study were seroma, medial buttress formation and medial meniscal tears.

The experimental dogs in this work showed no clinical lameness at the end of the study, and at the same time, the histopathological results showed the presence of different forms of inflammatory changes in the stifle joint structures of all the experimental groups. Finally, TPLO surgical technique was currently proven as the best technique in comparison with LFS and over-the-top methods.

DEDICATION



Who have provided never-ending support and taught me the value of a life dedicated to continued learning and gave me the opportunity to pursue my love of small animal surgery



CONTENTS

LIST OF TABLES & HISTOGRAM

LIST OF FIGURES

List of Abbreviations

Abbreviation	Meaning
CrCL	Cranial Cruciate Ligament
CaCL	Caudal Cruciate Ligament
CrCLR	Cranial Cruciate Ligament Rupture
MCL	Medial Collateral Ligament
LCL	Lateral Collateral Ligament
ECR	Extra-Capsular Repair
ICR	Intra-Capsular Repair
LFS	Lateral Fabello-tibial Suture
TPLO	Tibial Plateau Leveling Osteotomy
TLA	Tibial Long Axia
TPA	Tibial Plateau Angle
TTA	Tibial Tuberosity Advancement
CTWO	Cranial Tibial Closing Wedge Osteotomy
IL	Index of Laxity
US	UltraSonography
MRI	Magnetic Resonance Imaging
OA	Osteoarthritis
DJD	Degenerative Joint Disease
ROM	Range of Motion
UCP	Unity Cruciate Plate
P.O.	Postoperative
SE	Spine Echo
GE	Gradient Echo
PM	Post- Mortem

Acknowledgment

I would like to express my deepest gratitude to **Prof. Dr. Inas Nabil El-Hosseiny** professor of surgery, Anesthesiology and radiology, Faculty of Veterinary Medicine, Cairo University for her supervision, support, advices, valuable consultations close and sincere comments throughout the preparation and conduction of this work which helped me a lot to complete this research.

I would like to thank **Prof. Dr. EL- Dessouky Mohamed EL-Dessouky Sheta** professor of Surgery, Anesthesiology and Radiology, Faculty of Veterinary Medicine, Cairo University for valued contribution and his great help.

I would like to thank **Dr. Haitham Ali Mohamed Fargali** professor of Surgery, Anesthesiology and Radiology, Faculty of Veterinary Medicine, Cairo University for his encourage and support.

My heartfelt appreciation goes to **Prof. Dr. Fawzy Elnady** Professor of Anatomy and Embryology, Faculty of Veterinary Medicine Cairo University, who thought and shared me with a lot of his experience in the field of stifle joint anatomy. I would like to thank **Prof. Dr. Adel Bakeer, Professor** of Pathology Faculty of Veterinary medicine Cairo University, for his valued contribution and great help. Also, I would like to extend my sincere thanks to Dr. **Hani Abd El-Rhman**, the radiology consultant at Cairo scan-radiology- labs center for his work and writing reports on MRI results.

Introduction