Effects Of Age On Accuracy Of Advanced Imaging Modalities In Identifying Intervertebral Disc Extrusions In Dachshunds

Abstract

Objective – This study aims to ascertain whether patient age is a significant factor for the accurate identification of compressive intervertebral disc extrusions in Dachshunds using non-contrast computed tomography.

Methods – This retrospective analysis encompasses 150 Dachshunds evaluated for suspected IVDE at a referral hospital in south-eastern Queensland, Australia. Each case underwent diagnostic evaluation by Computed Tomography (CT), either with or without myelography, or Magnetic Resonance Imaging (MRI), followed by surgical intervention for an intervertebral disc extrusion.

Results - In the <9-year dog cohort, 94.7% (71/75) were diagnosed with IVDE via non-contrast CT and proceeded to surgery. In contrast, the ≥ 9-year dog cohort, only 56% (42/75) were diagnosed via non-contrast CT, with the remaining 44% (33/75) necessitating CT-myelography or MRI for diagnosis. Sex ($p = 0.767$), neurolocalisation ($p = 0.447$), and specific disc extrusion site ($p = 0.877$) did not significantly contribute to the predictive model of whether a Dachshund with a suspected disc extrusion would need advanced imaging beyond a non-contrast CT scan.

The odds of requiring CT myelography or MRI increase 13.95-fold (95% CI, 4.62-42.13) in Dachshunds aged 9 years or older ($p < 0.001$). Furthermore, each additional year of age is associated with a 0.60 increase in the odds of undergoing these advanced imaging modalities (CT myelography or MRI) ($p < 0.001$, 95% CI, 0.49-0.74).

Conclusions – Age significantly impacts the efficacy of non-contrast CT in diagnosing IVDE in Dachshunds. Dogs aged 9 years and above are substantially more likely to require CT myelography or MRI due to the reduced visibility of disc extrusions on non-contrast CT. Veterinarians performing advanced imaging on older Dachshunds for suspected IVDE should be aware of the limitations of non-contrast CT in obtaining an accurate diagnosis and localisation of IVDE and be prepared to perform either CT myelography or MRI if required.