

Syringomyelia classification according to associated magnetic resonance imaging findings in French bulldogs: 64 cases (2008-2016)

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WHY?

- 1 Syringomyelia (SM) is reported mainly associated to Chiari-Like Malformation syndrome (CLM).
- 2 In dogs, it has infrequently been related to other causes, including other craniocervical malformations and spinal or brain neoplasia.
- 3 CLM and SM have unusually been described in French Bulldog.
- 4 In human medicine, SM can be classified according to aetiology (CLM, inflammatory/infectious diseases, trauma, spinal and brain neoplasia, spinal dysraphism, and idiopathic).

OBJECTIVE

To evaluate SM in French bulldogs according to associated magnetic resonance imaging (MRI) findings.

HOW?

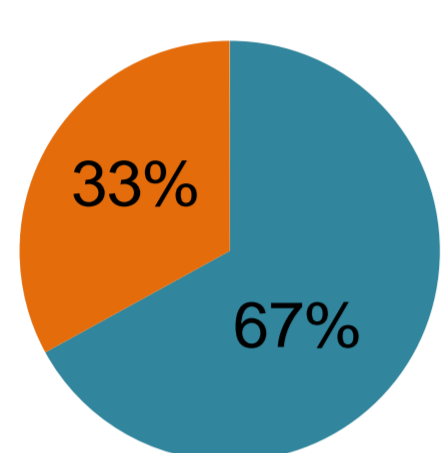
Inclusion criteria:

MRI French bulldogs
Two imaging centres (Esaote 0.2-0.25 Tesla)
Diagnosis of SM

For each case: Signalment, indication for MRI, location of SM, primary diagnosis, other imaging findings, presence of CLM, and presence of ventricular enlargement were evaluated.

RESULTS

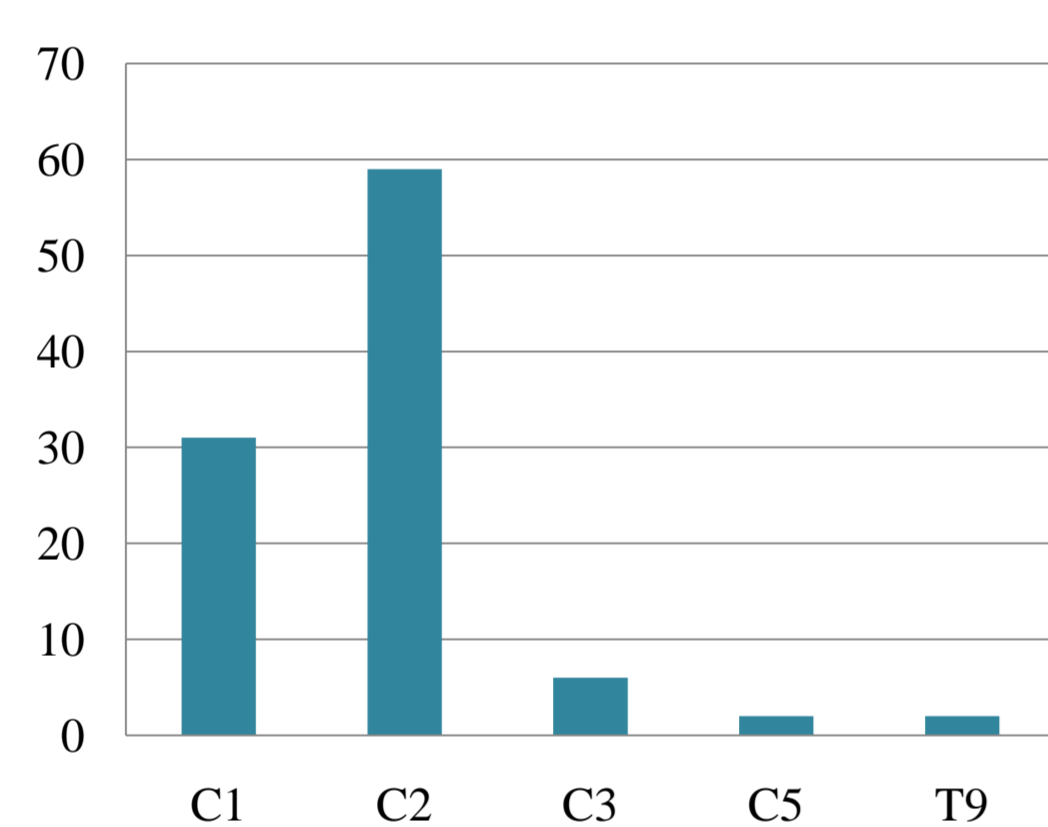
Female Male



EPIDEMIOLOGIC DATA

Sixty-four dogs met the inclusion criteria 33% females and 67% males. Median age was 6 years (1-11 years).

