

Prevalence of radiographic osteoarthritis and associated clinical signs in young dogs

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Introduction

- No comprehensive, prospective studies of the prevalence of canine osteoarthritis (OA) throughout the skeleton have been performed and current estimates of OA prevalence [1] pertain to older dogs despite the fact that OA in dogs appears to be primarily driven by developmental joint disease.

Objective

- To determine the prevalence of OA and associated clinical signs in young dogs

Methods

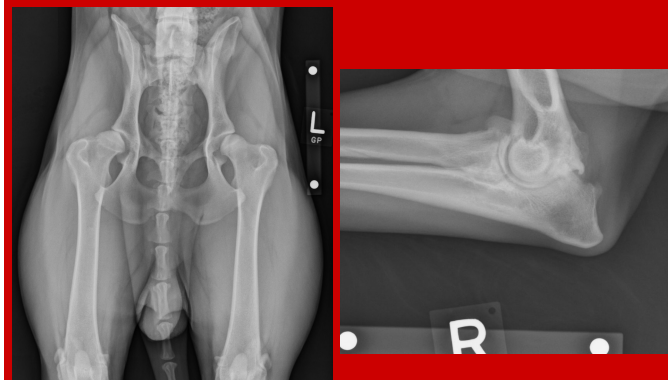
- Owners (n=320) of dogs, aged 8 months to 4 years old from NCSU CVM Primary Care, were contacted to participate
- Owners were contacted in random order within each of 4 age bands
 - 8-18 months
 - 18.1-28 months
 - 28.1-38 months
 - 38.1-48 months
- Full clinical and orthopedic examinations were performed
- Orthogonal radiographic projections of all joints and the spine were made under sedation
- Owners completed OA questionnaires
 - Owner observed activity impairment: Liverpool Osteoarthritis in Dogs ≥ 5 (potential maximum score of 52)
- Each joint was scored for radiographic OA severity on an 11-point scale by 2 investigators (ME, BDXL)
 - Overall total OA score: sum of individual appendicular joint: 160
- Clinical OA (cOA) defined as: overlap of radiographic OA (rOA) and pain in the same ≥ 1 appendicular joint(s)

Results

- Owners of 123 dogs participated
- Overall, 39.8% of dogs (49/123) had radiographic OA (rOA) in at least one joint, and 23.6% of dogs (29/123) had clinical OA (cOA)
- Owners of dogs with cOA (29 dogs) observed signs of impairment in 51.7% of cases (15/29) but only 13.3% of them (2/15) were medically treated
- Affected joints in descending order of frequency were elbow, hip, tarsus, and stifle
- Prevalence of rOA was increased with age, bodyweight, and body condition score
- Note: Radiographic spinal DJD (no associated pain) was the only finding in 5 dogs; 7 other dogs had radiographic spinal degenerative changes (no associated pain) and all 7 had rOA, and 6 of them had cOA.



Radiographically visible osteoarthritis and associated pain is very common in young dogs. Even when owners confirm signs of OA-pain, few dogs are treated



	OA (49dogs)	Non-OA (74 dogs)	P-value
Age	34.1 \pm 10.0 (13.0 - 49.0)	27.0 \pm 11.7 (9.0 - 49.0)	0.0007
Sex	M: 4, F: 3, MC: 22, FS: 20	M: 12, F: 3, MC: 31, FS: 28	0.55
Body weight	27.4 \pm 10.7 (4.1 - 67.0)	21.7 \pm 9.5 (3.8 - 42.9)	0.0027
BCS (1-9)	5.1 \pm 0.78 (4 - 7)	4.8 \pm 0.61 (4 - 7)	0.0252
LOAD	6.2 \pm 4.9 (0 - 19)	3.8 \pm 3.2 (0 - 17)	0.0022
Total OA score	5.6 \pm 5.1 (1 - 24)	0	< 0.0001

Table 1. Mean \pm SD (range) values of dogs with radiographic appendicular joint OA at least in one joint and without OA in any joints. 5 dogs in non-OA group had only spine degenerative changes. P < 0.05: significance

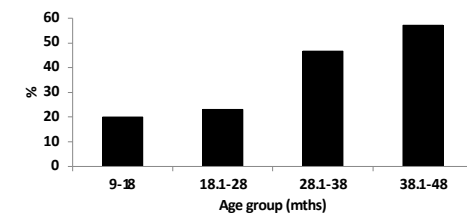


Figure 1. Prevalence of radiographic appendicular joint OA in each age group expressed as a percentage of dogs in that age group. This figure clearly shows that radiographic OA changes are very common in young dogs, and prevalence of OA increased as dogs get older.

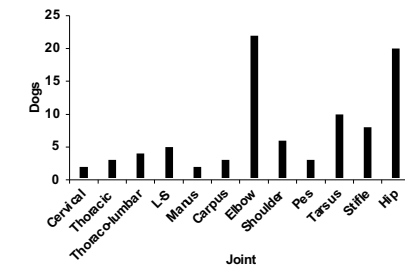


Figure 2. Number of dogs with radiographic OA in at least one particular joint. Please note that some dogs had multiple joint OA.

Discussion

- Radiographic OA is highly prevalent in young dogs and 60% of dogs with rOA were clinically affected
- In dogs with cOA where owners confirmed the presence of clinical signs, few are treated
- Future work should
 - Identify drivers of this high OA prevalence in young dogs
 - Determine the reasons why owners do not detect clinical signs when joint pain is present
 - Explore the effects of early treatment on progression of disease and clinical signs

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Reference: [1] Johnston S.A. Vet Clin North Am Small Anim Pract. 1997 Jul;27(4):699-723.