Luglio 2022

Malformazioni vertebrali nel Carlino e nel Buoledougue francese, cosa sappiamo?

Dr Alberto Cauduro DMV dipl ECVN

Segnalamento

Baby schema

Segnalamento

Srew tail

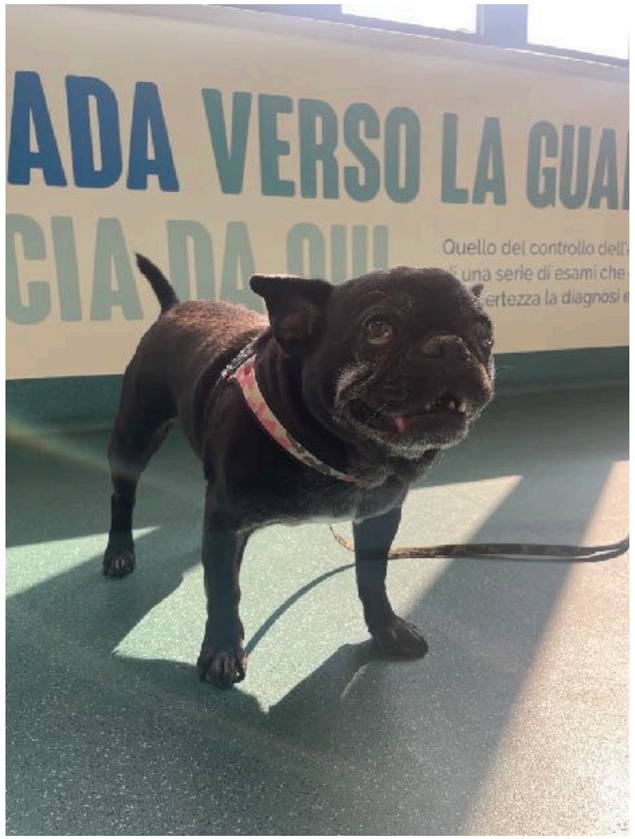
wikipedia.it

ginevraphoto.it

Segnalamento

Srew tail

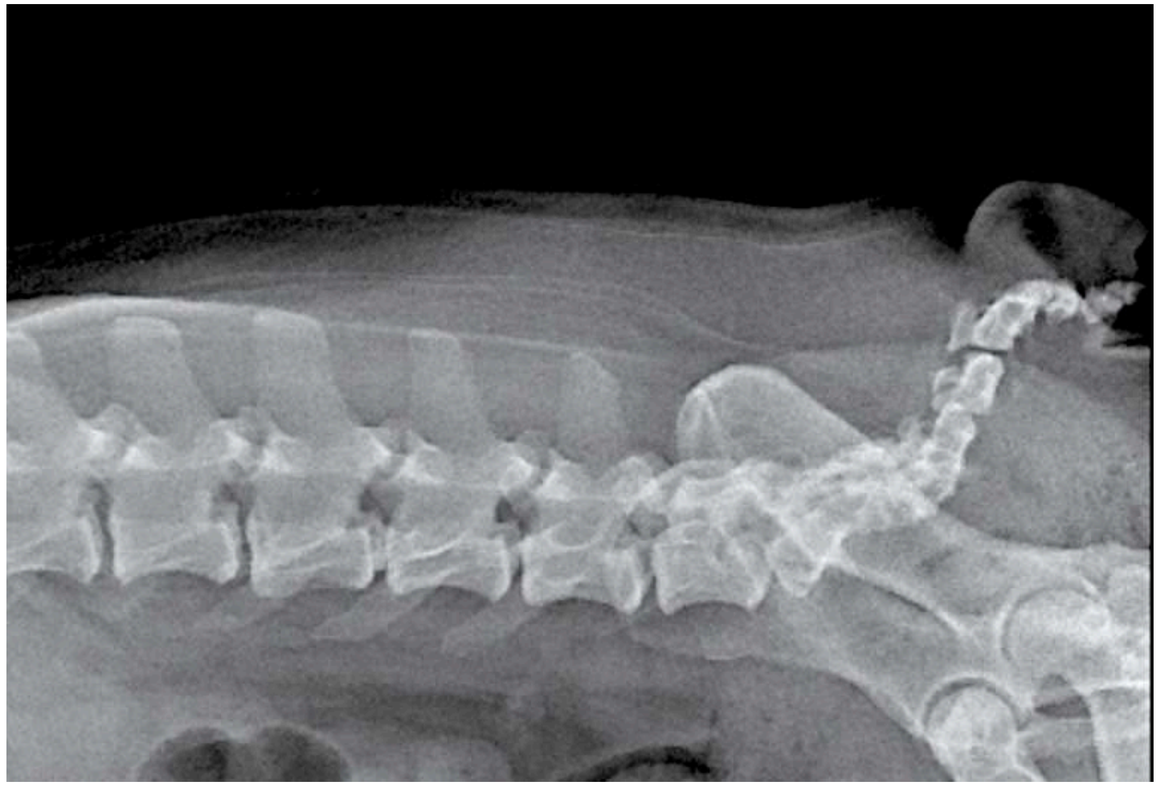
bullfitfashion.com



Dr.ssa Eccetto

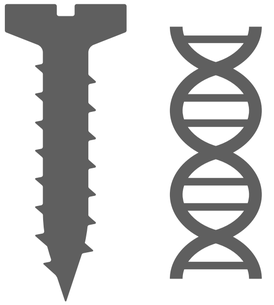
Segnalamento

Srew tail



Genetica

Srew tail



- DVL2 = screw tail
- Uomo = Robinow syndrome
  + DVL1 DVL3
- Alterazioni cranio-facciali

Human Genetics (2021) 140:1535–1545
https://doi.org/10.1007/s00439-021-02261-8

ORIGINAL INVESTIGATION

Check for updates

Canine *DVL2* variant contributes to brachycephalic phenotype and caudal vertebral anomalies

Julia E. Niskanen[1,2,3] · Vilma Reunanen[4] · Milla Salonen[1,2,3] · Danika Bannasch[5] · Anu K. Lappalainen[4] · Hannes Lohi[1,2,3] · Marjo K. Hytönen[1,2,3]

Received: 16 December 2020 / Accepted: 2 February 2021 / Published online: 18 February 2021

Abstract

A frameshift deletion variant in the Wnt pathway gene dishevelled 2 (*DVL2*) is associated with a truncated, kinked tail ("screw tail") in English Bulldogs, French Bulldogs and Boston Terriers. These breeds are also characterized by distinctive morphological traits, including a wide head, flat face and short-limbed dwarfism, which are characteristic of Robinow syndrome in humans, caused by defects in genes such as *DVL1* and *DVL3*. Based on these phenotypic and genetic similarities, it has previously been hypothesized that the canine *DVL2* variant results in a syndromic phenotype called the Robinow-like syndrome. In our study, we investigated the distribution of the *DVL2* variant in 1954 dogs from 15 breeds, identifying breeds with allele variation and enabling the dissection of the genotype–phenotype correlation for the first time. With CT examinations in American Staffordshire Terriers, we confirmed that the *DVL2* allele is associated with caudal vertebral malformations and a brachycephalic phenotype. We also hypothesize that the variant may be linked to additional health conditions, including brachycephalic obstructive airway syndrome and congenital heart defects. Altogether, our study strengthens the role of *DVL2* as one of the contributors to the "bulldog type" morphology and features on the spectrum of human Robinow syndrome.

Introduzione

Genetica

PLOS | GENETICS

RESEARCH ARTICLE

Whole genome variant association across 100 dogs identifies a frame shift mutation in *DISHEVELLED 2* which contributes to Robinow-like syndrome in Bulldogs and related screw tail dog breeds

Tamer A. Mansour[1,2☯], Katherine Lucot[1,3☯], Sara E. Konopelski[4], Peter J. Dickinson[5], Beverly K. Sturges[5], Karen L. Vernau[5], Shannon Choi[4], Joshua A. Stern[6], Sara M. Thomasy[5], Sophie Döring[7], Frank J. M. Verstraete[5], Eric G. Johnson[5], Daniel York[5], Robert B. Rebhun[5], Hsin-Yi Henry Ho[4], C. Titus Brown[1,8], Danika L. Bannasch[1,8]*

1 Department of Population Health and Reproduction, School of Veterinary Medicine, University of California Davis, Davis, CA, United States of America, **2** Department of Clinical Pathology, School of Medicine, University of Mansoura, Mansoura Egypt, **3** Integrative Genetics and Genomics Graduate Group, University of California Davis, Davis, CA, United States of America, **4** Department of Cell Biology and Human Anatomy, School of Medicine, University of California Davis, Davis, CA, United States of America, **5** Department of Surgical and Radiological Sciences, School of Veterinary Medicine, University of California Davis, Davis, CA, United States of America, **6** Department of Medicine and Epidemiology, School of Veterinary Medicine, University of California Davis, Davis, CA, United States of America, **7** William R. Pritchard Veterinary Medical Teaching Hospital, School of Veterinary Medicine, University of California Davis, Davis, CA, United States of America, **8** Genome Center, University of California Davis, Davis, CA, United States of America

☯ These authors contributed equally to this work.
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OPEN ACCESS

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Abstract

Introduzione

Genetica

Craniofacial and intraoral phenotype of Robinow syndrome forms

S. Beiraghia, V. Leon-Salazara • Published 2011 • Medicine

Robinow syndrome (RS) is a rare genetic condition with two inheritance forms, autosomal dominant RS (DRS) and autosomal recessive RS (RRS). The characteristic features of this syndrome overlap in both inheritance forms, which make the clinical differential diagnosis difficult, especially in isolated cases. The objective of this study was to identify differences in the craniofacial and intraoral phenotype of patients with DRS and RRS. The characteristics and frequency of 13 facial and 13... Expand

1 Citations

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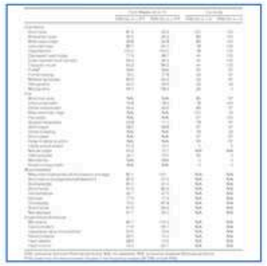
Abstract | Figures and Tables | 1 Citations | 21 References | Related Papers

Figures and Tables from this paper

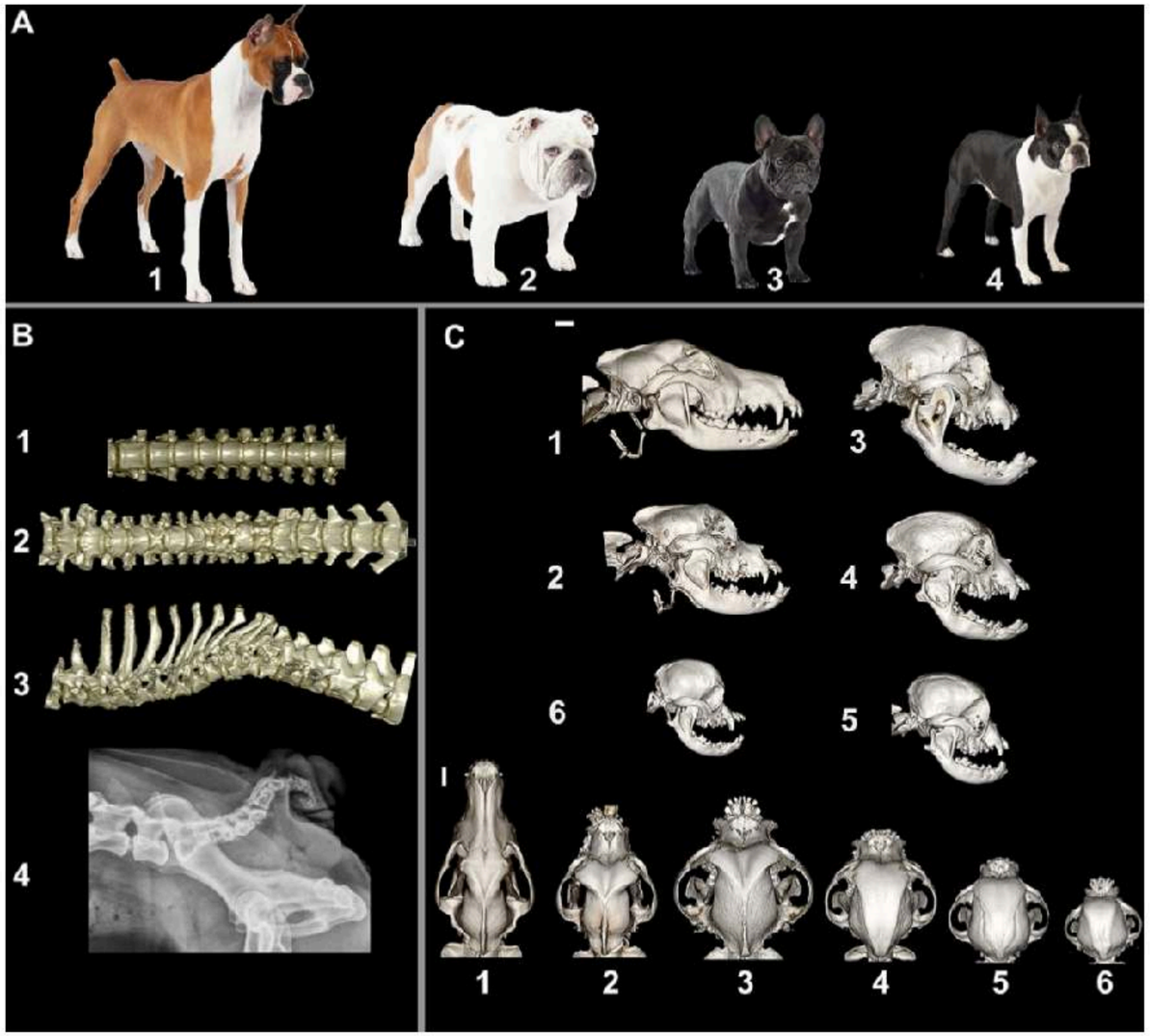




Introduzione

Genetica

PLOS GENETICS

Frame shift mutation in *DISHEVELLED 2* in Bulldogs and related screw tail dog breeds