- Caudal fosa was evaluated in 92% of patients. In the 5 cases where it was not evaluated, a thoracic or lumbar spinal compressive disease was found, mainly disc herniation.

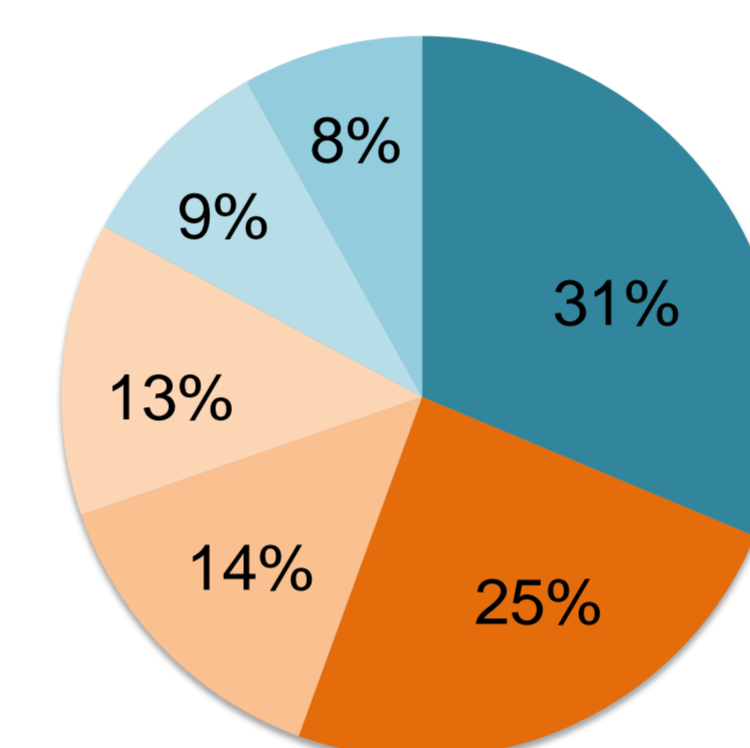


LOCATION AND LENGTH

- SM started at C1 (31% of cases) or C2 (59% of cases) in most dogs.
- The syrinx was continuous in 88% of cases, whereas in 12% of dogs was discontinuous along the spinal cord.

INDICATIONS FOR MRI AND FINDINGS

Only 10% dogs were referred for paraesthesia or phantom scratching. Clinical signs could be related to SM in 75% of dogs. However in the majority of them another lesion was found in the MRI that was considered the major problem.



- Motor function anomalies (31%)
- Seizures (25%)
- Spinal pain (14%)
- Vestibular signs (13%)
- Hyperaesthesia (9%)
- Others (8%)

- The 72% dogs had at least 2 abnormalities, besides SM.
- Fourth ventricle dilatation was observed in 45% of patients. Half of them had more than one ventricle enlarged.

