ASSESSMENT OF SURVEY RADIOGRAPHY
AS A METHOD OF DIAGNOSING
BILATERAL LARYNGEAL PARALYSIS IN DOGS

Touzet C, Hahn H, Gomes E, Bismuth C, Le Boèdec K

Background
• Diagnosis of laryngeal paralysis: evocative clinical signs, laryngoscopy (Gold standard), ultrasound (underestimation)
• Thoracic and cervical radiographs frequently performed to explore causes and potential consequences (bronchopneumonia)
• Ventricular dilation associated with laryngeal paralysis consecutively to amyotrophy in human\textsuperscript{1,2} and veterinary\textsuperscript{3,4} reports

Aim
⇒ Assess the aspect of canine laryngeal ventricles on lateral radiographs in cases of laryngeal paralysis compared to healthy dogs

Material and methods
• Prospective recruitment of 18 dogs diagnosed with bilateral paralysis (diagnosed by laryngoscopy or ultrasonography), and 25 healthy dogs
• Lateral cervical radiograph centred on the larynx, not rotated, including C3
• 3 evaluation criteria assessed:
  1. Subjective evaluation of the ventricular shape: rounded or not
  2. MVL/LC3 ratio
  3. VA/LCA ratio

Results
• Statistically significant difference between paralyzed and healthy dogs: broader ratios in affected dogs and rounded ventricles
• Most accurate parameter: MVL/LC3 ratio (AUROC: 0.96)

Definition of 2 thresholds to maximize accuracy:

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\begin{align*}
\text{MVL/LC3} &< 0.3 \Rightarrow \text{not in favor of paralysis (Se 100%, Sp: 32-72%)} \\
\text{MVL/LC3} &> 0.5 \Rightarrow \text{supports bilateral paralysis (Sp: 92-100%, Se: 72-83%)}
\end{align*}
\]

Healthy group
25 dogs
Median age: 6 years

Bilateral laryngeal paralysis group
18 dogs
Median age: 12 years

Conclusion / discussion
⇒ Significantly larger ventricles in dogs with bilateral laryngeal paralysis than healthy dogs
MVL/L3 < 0.3 excludes bilateral laryngeal paralysis while MVL/L3 > 0.5 makes it very likely

⇒ Further diagnostic tests necessary for MVL/LC3 values between 0.3 and 0.5

Results only apply to bilateral paralysis and higher clinical grades: further studies are necessary to assess the aspect of the ventricles in unilateral paralysis, lower grades, and compare with other causes of upper airway obstruction

References