Epidemiologia

Received: 20 August 2020 | Revised: 19 March 2021 | Accepted: 30 April 2021

DOI: 10.1002/vetr.509

ORIGINAL RESEARCH

Vet Record

Epidemiological study of congenital malformations of the vertebral column in French bulldogs, English bulldogs and pugs

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[2] Small Animal Clinic, Department of Clinical Veterinary Medicine, Vetsuisse-Faculty, University Bern, Bern, Switzerland

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Abstract

Background: Congenital vertebral body malformations (CVBMs) have retrospectively been investigated in British and American canine populations. This study prospectively evaluates occurrence, localization, type and characteristic of CVBM along the entire vertebral column in a cohort of French Bulldogs, English Bulldogs and Pug dogs from Germany.

Methods: Prospective clinical and radiological screenings for CVBM were performed in brachycephalic dogs presented for reasons unrelated to neurological problems. Neurological and orthopaedic examinations as well as radiographs in two orthogonal planes of the entire vertebral column including the tail were performed in all dogs. Cobb angle and vertebral step were determined. Associations between CVBM, tail malformation, neurological deficits and occurrence of concurrent orthopaedic diseases were investigated.

Results: A total of 707 VBMs were identified in the whole vertebral column of 169 of 265 brachycephalic dogs. The most common types of CVBMs were ventral wedge shape (48%), dorsal wedge shape (14%) and shortened vertebral body (14%). A new type of malformation was investigated: dorsal wedge shape vertebrae. There was significant association between severe tail malformations with CVBM. Neurological deficits were significantly associated with ventrolateral wedge shape, dorso lateral hemivertebrae, Cobb angle > 30% and vertebral step ≥1.75 mm. Orthopaedic conditions were not significantly associated with CVBM.

Conclusion: Kyphotic Cobb angle and vertebral step are radiological findings associated with neurological deficits. We propose severe tail malformation as an easy and accurate selection factor for determining breeding dogs.

KEYWORDS
neurology, neuroradiology, radiography

Epidemiologia

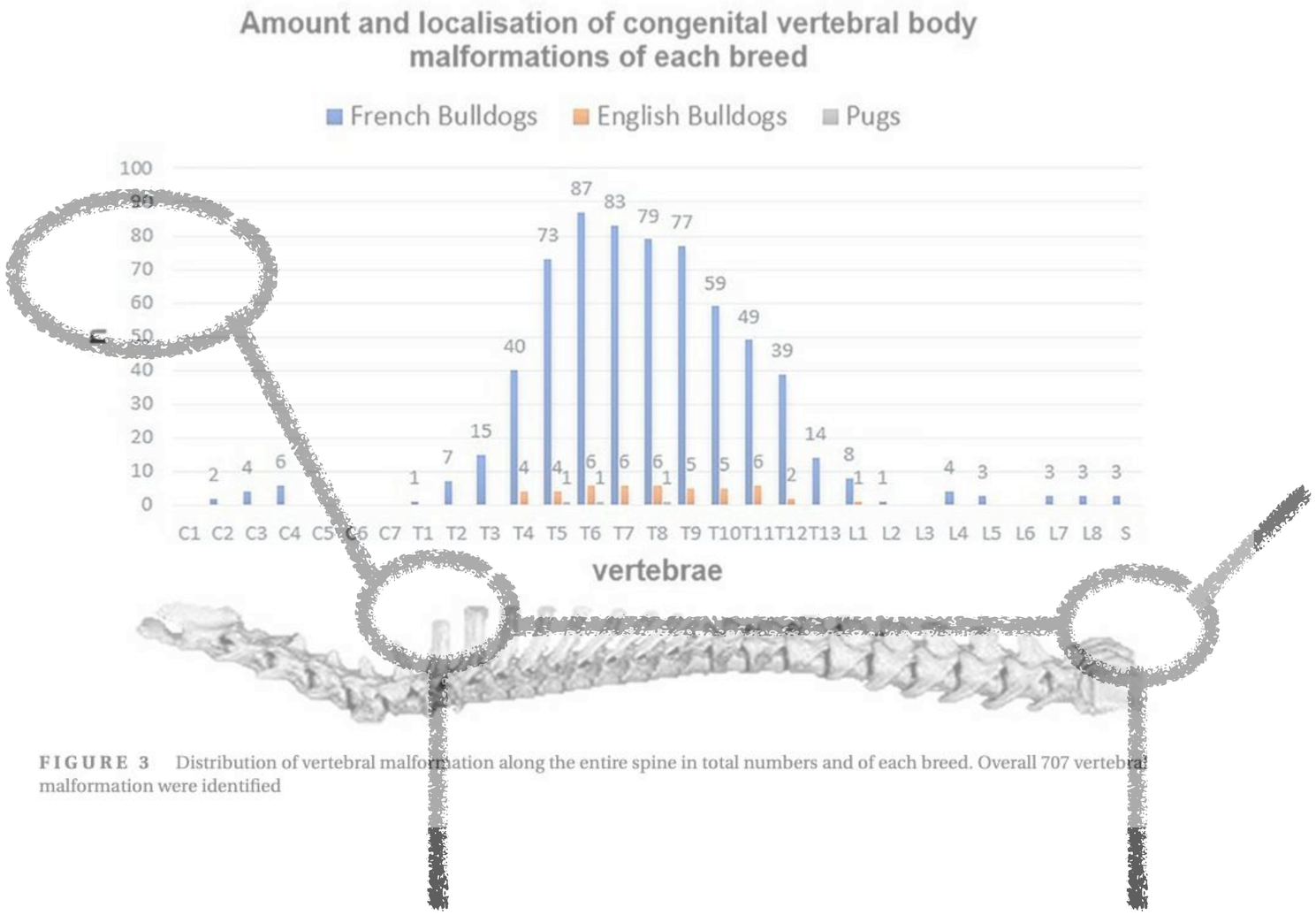


FIGURE 3 Distribution of vertebral malformation along the entire spine in total numbers and of each breed. Overall 707 vertebral malformation were identified

Frequenza

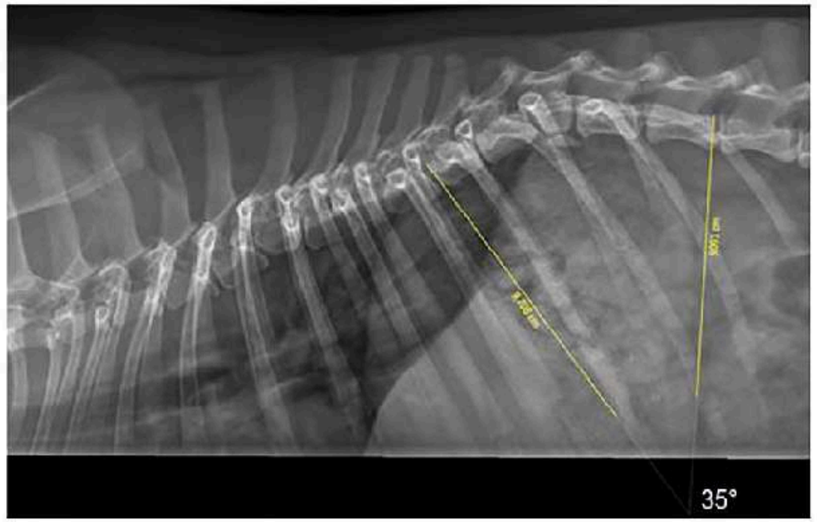


FIGURE 1 Radiograph of the spine of a French Bulldog, female, 2.5 years, laterolateral projection, measurement of the cobb-angle (–,–)

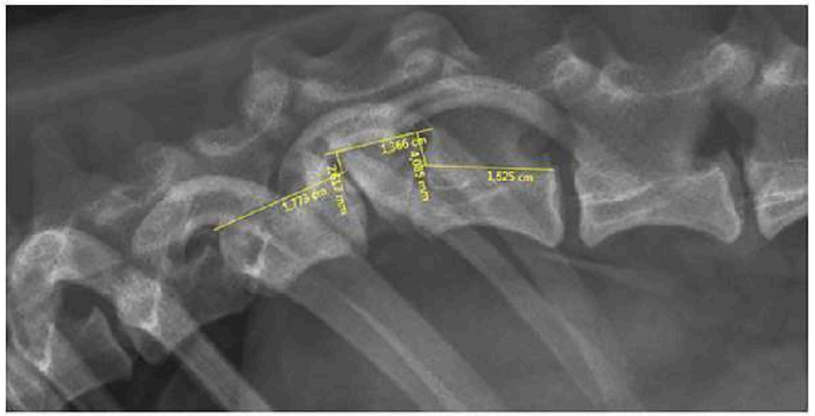


FIGURE 2 Radiograph of the thoracolumar junction of the spine of a French Bulldog, female, 3 years, laterolateral projection (–,–)

Frequenza

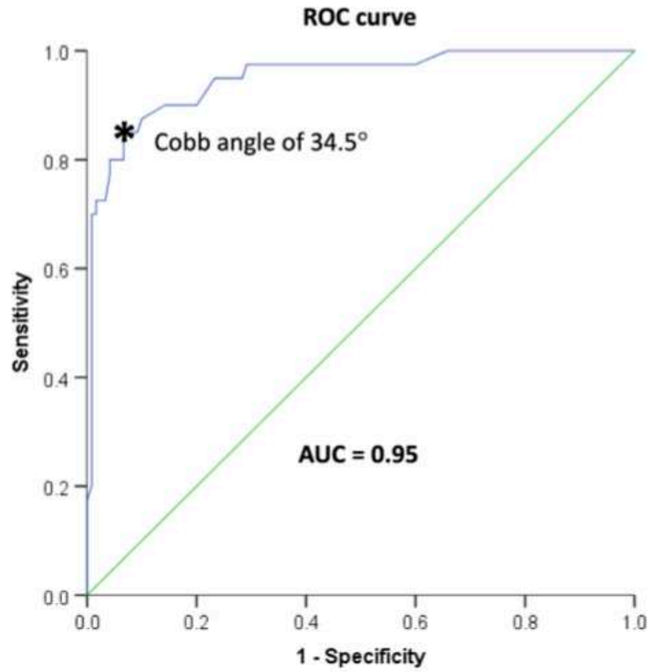


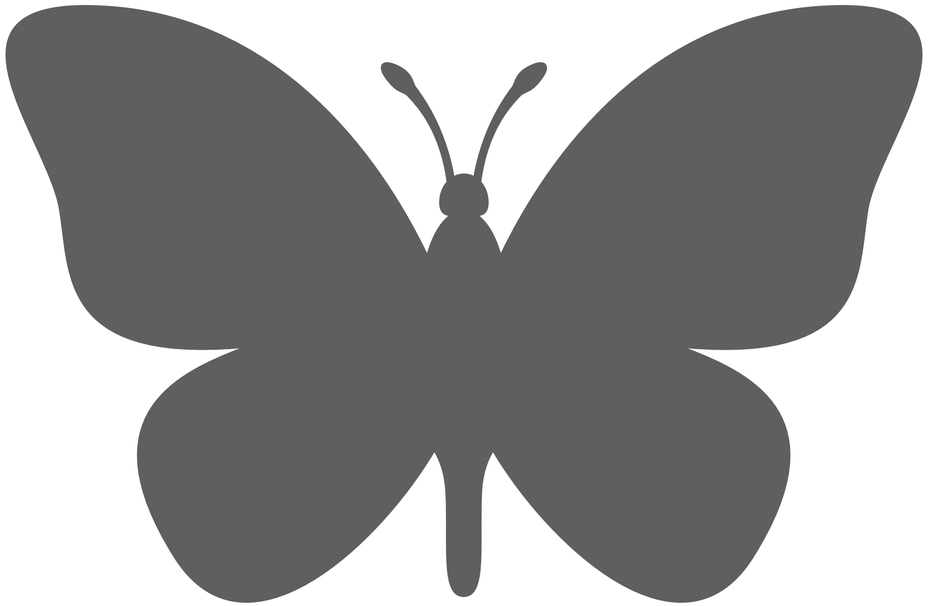
FIGURE 1 Receiver operating characteristic curve for the degree of kyphosis expressed by the Cobb angle in 40 dogs with neurological signs associated with thoracic hemivertebra and 120 dogs without neurological signs associated with hemivertebra. A Cobb angle of 34.5 degrees (asterisk) corresponded with the highest combined sensitivity and specificity to differentiate between dogs with and without clinical signs

kyphosis, fewer instead of more observed hemivertebrae, and VLH hemivertebra subtype were considered independent variables predicting the presence of neurological signs. The identification of these variables potentially could aid in making a diagnosis and increase our understanding of the pathophysiology of hemivertebra in small breed brachycephalic dogs.