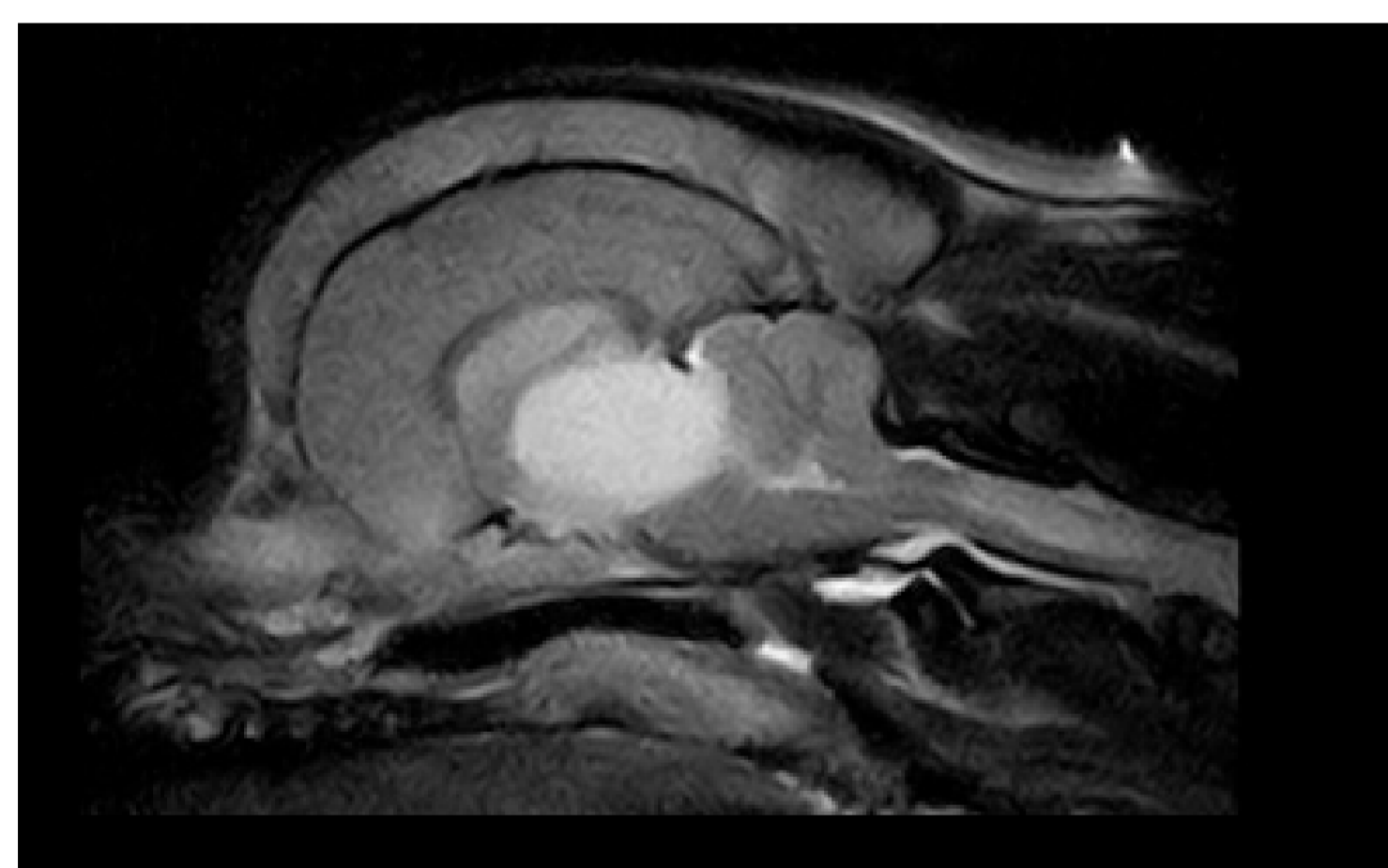


Figure 1. Sagittal T2W brain image. Neoplasia, cerebellar herniation and SM.

