

MUSCLE CONTRACTURES AND LIGAMENT INJURIES IN THE DOG: DIAGNOSIS AND TREATMENT. A BIBLIOGRAPHIC REVIEW

Final Degree Project - June 2021
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INTRODUCTION

Damage	Muscle contracture	Abnormal shortening and loss of flexibility
	Ligament injury	Sprain, tear or rupture

Objectives

To ease the job of a vet while dealing with the diagnosis and treatment of the different muscle contractures and ligament injuries of the dog, by making a bibliographic review of the topic.

DIAGNOSIS

Table 1. Summary of the diagnosis of muscle contractures in the dog

Muscle contractures	Anamnesis	Physical examination	Pain
Infraspinatus	Hunting / working with possible trauma	Adducted elbow, distal part abducted and externally rotated.	✗
Quadriceps	Young dog with a loss of knee flexion.	Extension / hyperextension of knee and hock	✓
Gracilis & Semitendinosus	German Shepherd and their crossbreeds	“Jerky gait” and tense muscle.	✗



Figure 1. Infraspinatus contracture in a dog (Bliss et al. 2011)



Figure 2. Quadriceps contracture in a dog, with extension of the knee and hock. Courtesy of María-Carmen Díaz Bertrana

Ligament injuries

Medial glenohumeral ligament Carpal ligaments Collateral knee ligament Tarsal ligaments	Traumatic history Positional tests Goniometry Stress radiology
Caudal cruciate ligament Cranial cruciate ligament	Drawer test Tibial compression test Radiology

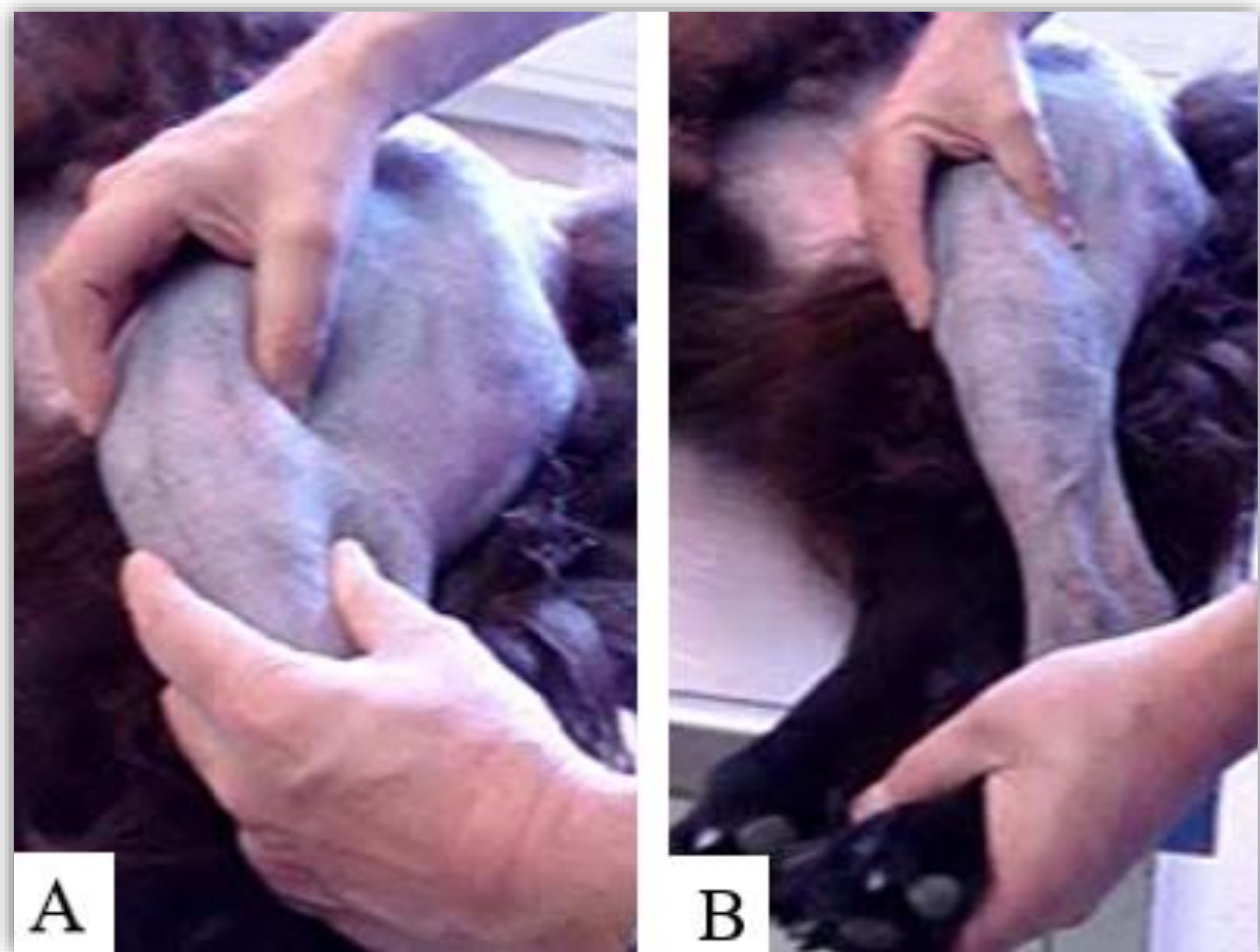


Figure 3. Drawer test (A) and tibial compression test (B). Courtesy of María-Carmen Díaz Bertrana