Breed was 1 of the strongest independent variables to predict the presence of neurological signs in dogs with thoracic hemivertebra. Pugs with hemivertebra were at 10-fold the odds to have neurological signs compared to French and English Bulldogs with hemivertebra. This finding suggests that Pugs are predisposed to neurological signs caused by thoracic hemivertebra, which is in agreement with previous suggestions.[8] A previous study found that although thoracic hemivertebrae occur less commonly in neurologically normal Pugs compared to neurologically normal French and English Bulldogs, they were paradoxically more often diagnosed with hemivertebra as the cause of neurological signs.[8] Although hemivertebra in neurologically normal Pugs is associated with different anatomical characteristics and a higher likelihood of kyphosis compared to hemivertebra in French and English Bulldogs,[24] it is currently unclear why a thoracic hemivertebra in Pugs is more likely to result in clinical signs compared to other breeds. Although these findings suggest that the occurrence of thoracic hemivertebra in Pugs should be considered of greater clinical importance, it is possible that hemivertebra in other "screw-tailed" brachycephalic breeds should not be considered a benign incidental finding on diagnostic imaging studies. Hemivertebra with kyphosis has been suggested to

Tipi di malformazioni

Definzioni



Genetica

Srew tail

A PROPOSED RADIOGRAPHIC CLASSIFICATION SCHEME FOR CONGENITAL THORACIC VERTEBRAL MALFORMATIONS IN BRACHYCEPHALIC "SCREW-TAILED" DOG BREEDS

RODRIGO GUTIERREZ-QUINTANA, JULIEN GUEVAR, CATHERINE STALIN, KITERIE FALLER, CARMEN YEAMANS, JACQUES PENDERIS

Congenital vertebral malformations are common in brachycephalic "screw-tailed" dog breeds such as French bulldogs, English bulldogs, Boston terriers, and pugs. The aim of this retrospective study was to determine whether a radiographic classification scheme developed for use in humans would be feasible for use in these dog breeds. Inclusion criteria were hospital admission between September 2009 and April 2013, neurologic examination findings available, diagnostic quality lateral and ventro-dorsal digital radiographs of the thoracic vertebral column, and at least one congenital vertebral malformation. Radiographs were retrieved and interpreted by two observers who were unaware of neurologic status. Vertebral malformations were classified based on a classification scheme modified from a previous human study and a consensus of both observers. Twenty-eight dogs met inclusion criteria (12 with neurologic deficits, 16 with no neurologic deficits). Congenital vertebral malformations affected 85/362 (23.5%) of thoracic vertebrae. Vertebral body formation defects were the most common (butterfly vertebrae 6.6%, ventral wedge-shaped vertebrae 5.5%, dorsal hemivertebrae 0.8%, and dorso-lateral hemivertebrae 0.5%). No lateral hemivertebrae or lateral wedge-shaped vertebrae were identified. The T7 vertebra was the most commonly affected (11/28 dogs), followed by T8 (8/28 dogs) and T12 (8/28 dogs). The number and type of vertebral malformations differed between groups ($P = 0.01$). Based on MRI, dorsal, and dorso-lateral hemivertebrae were the cause of spinal cord compression in 5/12 (41.6%) of dogs with neurologic deficits. Findings indicated that a modified human radiographic classification system of vertebral malformations is feasible for use in future studies of brachycephalic "screw-tailed" dogs.

Key words: butterfly vertebra, congenital vertebral malformation, hemivertebra, kyphosis, scoliosis.

Tipi di malformazioni

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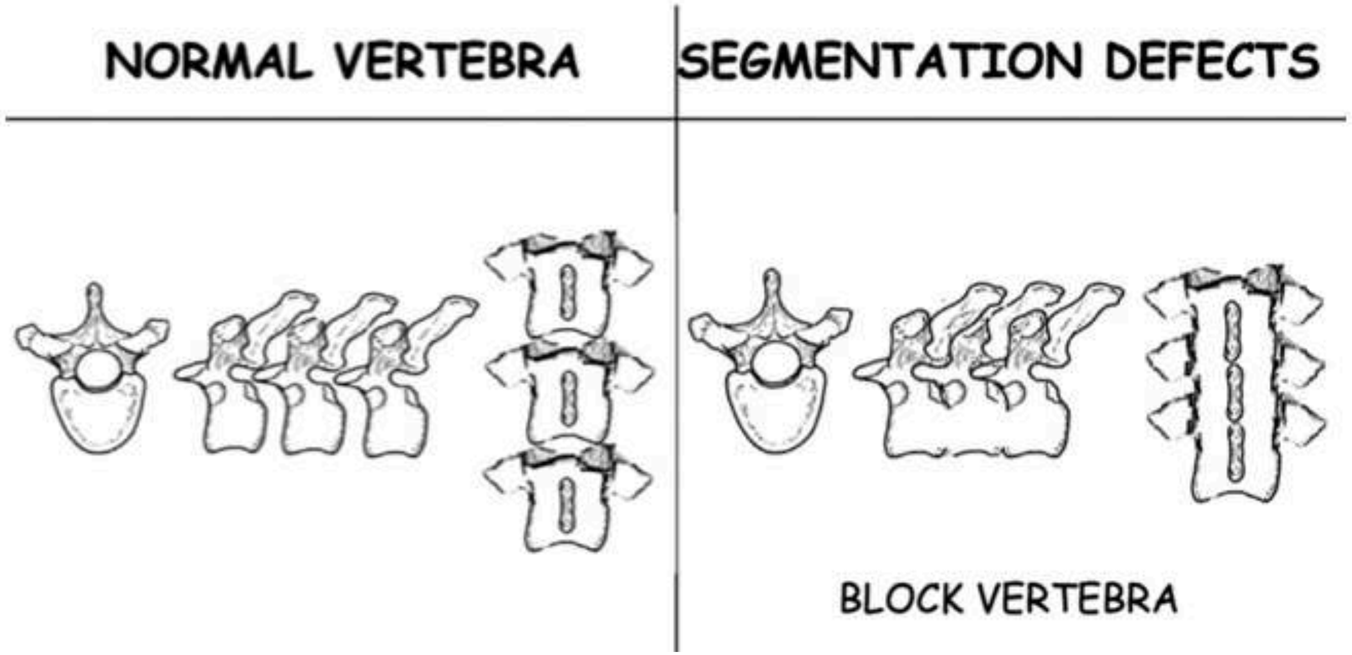

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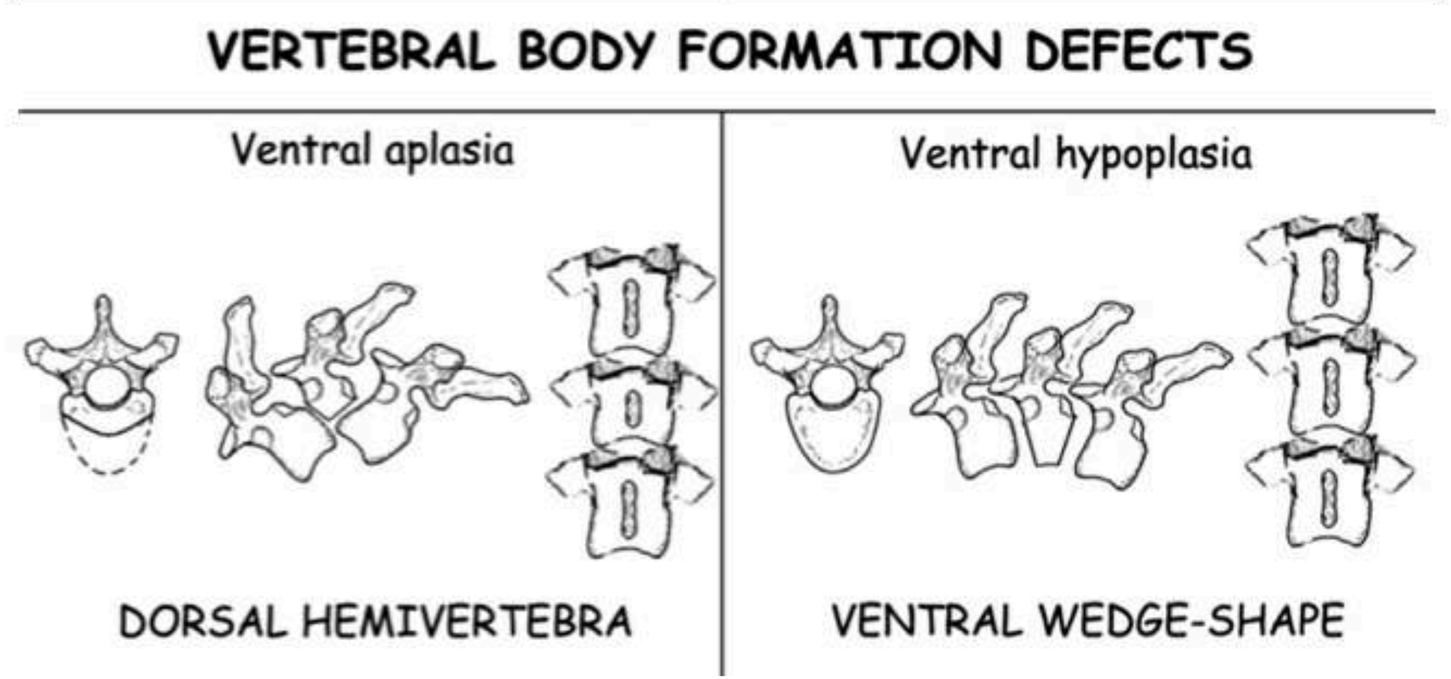

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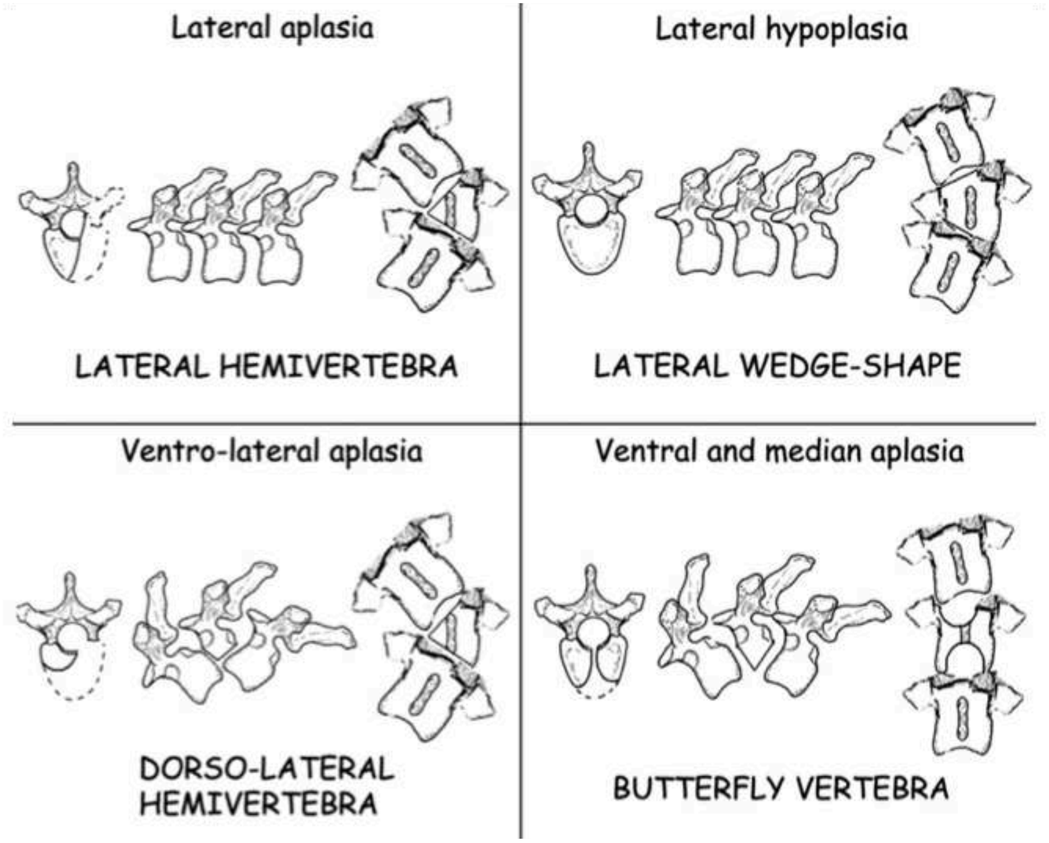