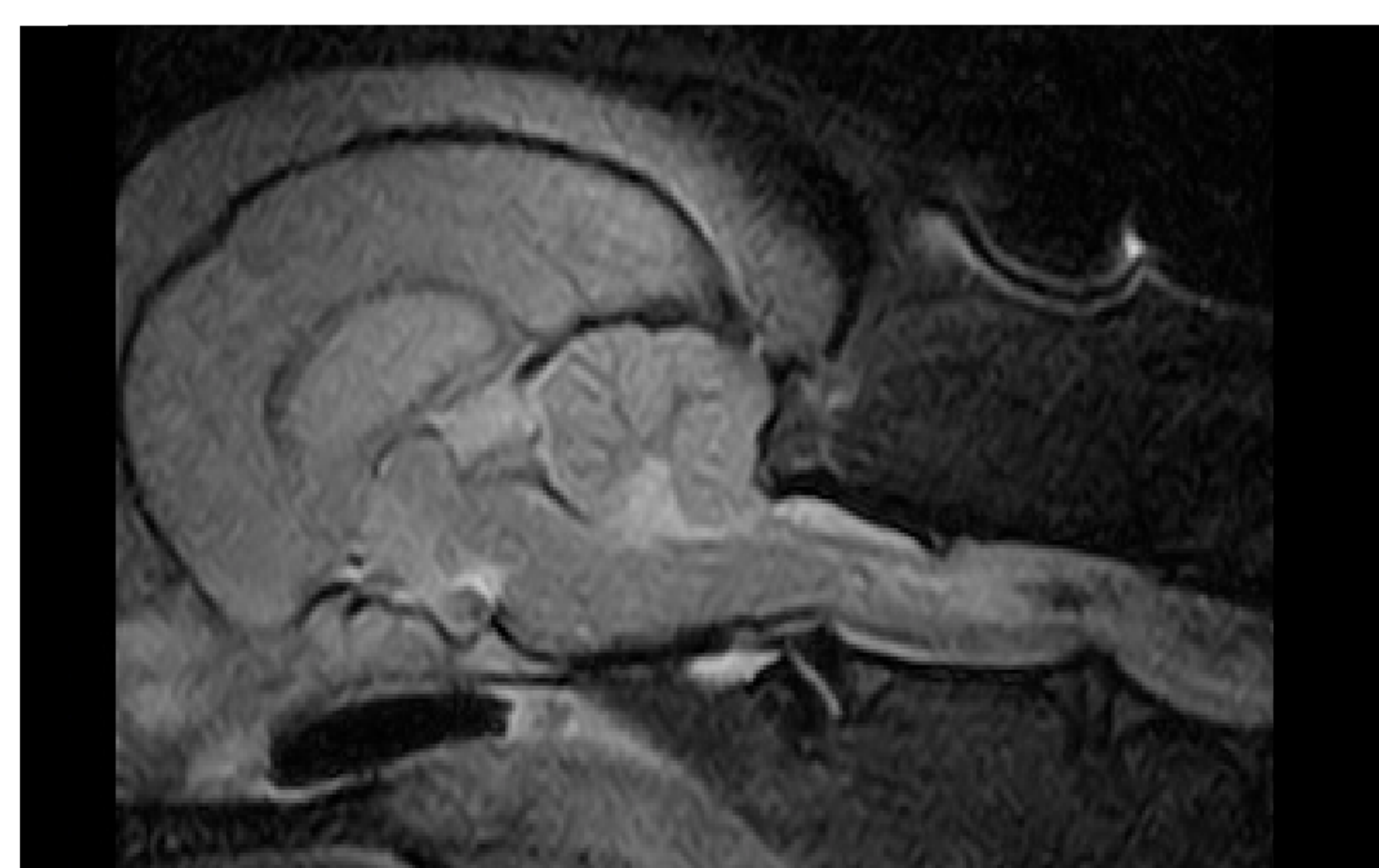


Figure 2. Sagittal T2W brain and cervical spinal cord image. CLM and SM.

