

Changes in the Median Sacral Crest Associated with Sacrocaudal Fusion in the Greyhound

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Abstract : A recent study reported a 33% incidence of complete sacrocaudal fusion in greyhounds compared to a 3% incidence in other dogs. In the dog, the median sacral crest is formed by the fusion of sacral spinous processes. Separation of the 1st spinous process from the median crest of the sacrum in the dog has been reported as a diagnostic tool of type one lumbosacral transitional vertebra (LTV). LTV is a congenital spinal anomaly, which includes either sacralization of the caudal lumbar part or lumbarization of the most cranial sacral segment of the spine. In this study, the absence or reduction of fusion (presence of separation) between the 1st and 2nd spinous processes of the median sacral crest has been identified in association with sacrocaudal fusion in the greyhound, without any feature of LTV. In order to provide quantitative data on the absence or reduction of fusion in the median sacral crest between the 1st and 2nd sacral spinous processes, in association with sacrocaudal fusion. 204 dog sacra free of any pathological changes (192 greyhound, 9 beagles and 3 labradors) were grouped based on the occurrence and types of fusion and the presence, absence, or reduction in the median sacral crest between the 1st and 2nd sacral spinous processes. Sacra were described and classified as follows: F: Complete fusion (crest is present), N: Absence (fusion is absent), and R: Short crest (fusion reduced but not absent (reduction)). The incidence of sacrocaudal fusion in the 204 sacra: 57% of the sacra were standard (3 vertebrae) and 43% were fused (4 vertebrae). Type of sacrum had a significant ($p < .05$) association with the absence and reduction of fusion between the 1st and 2nd sacral spinous processes of the median sacral crest. In the 108 greyhounds with standard sacra (3 vertebrae) the percentages of F, N and R were 45% 23% and 23% respectively, while in the 84 fused (4 vertebrae) sacra, the percentages of F, N and R were 3%, 87% and 10% respectively and these percentages were significantly different between standard (3 vertebrae) and fused (4 vertebrae) sacra ($p < .05$). This indicates that absence of spinous process fusion in the median sacral crest was found in a large percentage of the greyhounds in this study and was found to be particularly prevalent in those with sacrocaudal fusion - therefore in this breed, at least, absence of sacral spinous process fusion may be unlikely to be associated with LTV.

Keywords : greyhound, median sacral crest, sacrocaudal fusion, sacral spinous process

Conference Title : ICASV 2016 : International Conference on Animal Sciences and Veterinary

Conference Location : Barcelona, Spain

Conference Dates : August 11-12, 2016