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Tipi di malformazioni

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DOI: 10.1111/vru.12609

ORIGINAL INVESTIGATION

WILEY

Caudal articular process dysplasia of thoracic vertebrae in neurologically normal French bulldogs, English bulldogs, and Pugs: Prevalence and characteristics

Simon Bertram[1] | **Gert ter Haar**[1,2] | **Steven De Decker**[1]

[1]Department of Clinical Science and Services, Royal Veterinary College, University of London, Hatfield, UK

[2]Specialistische Dierenkliniek Utrecht, Utrecht, the Netherlands

Correspondence
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Abstract

The aims of this study were to evaluate the prevalence and anatomical characteristics of thoracic caudal articular process dysplasia in French bulldogs, English bulldogs and Pugs presenting for problems unrelated to spinal disease. In this retrospective cross-sectional study, computed tomography scans of the thoracic vertebral column of these three breeds were reviewed for the presence and location of caudal articular process hypoplasia and aplasia, and compared between breeds. A total of 271 dogs met the inclusion criteria: 108 French bulldogs, 63 English bulldogs, and 100 Pugs. A total of 70.4% of French bulldogs, 84.1% of English bulldogs, and 97.0% of Pugs showed evidence of caudal articular process dysplasia. Compared to French and English bulldogs, Pugs showed a significantly higher prevalence of caudal articular process aplasia, but also a lower prevalence of caudal articular process hypoplasia, a higher number of affected vertebrae per dog and demonstrated a generalized and bilateral spatial pattern more frequently. Furthermore, Pugs showed a significantly different anatomical distribution of caudal articular process dysplasia along the vertebral column, with a high prevalence of caudal articular process aplasia between T10 and T13. This area was almost completely spared in French and English bulldogs. As previously suggested, caudal articular process dysplasia is a common finding in neurologically normal Pugs but this also seems to apply to French and English bulldogs. The predisposition of clinically relevant caudal articular process dysplasia in Pugs is possibly not only caused by the higher prevalence of caudal articular process dysplasia, but also by breed specific anatomical characteristics.

KEYWORDS

brachycephalic, facet joint, vertebral malformation

Tipi di malformazioni

- Totale di 70.4% French bulldogs, 84.1% English bulldogs e 97.0% Carlini
- T10-T11 conformazione anatomica tipica
- T11-T13processi articolari allineati verticali
- Aplasia faccette possibile causa instabilità

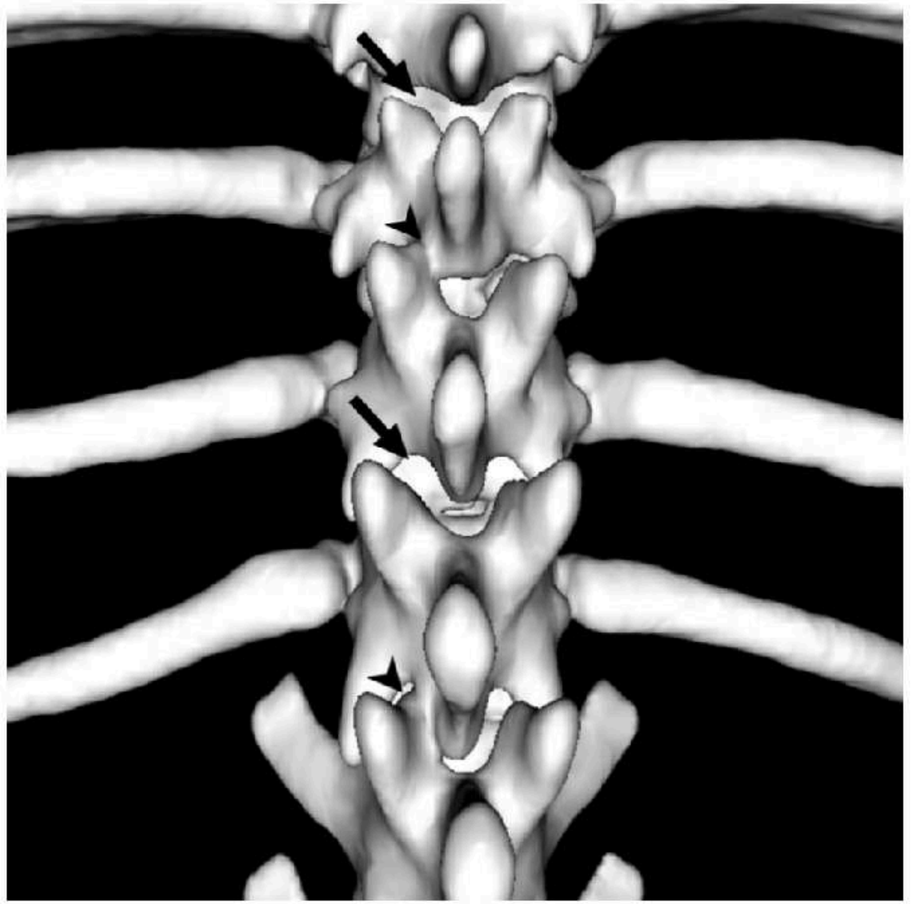

FIGURE 5 Three-dimensional reformatted computed tomography study of the caudal (T10–T13) thoracic vertebral column and ribs with evidence of hypoplasia (arrowhead) and aplasia (arrows) of the caudal articular processes

Prevalenza e segni clinici

- 80.7% cani normali almeno una malformazione
- Comune cani “ Screw Tail” avere malformazioni
- Più importanza clinica nei Carlini

Prevalence of t
Pugs and Englis
deficits

R. Ryan [a], R. Gutierr

[a] Department of Veterinary Clinic
England, UK
[b] School of Veterinary Medicine, C

ARTICLE INFO

Article history:
Accepted 30 January 2017

Keywords:
Brachycephalic
Hemivertebra
Kyphosis
Spina bifida
Transitional vertebra

VETERINARY JOURNAL

AUSTRALIA'S PREMIER VETERINARY SCIENCE TEXT

SMALL ANIMALS

ORIGINAL ARTICLE

The presence, morphology and clinical significance of vertebral body malformations in an Australian population of French Bulldogs and Pugs

JD Brown,[a,*] J Podadera,[b] M Ward,[b] S Goldsmid[b] and DJ Simpson[a]

SMALL ANIMALS

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Objective To describe the incidence, morphology and clinical significance of congenital vertebral malformations (CVM) in two breeds of brachycephalic dogs presenting to a referral veterinary hospital.

Design Prospective cohort study series.

Materials and methods Forty-nine French Bulldogs and Pugs were prospectively evaluated and placed in one of two groups based on whether or not they presented for neurological signs referable to spinal cord disease. A computed tomography (CT) of their entire spine was obtained and the presence and classification of CVM along with the degree of spinal kyphosis recorded for all dogs. Statistical analysis was performed to identify clinical associations between these factors ($P < 0.05$).

Results CVM were prevalent across both breeds with the French Bulldog having more malformations than the Pug (Kruskal–Wallis nonparametric analysis of variance, $P < 0.0001$). Breed associated vertebral malformation subtypes included butterfly subtype in French Bulldogs (Chi-square, $P = 0.0002$), and transitional subtype in Pugs (odds ratio, 22.7; $P = 0.000$). A new subtype, dorsal wedge, was observed in 12 cases. The presence, number and subtype of vertebral malformation were not reliable for predicting the development of neurological signs across both breeds (Chi-square, $P > 0.05$). However, spinal kyphosis >35° calculated via Cobb angle was associated with Pugs that had neurological deficits (Chi-square, $P = 0.028$).

Conclusions Congenital vertebral malformations largely appear to be incidental findings in this population of French Bulldogs but are of more significance in the Pug breed when spinal kyphosis is >35°. French Bulldogs that have spinal cord disease and CVM are more likely to have pathology distant to CVM with intervertebral disc herniation most common.

Keywords brachycephalic; CT; hemivertebra; vertebral malformation

Abbreviations CVM, congenital vertebral malformations; DVL2, Disheveled 2; IVDH, intervertebral disc herniation; MRI, magnetic resonance imaging

Congenital vertebral malformations (CVM) often occur in the thoracic spines of small brachycephalic breeds of dog such as French Bulldogs, English Bulldogs, Boston Terriers and Pugs.[1–3] These malformations are typically grouped into two broad categories: one is those that involve the failure of vertebral segmentation, which are known as block vertebrae. The other category is a failure of vertebral development, which results in the formation of wedge vertebra (vertebral hypoplasia), hemivertebra (vertebral aplasia) or butterfly vertebra (ventral and median aplasia). Other anomalies of vertebral formation include transitional vertebra, facet joint hypoplasia and spina bifida.[4]

Dogs with clinically significant CVM generally present with slowly progressive neurological deficits within the first year of life.[5] However, many CVM are incidentally encountered on radiographs or computed tomography (CT). The difficulty in differentiating between clinically relevant and irrelevant CVM has led to the exploration of various risk factors that may more reliably predict the development of neurological clinical signs. These have involved vertebral malformation scoring systems through the specific breed societies looking at the number and location of vertebral malformations along the spinal column, as well as the development of a classification scheme that categorises vertebral malformation types based on a human classification system.[2,6] Further studies have looked at the degree of spinal subluxation at areas of vertebral malformations and the subsequent vertebral canal stenosis, the degree of dorsal angulation (kyphosis), and lateral angulation (scoliosis) of the spinal column.[2,7]

The refinement of CVM classification and measurement has led to the characterisation or association of particular types of malformations, especially in the Pug and French Bulldog breed, which are two of the most popular and commonly encountered brachycephalic breeds in Australia.[8] Some studies have found specific factors such as the Pug breed, hemivertebra subtype, presence of subluxation and severity of kyphosis to be associated with a higher likelihood of developing neurological signs.[2,9,10] While the more widespread use and availability of CT have also made characterisation and measurement of these specific factors more accurate compared with orthogonal radiographs of the spinal column.[11]

Increasingly, the development of neurological signs in these breeds and whether there is a direct or indirect influence by CVM appear multifactorial. Alterations in spinal column biomechanics as a result of CVM have been implicated in the acceleration of degenerative changes within intervertebral discs adjacent to malformations that

l breed dogs. This retrospec-
tebral malformations in 171
ycephalic dogs. Neurologi-
ile affected dogs underwent
g hemivertebrae, block ver-

8 Pugs and 41 English bull-
ine Pugs. Overall, 80.7% of
rmation. There was a signif-
nore often in neurologically
Compared to other breeds,
s (93.5%; $P < 0.0001$ vs. Pugs;
(17.6%; $P = 0.004$ vs. English
sitional vertebrae and spina
s included in the study, 4.7%
hen compared to the general
two breeds ($P = 0.006$). This
eurologically normal screw-
cidental diagnostic findings,
screw-tailed brachycephalic

