Review

Ultrasonography of the canine shoulder joint and its pathological changes

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Abstract

The objective of this study was to present and discuss the available data on canine shoulder joint ultrasonography. The paper presents the method of ultrasonographic examination of the shoulder joint area, describes the normal structure of the shoulder joint in dogs, and discusses the most frequently encountered shoulder joint pathologies.

Key words: shoulder joint, ultrasonography, dog

Introduction

Radiography is a popular and routine imaging method in diagnosing pathological changes in canine joints (Kramer et al. 1997). Although it is a highly useful tool in evaluating the structure of the osseous components of the joint, it does not support the precise imaging of soft tissue pathologies. This is a highly important consideration in diagnosing canine lameness caused by bicipital tenosynovitis, rupture of the biceps tendon, displacement of the biceps tendon, mineralization of the supraspinatus tendon, contracture of supraspinatus and infraspinatus muscles, and osteochondritis. Advanced imaging techniques, such as contrast-enhanced radiology (Vandeveldt et al. 2006), arthroscopy (Adamiak et al. 2002, Adamiak and Brzeski 2002, Adamiak and Szalecki 2003, Vandeveldt et al. 2006), CT scanning, magnetic resonance imaging (Tucker and Sande 2001) and ultrasonography (Kramer et al. 1997, Long and Nyland 1999, Kramer et al. 2001, Vandeveldt et al. 2006) are applied to obtain detailed diagnostic information on the above mentioned diseases. Owing to the high cost of equipment required for those imaging methods, the radiological diagnosis of joint diseases is increasingly often supplemented with ultrasonography (Kramer et al. 1997, Liuti et al. 2007). Compared with CT scanning, ultrasonography enables a more detailed examination of soft tissue of similar density (Tucker and Sande 2001) and it supports the differentiation of joint cartilages from other types of soft tissue (Zwierzchowski et al. 1994). In comparison with magnetic resonance imaging (MRI), ultrasonography permits a dynamic evaluation of the joint structure (Zwierzchowski et al. 1994). Ultrasonography is a non-invasive and a relatively inexpensive technique which is successfully used in orthopedic diagnostics in humans (Zwierzchowski et al. 1994, Kramer et al. 1997, Long and Nyland 1999, Rasmussen 2000). In human medicine, it is the technique of choice for imaging tendons, ligaments and synovial bursae (Rasmussen 2000). Ultrasonography is increasingly often used in orthopedic diagnostics in animals, including examinations of equine tendons and joints (Kramer et al. 1997, Tnibar et al. 1999, Tnibar et al. 2001, Reef et al. 2004, Altenbrunner-Martinek et al. 2007). Recent years have wit-