



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

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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^{1,2} and veterinary^{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



- MVL : maximal ventricular length (plain line)
- VA : ventricular area (dotted surface)
- LC3 : vertebral body length of the 3rd cervical vertebra (double line)

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 :

MVL/LC3 < 0.3

=> not in favor of paralysis (Se 100% ; Sp : 32-72%)

MVL/LC3 > 0.5

=> supports bilateral paralysis (Sp : 92-100% ; Se 72-83%)

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

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