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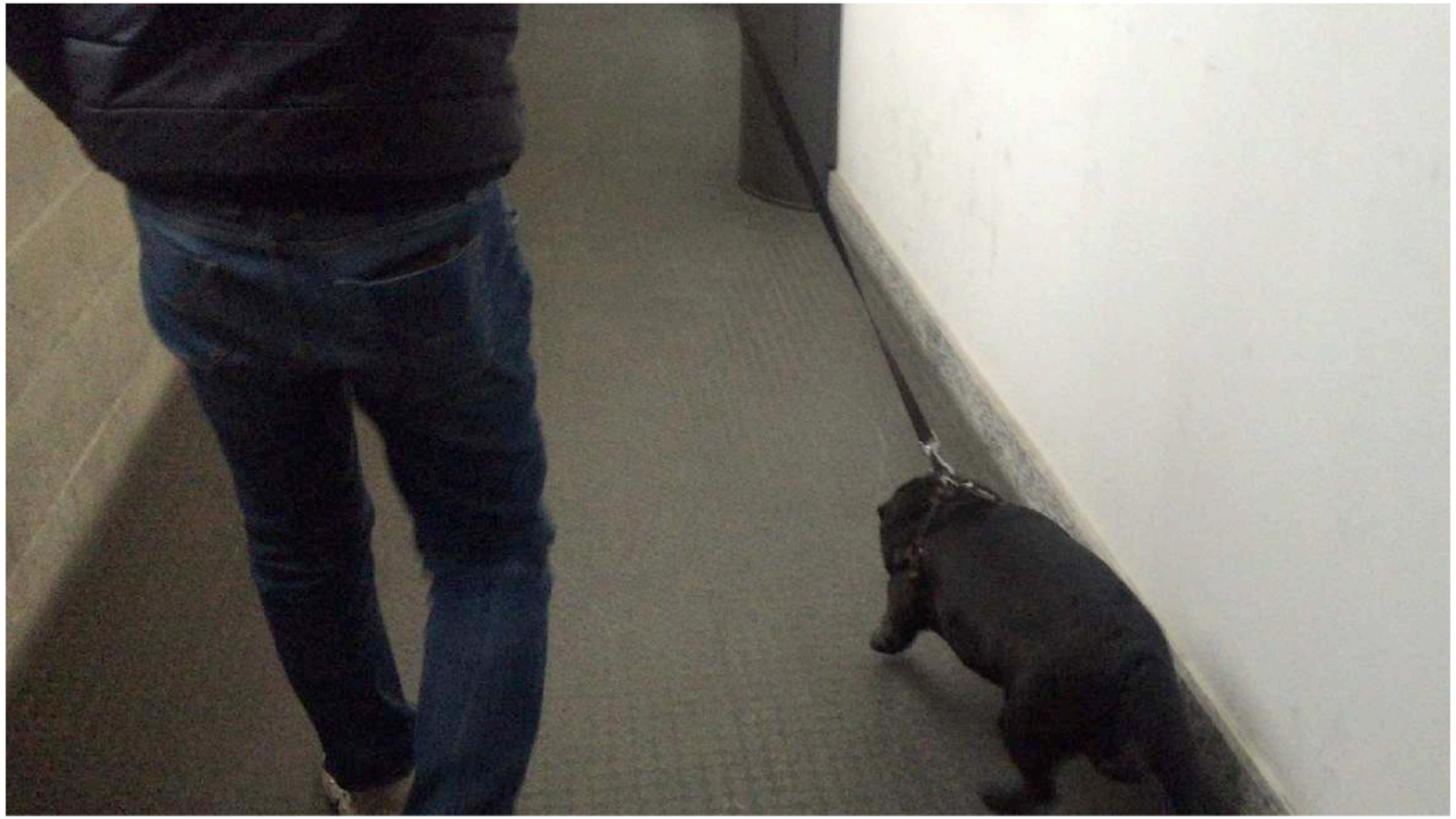
Segni clinici

Segni clinici



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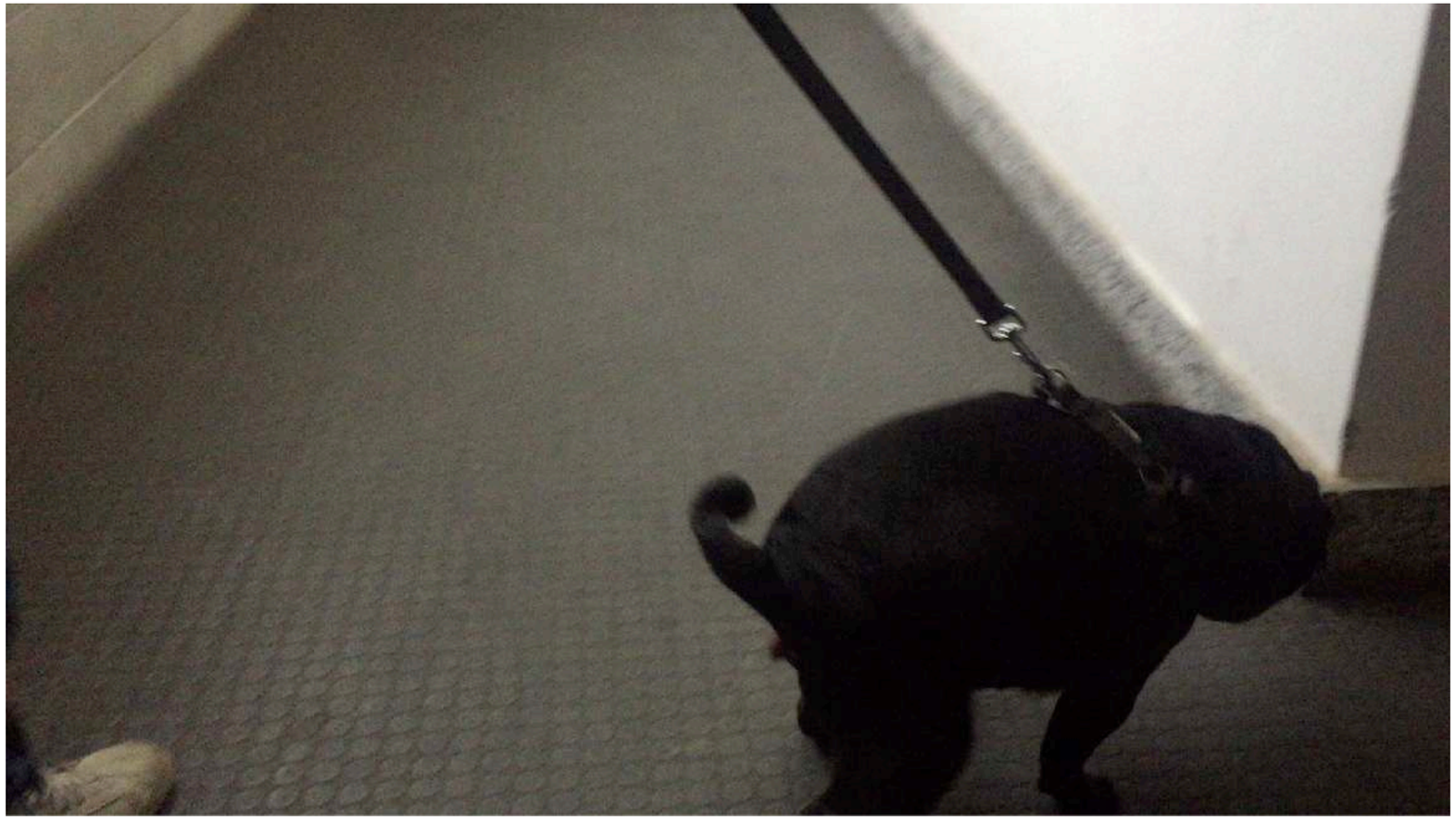

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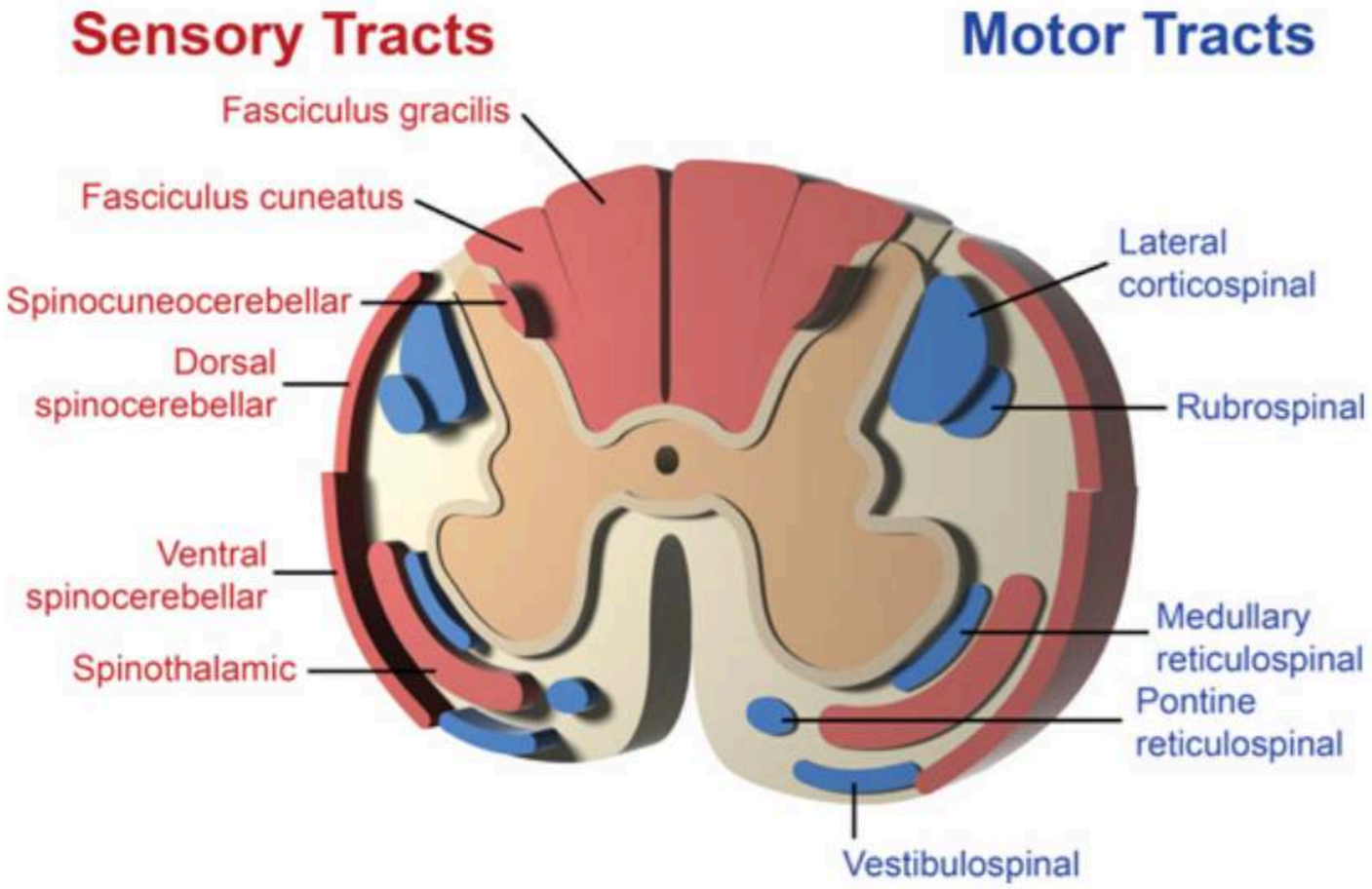


Predisposizione altre patologie

Diverticoli spinali aracnoidei: SAD

Cystic Abnormalities of the Spinal Cord and Vertebral Column

Ronaldo C. da Costa, DMV, MSc, PhD*, Laurie B. Cook, DVM

KEYWORDS

• Synovial cyst • Arachnoid diverticulum • Cysts • Dilated subarachnoid space

KEY POINTS

- Cystic lesions of the vertebral column and spinal cord are an important differential diagnosis in dogs with signs of spinal cord disease.
- Synovial cysts are commonly associated with degenerative joint disease and commonly affect the cervical and lumbosacral regions.
- Arachnoid diverticulum (previously known as cysts) is common in the cervical region of large breed dogs and thoracolumbar region of small breed dogs.
- This article reviews the causes, diagnosis, and treatment of these and other, less common, cystic lesions.