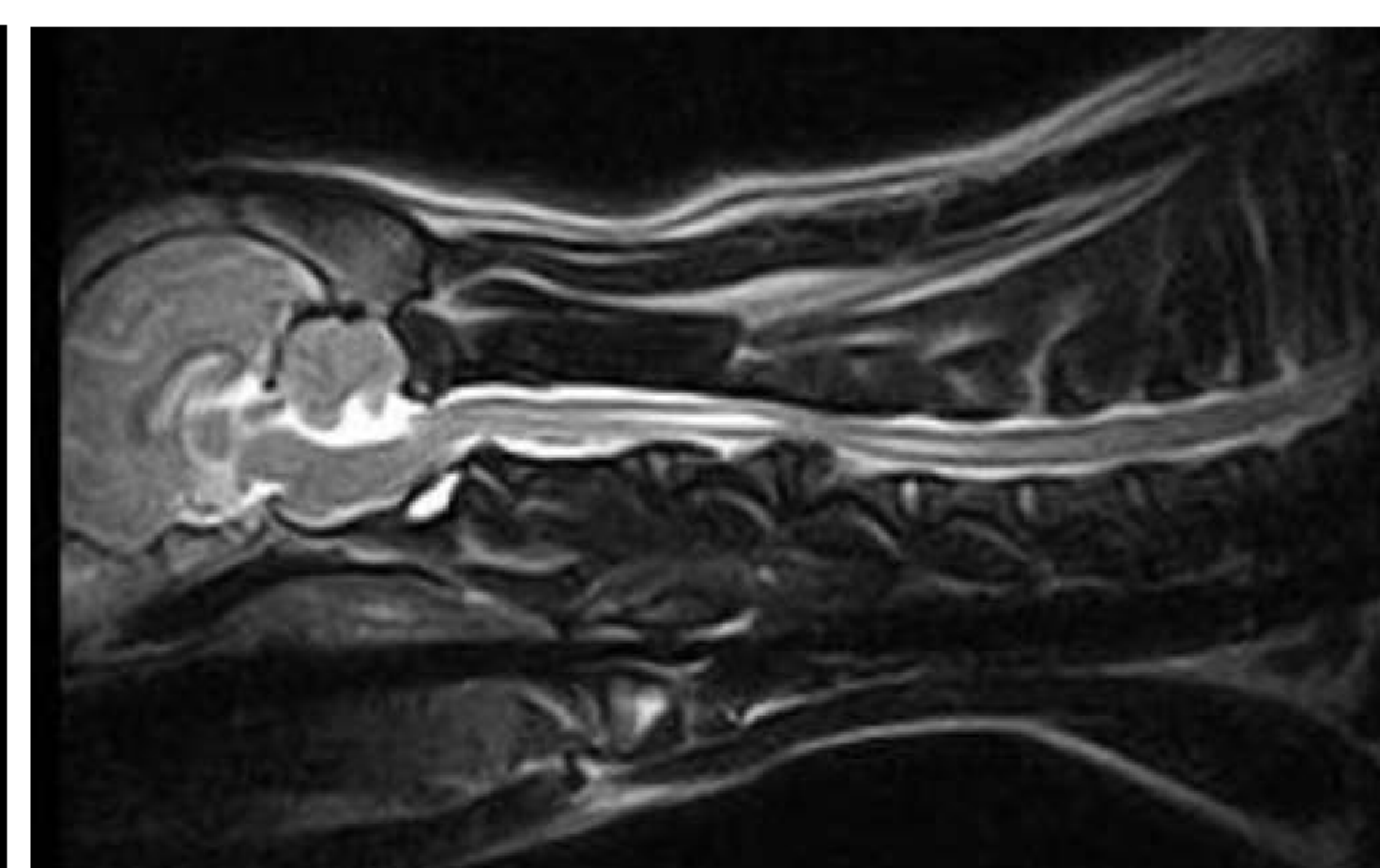


Figure 3. Sagittal T2W cervical spinal cord image. C3-C4 IVDD, fourth ventricle dilatation and SM.

