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EDITORIAL

Advances in Canine Elbow Disease

"If you don't know where you are going, any road will take you there."

-Talmudic aphorism

Canine elbow dysplasia (CED) is a common developmental disorder of the cubital joint of the dog. It is comprised of ununited anconeal process, fragmented medial coronoid process (MCP), osteochondrosis of the medial humeral condyle, and elbow incongruity (EI), alone or in combination. The epidemiology, etiopathogenesis, diagnosis and treatment of CED have been extensively investigated, but much remains to be done. This edition of *Veterinary Surgery* devoted to the canine elbow seeks to add to our knowledge of this and other conditions of the cubital joint.

In supporting a themed issue on Advances in Canine Elbow Disease, I had hoped to see the following issues addressed: difficulties in the early diagnosis of CED and the significance of incongruency; the lack of evidence-based outcomes; the diagnostic challenge of thoracic limb lameness, particularly in young adult sporting breed dogs; and the need for better screening programs. It will not escape the reader's notice that there is substantial emphasis on the management of CED and very little on its prevention. The International Elbow Working Group (IEWG) was founded in 1989 to address the cause of CED but progress has been disappointingly slow. There are fundamental obstacles to overcome, such as an absolute requirement for positive identification (preferably through microchipping), a need for improved cooperation between breed societies and Kennel Clubs, and the more difficult problem of how to record clinical cases. These currently escape inclusion because most occur in dogs <12 months of age, yet their existence skews the recorded breed prevalence of CED. It is understandable why the cause of CED is not addressed in greater detail in this issue but, nevertheless, one hopes the IEWG will continue to pursue its goal of reducing the incidence of this painful disease.

Radiography remains the imaging modality of choice for breeding schemes because it is readily accessible, inexpensive, and can be performed in a sedated dog. However, diagnosis of pathology, especially fragmented MCP, based on plain radiographs alone can be difficult, and reliable detection of early pathology remains a challenge. On a flexed mediolateral projection of the elbow, increased radiopacity of the proximal aspect of the ulna adjacent the trochlear notch and caudal to the coronoid process has been reported as an early indicator of fragmented MCP[1] and confirmed objectively by quantitative digital analysis.[2] The latter is not widely available and a reliable assessment of sclerosis based on plain radiographs would be helpful. Smith and colleagues report measurement of sclerosis as an indicator of elbow pathology when there is minimal or no evidence of periarticular osteophytosis. They consider that prospective measurement of sclerosis is warranted but wisely warn that its clinical importance remains unknown and should be interpreted with caution.

Many diagnostic approaches have been used to identify EI. Computed tomography (CT) is more accurate than radiography but because radioulnar incongruency is considered a dynamic condition, its diagnosis may be affected by elbow positioning and an absence of loading during imaging.[3] Nevertheless, because CT is a noninvasive technique it is commonly used for diagnosis of EI.[4] Two reports address this concern. House and colleagues conclude supination and pronation affects elbow congruity measurements using CT analysis and use of 3-D image processing may allow for improved elbow congruity measurements compared with other 2-D measurement techniques. Böttcher and colleagues reached similar conclusions using an experimentally induced model creating positive and negative radioulnar incongruency.

The diagnostic challenge of thoracic limb lameness, particularly in young adult sporting breed dogs is addressed by Cook and Cook who confirm that dogs with an apparent shoulder lameness may have an elbow problem. Their data suggest arthroscopic pathology in the elbow(s) is common when shoulder disease is diagnosed and vice versa. These authors are commended for adopting a realistic approach to evidence-based medicine. Other reports in this issue are less scientifically robust; however, it is important to remember that all evidence is important, but not all is equal with respect to

applicability, relevance, and power for optimal decision making.[5]

Punke and colleagues highlight the limitations of relying on physical findings and radiographic evidence alone when investigating dogs with elbow disease. Recognition of elbow pathology with either CT or scintigraphy in dogs with no radiographic changes highlights the diagnostic challenge in some dogs. Advanced imaging techniques for the elbow will hopefully further our understanding of disease mechanisms and provide earlier, reliable diagnostic information. Nevertheless, considerable work remains to determine the most appropriate modalities and protocols. To advance our knowledge requires an outcome-based approach assessing the relative strengths and weaknesses of radiography, CT, ultrasonography, scintigraphy, MRI and arthroscopy and their correlation with physical and surgical findings, and histopathologic evidence.

In our quest for scientific knowledge, let us not forget the needs of our patients. In particular, the current vogue for second look arthroscopy, while understandable in the desire to increase our knowledge of disease processes, cannot be condoned unless the dog itself is likely to benefit from a second invasive procedure. Obtaining owner consent is not sufficient and whereas one might argue that morbidity is slight, repeat arthroscopy nevertheless involves another general anesthetic and further surgical insult. Aside from ethical considerations, depending upon international region and prevailing legislation, it is conceivable that repeat arthroscopy might constitute a criminal offence if it can be demonstrated that it was performed purely in pursuit of scientific curiosity.

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