da Costa & Cook

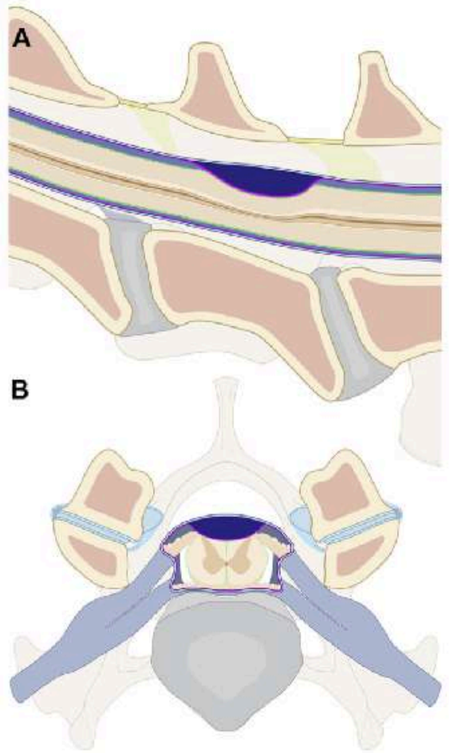
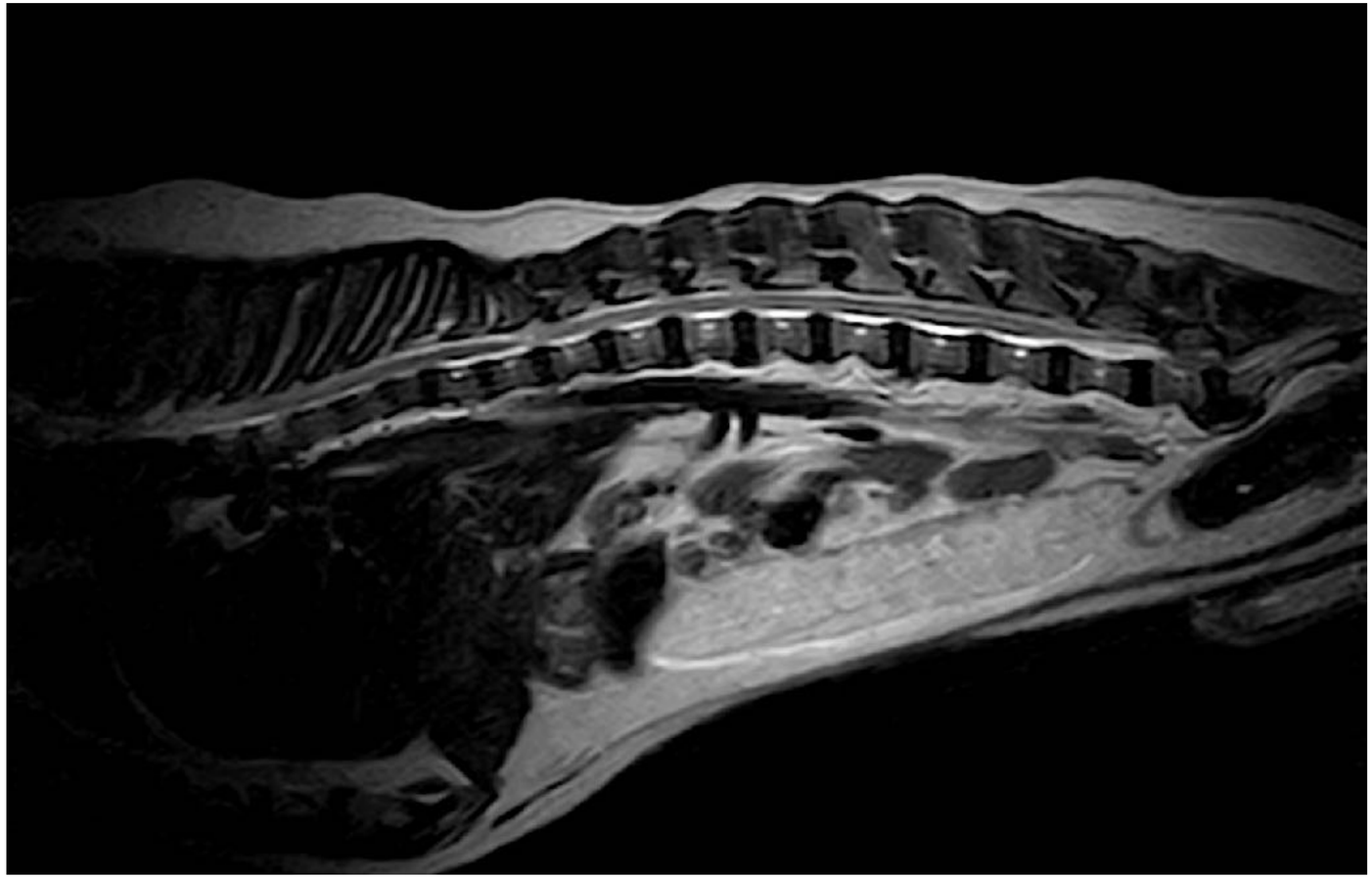


Fig. 5. Arachnoid diverticulum: (*A*) sagittal and (*B*) transverse views. The arachnoid layer separates forming the cystic-like structure and causes extradural compression of the spinal cord. (*Courtesy of* The Ohio State University, Columbus, OH, 2016; with permission.)

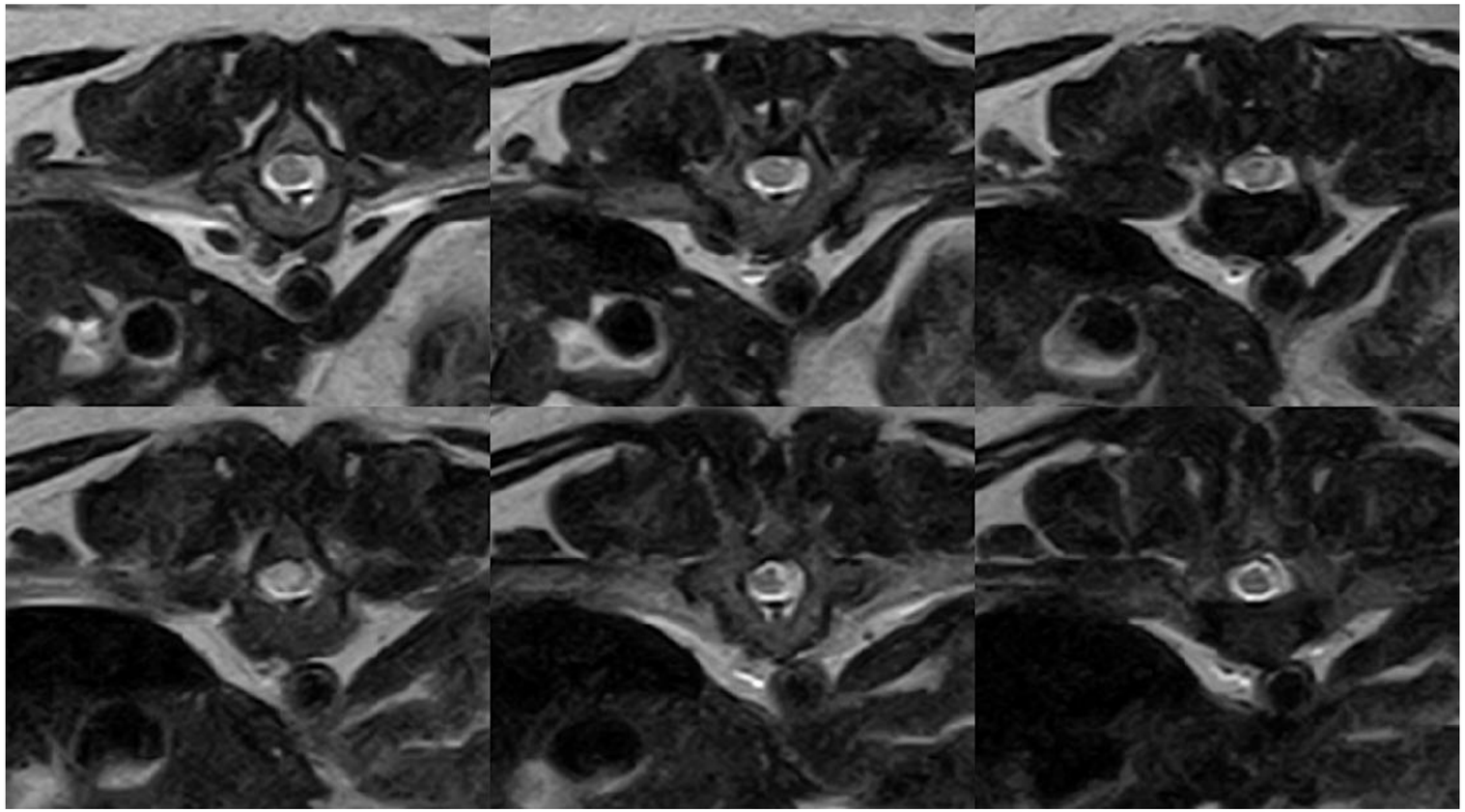
Predisposizione altre patologie

Diverticoli spinali aracnoidei: SAD



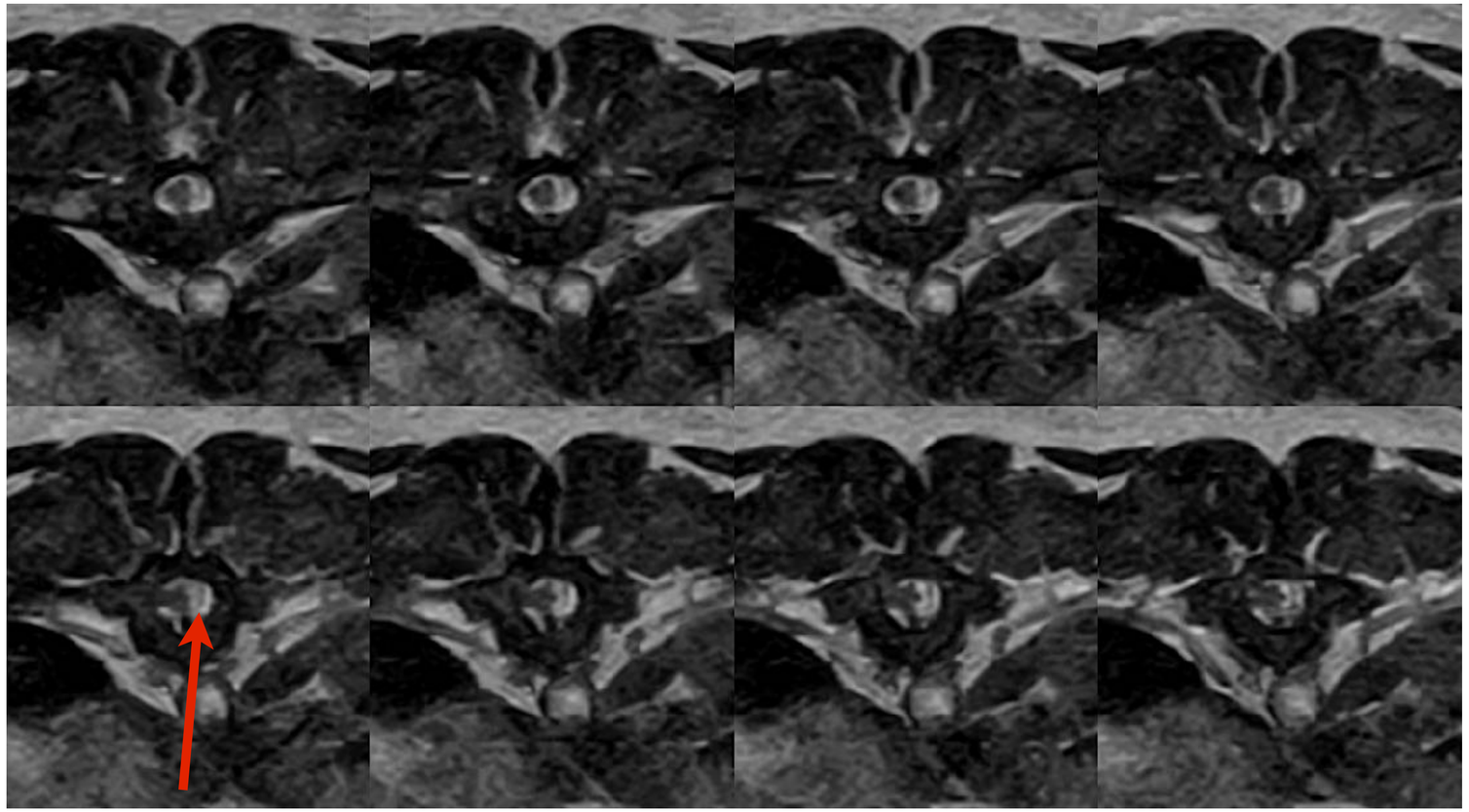
Predisposizione altre patologie

Diverticoli spinali aracnoidei: SAD



Predisposizione altre patologie

Diverticoli spinali aracnoidei: SAD



Trattamento

Chirurgico

- 25 pazienti - Carlini!
- Età media 7.32 anni
- 80% maschi
- 25 casi breve periodo > 80% migliorati
- 21 casi lungo periodo > 86% peggiorati
- Solo 8 casi RM controllo (2 sad sito, 2 sad altro sito, 6 lesioni intramid)
- Non favorevole…Molti dubbi!!