TREATMENT

Table 2. Summary of the effective treatment for muscle contractures in the dog

Muscle contractures	Conservative treatment	Surgical treatment	Prognosis
Infraspinatus	✗	Adhesion release and tenectomy	✓
Quadriceps	If early diagnosis	Adhesion release and muscle elongation	✗
Gracilis & Semitendinosus	✓	✗	✓

Ligament injuries

Medial glenohumeral ligament Carpal ligaments Collateral knee ligament Tarsal ligaments	Surgical treatment: Stabilization Arthrodesis
Caudal cruciate ligament Cranial cruciate ligament	

Extracapsular technique
CTWO (Cranial Tibial Wedged Osteotomy)
TPLO (Tibial Plateau Leveling Osteotomy)
CBLO (Cora Based Leveling Osteotomy)
TTA (Tibial Tuberosity Advancement)

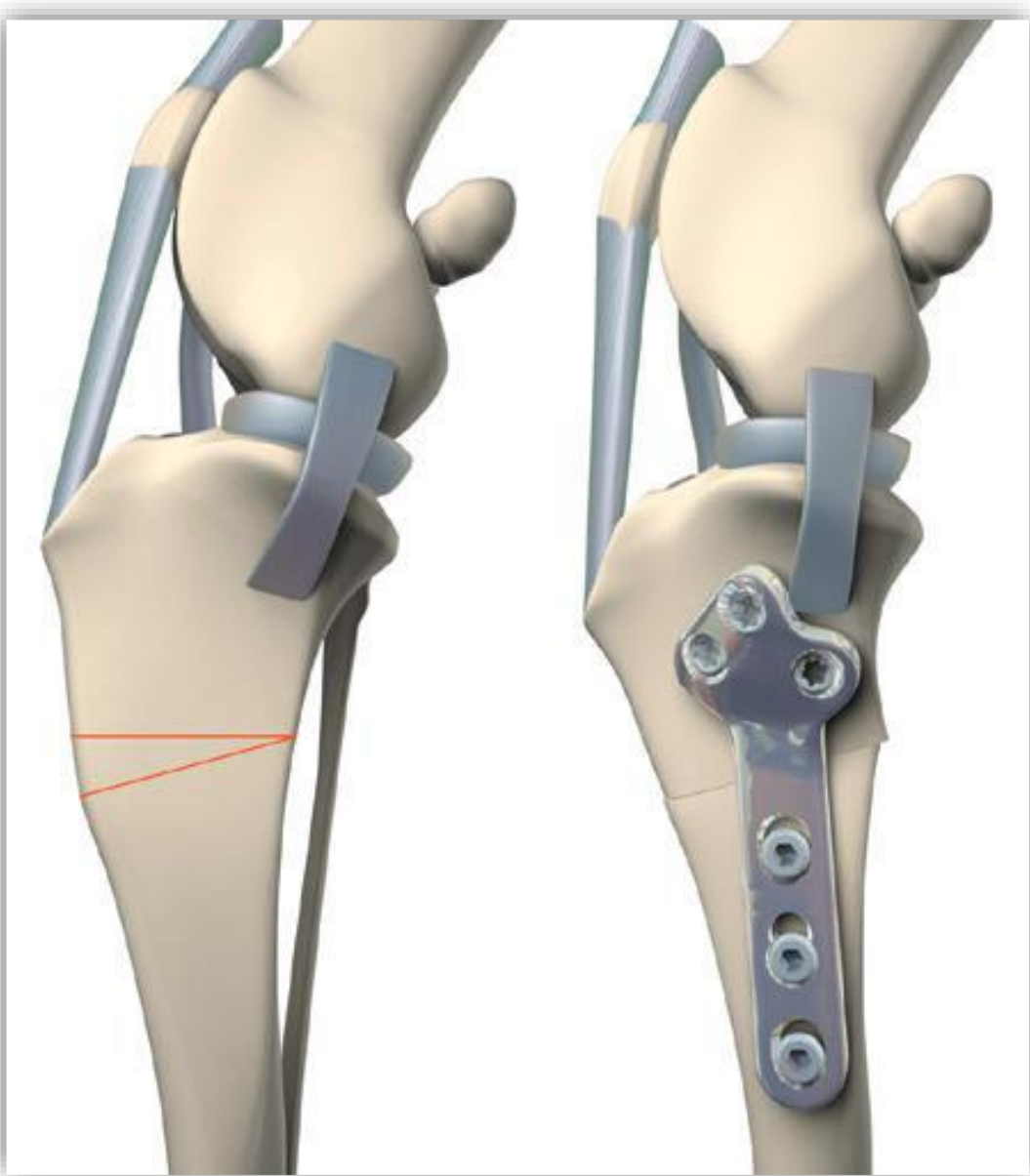


Figure 4. Illustration of the CTWO technique (Bliss et al. 2011)



Figure 5. Mediolateral projection after a TTA with a porous implant in a dog (Bernardi-Villavicencio et al. 2020).



Figure 6. Mediolateral projection of a TPLO in a dog (Bliss et al. 2011)

CONCLUSIONS

- ✓ The diagnosis of muscle contractures is specific and well documented.
- ✓ The diagnosis of ligament injuries is difficult, because usually multiple structures are damaged.
- ✓ Treatment can be contradictory; some pathologies have multiple therapeutic options, whereas others have only a few ones.
- ✓ Treatment requires further investigation, which currently is leading towards the use of stem cells.