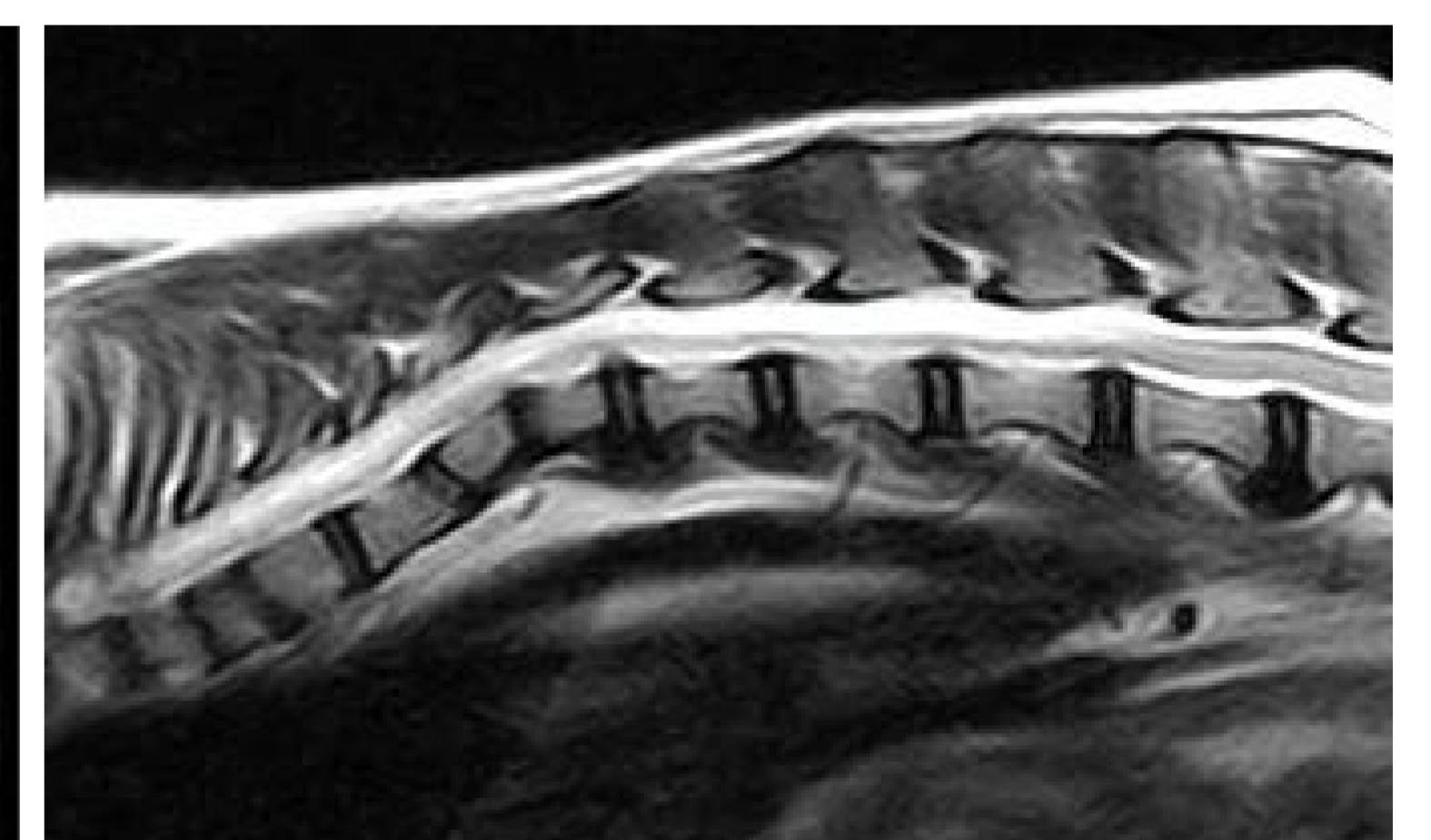
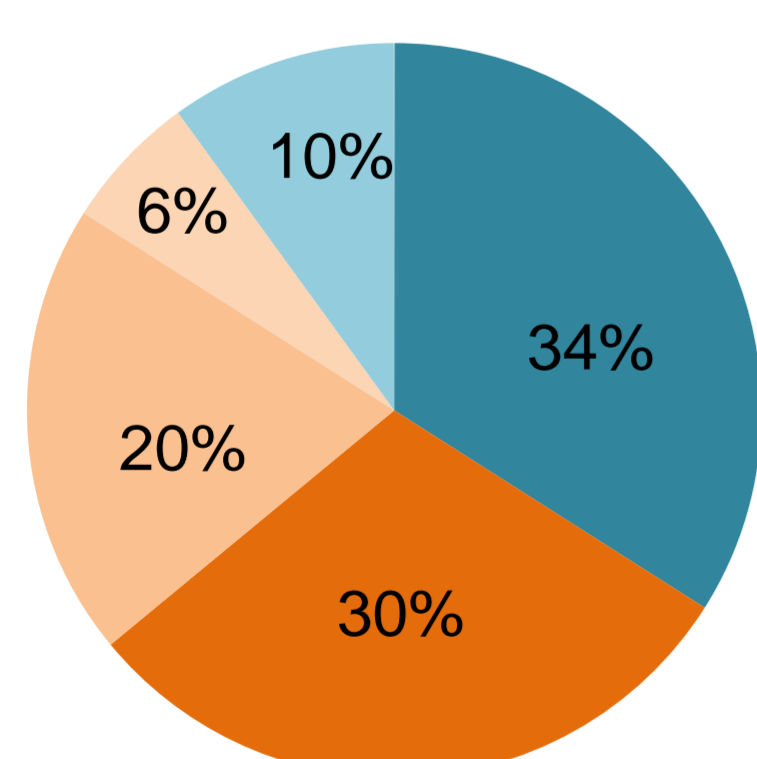


Figure 4. Sagittal T2W thoracolumbar spinal cord image. Multiple vertebral malformations and SM.

ALTERATIONS ASSOCIATED WITH SYRINGOMYELIA were classified into 5 categories:



- Intracranial space-occupying lesions (mainly neoplasia) in 34% of cases.
- Craniocervical malformations (CLM, atlantoccipital overlapping, dural band) in 30% of cases.
- Spinal compressive diseases (mainly disc herniation) in 20% of cases.
- Non-compressive spinal malformations in 6% of cases.
- In 10% of cases with complete MRI (brain and spinal cord) no associated lesion was identified.

Intracranial space-occupying lesions were the most common findings associated with SM, followed by craniocervical malformations. No craniocervical malformation was observed in 75% of the dogs with SM associated to disc herniation.

CONCLUSIONS

- 1 Males were overrepresented.
- 2 Results suggest that SM in French bulldogs is frequently unrelated to CLM.
- 3 Signs of neuropathic pain are uncommon or poorly recognized in this breed.
- 4 In 10% of cases no associated lesion was identified, suggesting the possibility of idiopathic SM in French bulldogs.

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