4 | DISCUSSION

In the current study we found that 80% of Pugs show improvement of signs of neurological dysfunction within the first 6 months after surgical treatment of SAD. We believe that short-term improvement prevalence is even higher as 1 of the dogs with short-term deterioration

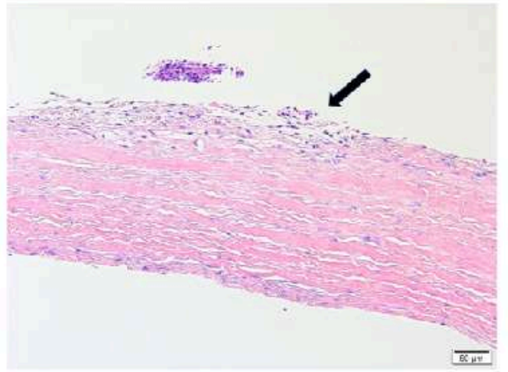


FIGURE 1 Pug, 7 years old, male, suffering from SAD at the T11 vertebral level. Histological section of the diverticula wall. The diverticula wall is composed of mature collagenous connective tissue and lined in places by flattened epithelium. There is mild inflammatory reaction consisting of neutrophils and lymphocytes (arrow). Hematoxylin and eosin staining. ×20 magnification

these Pugs had a recurrence of signs after initial improvement. Although the number of reported long-term outcome in Pugs is low, the results are in line with the findings of our study.

A moderate negative correlation (r = 0.50) was detected between the duration of clinical signs before presentation and the onset of recurrence of signs of neurological dysfunction, which differs from the results of the previous study.[12] On the other hand, shorter duration of signs showed a trend for prediction of better outcome after surgical procedure in a study with 7 dogs suffering from SAD.[16] Experimental studies showed that rats with longer lasting stationary chronic spinal cord compression have irreversible damage of the myelon because of exhaustion of the compensatory mechanisms, which might be true for dogs as well.[19] Current study findings might be used to recommend Pug owners to perform the surgery in a shorter period of time after SAD diagnosis. Intraoperative marsupialization and dissection of leptomeningeal adhesions did not influence the outcome in the current study. Marsupialization association with outcome was not statistically evaluated in previous studies, but the procedure was encouraged in a few previous publications.[3,16,20] On the other hand, other authors suggest that leptomeningeal adhesion dissection is a more important positive outcome predicting factor,[6] but currently there is no supporting data.

The etiology of poorer long-term outcome after surgical correction of SAD in Pugs compared to other breeds is not clear. Possible explanations include conformation of the vertebral column in this breed, and a high rate of concomitant IVDD might play a role in the higher recurrence rates. Only in one third (8/24) of dogs no concomitant pathology of the vertebral column was detected. On the other hand, complete evaluation of the vertebral column using computed

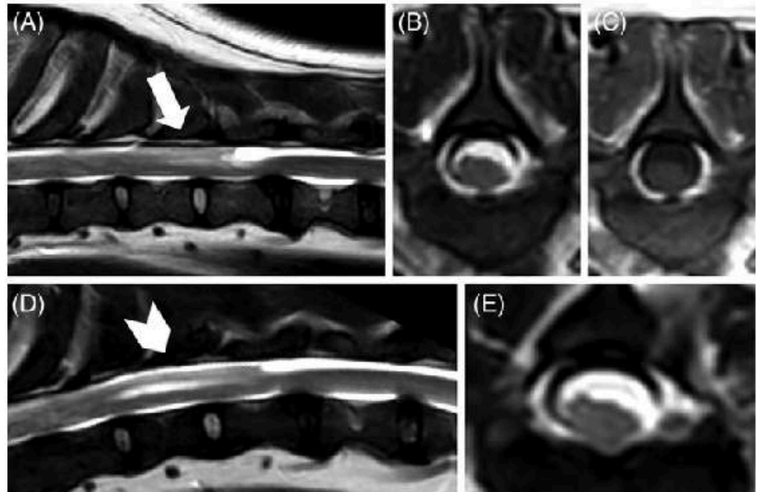


FIGURE 2 Pug, 7 years old, male. Initial mid-sagittal (A), transverse T2W (B), and T1W transverse (C) magnetic resonance images (MRI) demonstrating a spinal arachnoid diverticula (SAD) at T12-13 vertebral level. A follow-up MRI 7 months after surgery, demonstrating recurrence of the SAD in T2W mid-sagittal (D) and transverse (E) MRI images. Please note intramedullary hyperintensity which is already present in presurgical MR images (arrow) (A). Advanced intramedullary T2W hyperintensity in postsurgical MR images

Trattamento

Chirurgico

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DOI: *http://dx.doi.org/10.4314/ovj.v10i4.5*

Submitted: 17/08/2020 Accepted: 27/10/2020 Published: 07/11/2020

Retrospective evaluation of surgical outcomes after closure of durotomy in eight dogs affected by spinal subarachnoid diverticulum

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[2]*Vetsuisse Faculty, University of Zürich, Zürich, Switzerland*
[3]*Paragon Veterinary Referrals, Wakefield, UK*

Abstract

Background: Canine spinal subarachnoid diverticulum has been studied since 1968 and a few advancements have been made with regard to the treatment of this disease. Several surgical techniques have been proposed which include durectomy, fenestration, and/or marsupilization with the latter two regarded as the more favorable surgical treatments.

Aim: In this retrospective study, we evaluated the closure of the durotomy incision in the treatment of canine spinal subarachnoid diverticulum.

Methods: We retrospectively evaluated eight dogs with clinical signs and magnetic resonance imaging findings consistent with spinal subarachnoid diverticulum located in the cervical and thoracolumbar area. This was to determine whether the fenestration with closure of durotomy was superior to the marsupialization technique. In all dogs, fenestration and removal of subarachnoid adherences alongside closure of the durotomy were carried out.

Results: Mild post-operative deterioration was observed in all dogs. Follow-up from 7 to 36 months indicated a satisfactory outcome.

Conclusion: We conclude that the closure of durotomy has similar short-term and long-term outcomes compared to the previous reported studies. These results suggest that the closure of durotomy is a viable technique for spinal subarachnoid diverticulum.

Keywords: Arachnoid cyst, Durotomy, Spinal cord, Subarachnoid cyst, Subarachnoid diverticulum.

Trattamento

Chirurgico

- 8 casi
- Non solo carlini
- Iniziale deterioramento
- Follow up 7 to 36 mesi soddisfacente
- Durotomia vs Marsupializzazione

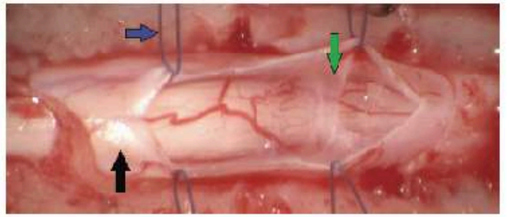


Fig. 1. Spinal cord (black arrow) after longitudinal durotomy and adherences exposure (green arrow) via stay suture (blue arrow).

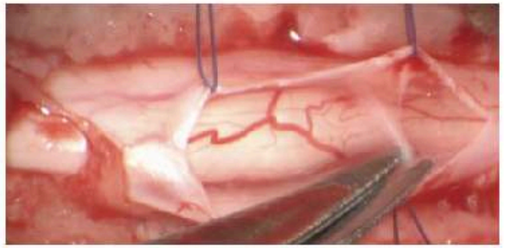


Fig. 2. Stay suture in place and dorsal removal of the spinal subarachnoid adherences with Castroviejo scissors.

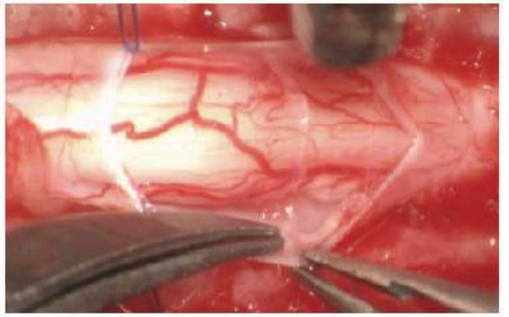


Fig. 3. Stay suture in place and lateral removal of the spinal subarachnoid adherences with Castroviejo scissors.

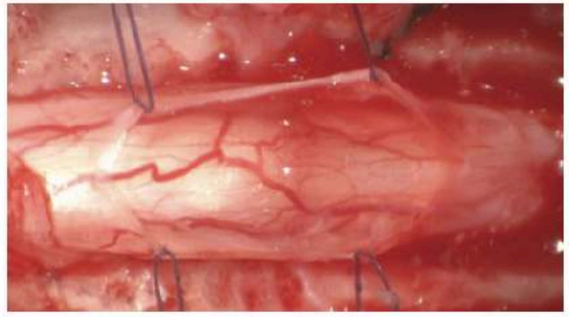
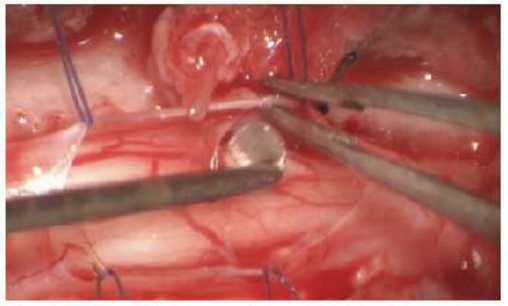
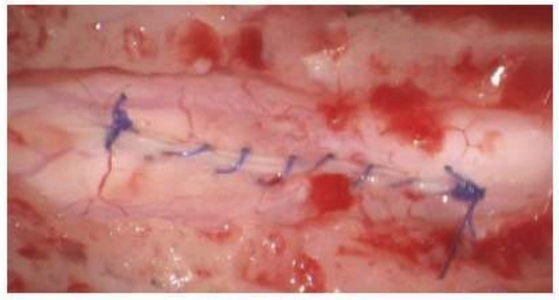
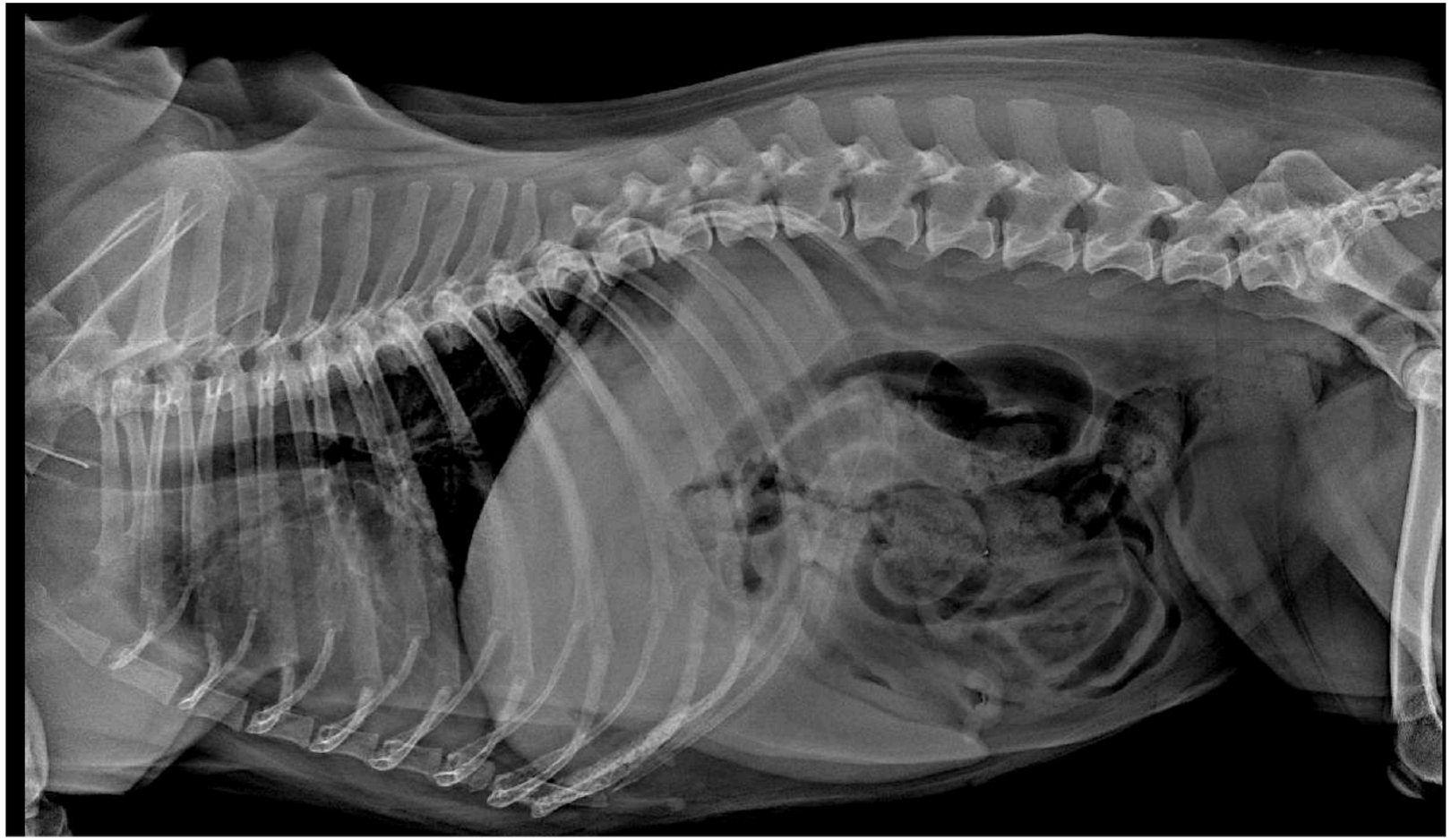


Fig. 5. Spinal cord free form adherences and CSF flow restored.

