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The Veterinary Journal

journal homepage: www.elsevier.com/locate/tvj

Guest Editorial

Degenerative lumbosacral stenosis in dogs: Will we see progress in the next 30 years?



Low back pain is one of the most common medical problems in people. Between 70% and 85% of the population suffer from low back pain at some point in their lives with degenerative disc changes occurring in as many as 90% of individuals by 50–60 years of age (Biyani and Andersson, 2004). Degenerative lumbosacral stenosis (DLSS) is the canine equivalent of lumbar disc herniation in people. In both dogs and humans, these diseases cause compression of nerve roots leading to variable degrees of lumbar/lumbosacral pain (the main sign in both species), as well as limb pain (lameness) and neurological deficits (Meij and Bergknut, 2010). The canine disease is seen primarily in large breed dogs and is very commonly seen in clinical and specialty practices. Estimates of its prevalence were given in an 11-year study that revealed an incidence of 33.7 cases in German Shepherds per 10,000 dog years at risk in Sweden (Meij and Bergknut, 2010).

Considering its importance, DLSS has been the focus of many original and review publications over the past decades. The current status of the disease was examined by Meij and Bergknut (2010) in a very well-illustrated and referenced review article, providing an excellent overview of the pathophysiology, diagnosis and treatment of the disease, drawing from the extensive experience of the authors and multiple studies from their group. However, in spite of several publications outlining the clinical signs, diagnosis and treatment of DLSS, we are still faced with numerous questions regarding the disease pathogenesis, natural course, diagnosis and treatment. These limitations have been highlighted in an outstanding review article by Professor Nick Jeffery of the College of Veterinary Medicine at Iowa State University and his colleagues, published in a recent issue of *The Veterinary Journal* (Jeffery et al., 2014).

Jeffery et al. (2014) report that in the 1980s the main problem we faced was the diagnosis of DLSS, as both myelography and epidurography have limitations. In the 1990s computed tomography and magnetic resonance imaging began to become more widely available and transverse visualization allowed for direct views of the vertebral canal and assessment of stenosis and nerve root involvement. As advanced imaging became more common, we started to realize that not all imaging changes were significant and that there was a very poor correlation between imaging and clinical signs. Importantly, as in humans, older dogs can have asymptomatic cauda equina compression (Jones and Inzana, 2000), complicating even further the diagnosis of this condition.

Not surprisingly, the bulk of the literature on the treatment of DLSS is composed of retrospective studies. There are few reports of non-surgical management of the disease and most

are focused on surgical treatment. Dorsal laminectomy appears to be the procedure of choice for many veterinary neurologists and surgeons and the results have generally been positive (with the limitation of quite variable follow-up times and criteria for outcome assessment in many studies). However, as highlighted by Jeffery et al. (2014), the procedure has several limitations. Dorsal laminectomy cannot be expected to relieve the signs associated with lateralized nerve root compressions. To address these lateralized compressions, Gödde and Steffen (2007) proposed a lateral foraminotomy technique, arguably the most significant advance in the surgical treatment of DLSS of the last few years. This would be the technique of choice to address lateralized compressions, but it would not address vertebral canal stenosis. In addition to these decompressive techniques, there are also fixation–fusion techniques (with or without distraction).

As pointed out by Jeffery et al. (2014), a surprising and interesting aspect of all studies reporting treatment of DLSS is that not a single one has clearly defined the clinical and imaging findings considered consistent with a diagnosis of DLSS. In addition, case selection, data acquisition, inconsistent outcome measures (rarely objective) and variable follow-up times make it essentially impossible to objectively compare treatment methods. Future studies should hopefully incorporate guidelines suggested by Jeffery et al. (2014) of rigorous case definition, objective outcome measures and randomized comparative trials.

This is not the first article that Professor Jeffery has published highlighting the limitations of our knowledge. Back in 2001, Jeffery and McKee published what might have been the first systematic review or meta-analysis of the veterinary neurology literature (Jeffery and McKee, 2001). The authors pointed out that, in spite of multiple publications reporting the results of surgical treatment for cervical spondylomyelopathy (CSM), there were major gaps in our knowledge of the disease. A couple of years later, I started a Ph.D. project (da Costa et al., 2006) with the intent of answering some of the questions posed by Jeffery and McKee (2001). Fast-forward 10 years later and we have now 20 published studies on CSM, with several others underway.

Other investigators (De Decker et al., 2012) also answered the call of Jeffery and McKee (2001), and we now have answers at least to some of the questions they posed 13 years ago. While progress is still limited, it is relevant. This highlights the importance of review articles such as the one by Jeffery et al. (2014). It is important to have a clear understanding of what we know, what we do not know, and what are the key steps necessary to truly advance and bring our knowledge to the next level.

As the saying goes 'ignorance is a blessing'. We no longer can afford to be ignorant. Only high quality, prospective work will cause meaningful change and that is what our patients and our profession sorely needs. Advancement will require the combined effort of several groups, focusing on understanding the disease pathogenesis, the advantages and limitations of current diagnostic methods, and the design of reliable and unbiased outcome measures so that treatment methods can be objectively compared. This demands well-designed and well-conducted prospective studies. Professor Jeffery's article offers, as he did in 2001, a direction. It is up to the profession to answer the call. [Jeffery et al. \(2014\)](#) states that little has progressed in the treatment of DLSS in the last 30 years. Hopefully this statement will not be repeated 30 years from now!

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