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MORPHOLOGY OF THE STIFLE MENISCI IN DOGS: PRELIMINARY STUDY

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Introduction

In dogs, ultrasonography can be realised to assess soft tissue and bony surfaces. Little is known about ultrasonographic appearance of canine meniscal lesions and their histological appearance and signification. Meniscal lesions are common in dogs and are generally associated with rupture of the cranial cruciate ligament. The medial meniscus is more often and more severely injured than the lateral one.

Objectives

The aims of this study were to set the technique for the histological examination of the dog menisci, to describe the normal echographical and histological appearance and to present 2 pathological specimens of injured menisci.

Methods

Sound menisci were taken from the stifles of an 8 month old mixed breed dog and a 9 years old Bernese mountain dog. Two injured medial menisci were also evaluated: from a 9 years old rottweiler and a 7 years old shepherd dog.

The menisci were examined in situ and after post-mortem excision in a water bath with a linear 7.5 MHz ultrasonographic transducer. Three zones were examined: Zone 1: cranial horn, Zone 2: body of the meniscus, Zone 3: caudal horn, near the collateral ligament.

Vertical sections were made. These are plane perpendicular sections to a given horizontal plane. Two kinds of sections were tested. The isolated menisci of the 8 month old dog were put on the dissection table (horizontal plane) and cut from the cranial to the caudal horn (the sections were triangular in shape, with thin axial border and thick abaxial border), or cut into 4 quarters that were then cut tangential from the abaxial border to the axial border. Menisci of the 8 month old dog were embedded in paraffin whereas the other menisci were embedded in methyl metacrylate and cut with a vertical diamond saw. The sections were stained either with toluidine blue, PAS/ hematoxylin or safranin O.

Results and discussion

Ultrasonography

The normal menisci appeared triangular and homogeneously echogenic. The injured menisci were more heterogeneous and con-

tained hypoechogenic areas. In horses, hypoechogenic defects were associated with fibre disruption and collapse, oedema, or degenerative processes such as fibroplasias or necrosis.

Histology

Normal menisci were more fibrous in the middle, with a regular architecture composed of collagen trabeculae in two main directions: circumferential or cranio-caudal direction and radial or abaxio-axial direction. The periphery showed more chondrocytes and more matrix organised in several layers.

In this study, hypoechoic defects or heterogeneous areas were associated with fibrillation, major degenerative changes and modification of internal architecture.

MORPHOMETRIC STUDY OF INTERPHALANGEAL JOINTS IN ARDENNER HORSES WITH JUVENILE OSTEOARTHROPATHY

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Introduction

Little information is available about the morphometrical aspect of osteochondral tissues in horses though osteo-articular pathologies may cause pain, handicaps and also important economic loss. Attempts are made to rehabilitate Ardenner horses but they may develop juvenile osteoarthropathy which lead to precocious cast. This disease, also called osteoarthritis, may be considered as a group of degenerative disorders characterized by a common end stage: progressive deterioration of the articular cartilage accompanied by changes in the bone and soft tissues of the joint.

Objectives

The aim of this study was to improve knowledge about bone and cartilaginous tissues in Ardenner horses with osteoarthropathy, regarding proximal and distal interphalangeal joints.

Material and methods

Two Ardenner geldings aged 4 years were included in this study. One was euthanized because of dangerous behavior and the other for ataxic problems after an accident. Both of them presented radiographic signs of osteoarthropathy with enthesiophytes at the dorsal border of the middle phalanx. Fore and rear digits were dissected. Four sampling sites were used for each digit: distal articular surface of the proximal phalanx (P1D), proximal (P2P) and distal (P2D) articular surfaces of the middle phalanx and articular surface of the distal phalanx and navicular bone (P3P). A standardized squaring was carried out using a graduated rubber band giving place to 9 intake points by articular surface. Osteocartilaginous samples, of a fixed diameter of 5 mm over a length of 8-10 mm, were taken owing to a surgical motor with a bell mill. The samples were embedded in methyl metacrylate without previous decalcification. Sections were stained with toluidine blue or methylene blue and were imaged with a microscope provided with a video camera connected to a computer. Five measurements were made with the imaging analysis system (Leica): maximal thickness of full cartilage (TC), maximal thickness of calcified cartilage