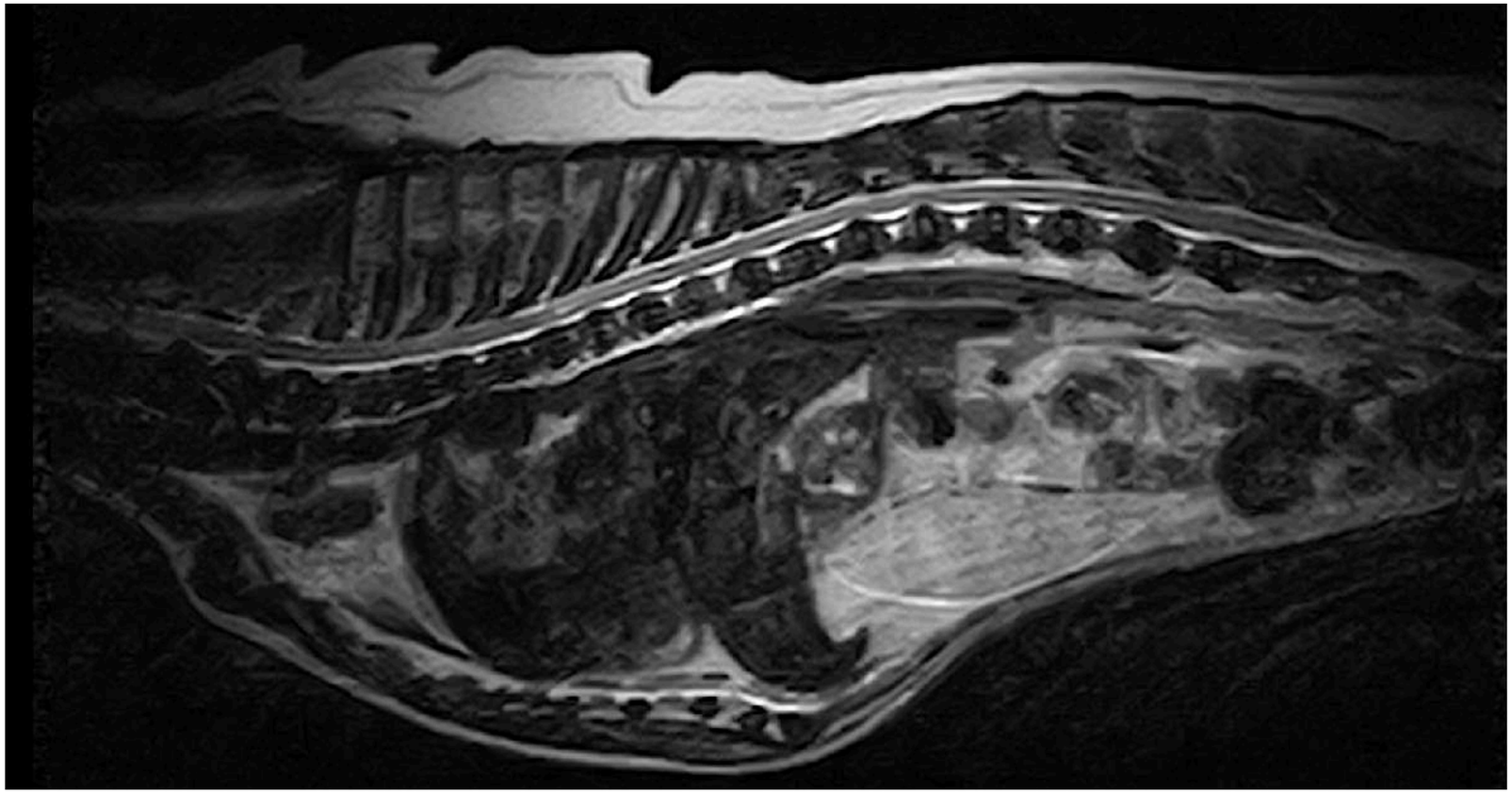




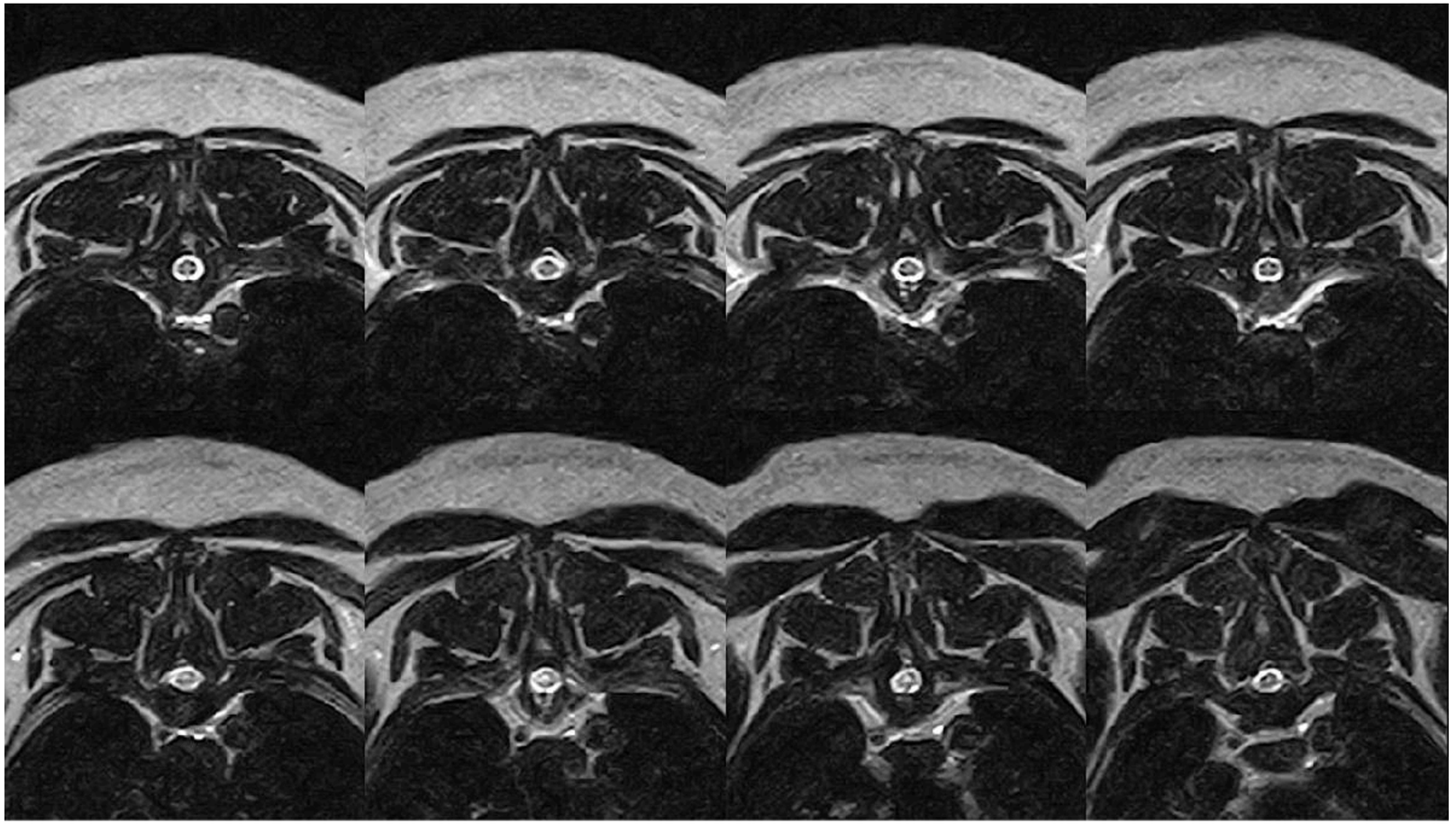
Predisposizione altre patologie



Predisposizione altre patologie



Predisposizione altre patologie



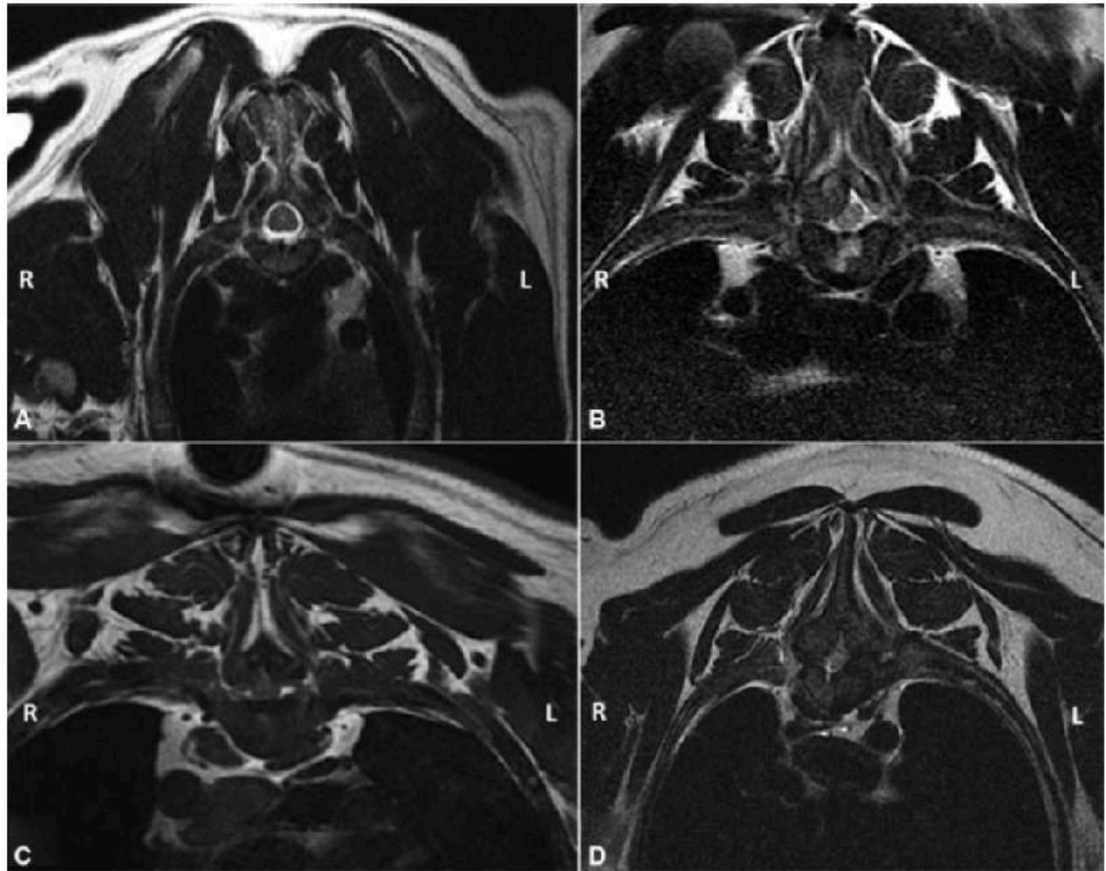
Predisposizione altre patologie

Stenosi vertebrale toracica craniale

Thoracic Vertebral Canal Stenosis Associated with Vertebral Arch Anomalies in Small Brachycephalic Screw-Tail Dog Breeds

194 **Vertebral Canal Stenosis in Small Brachycephalic Dogs** Conte et al.

- Progressiva e non dolente paresi e atassia
- Frequenti giovani Bulldogs maschi
- Non tutte le stenosi rilevanti



Tipi di malformazioni

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DOI: 10.1111/vru.12753

Check for updates

WILEY

ORIGINAL INVESTIGATION

Congenital malformations of the lumbosacral vertebral column are common in neurologically normal French Bulldogs, English Bulldogs, and Pugs, with breed-specific differences

Simon Bertram[1] | Gert ter Haar[1,2] | Steven De Decker[1]

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[2]Specialistische Dierenkliniek Utrecht, Utrecht, The Netherlands

Correspondence
Simon Bertram, Queen Mother Hospital for Animals (QMHA), The Royal Veterinary College, Hawkshead Lane, North Mymms, Hatfield, Hertfordshire, AL9 7TA, UK.
Email: sbertram@rvc.ac.uk

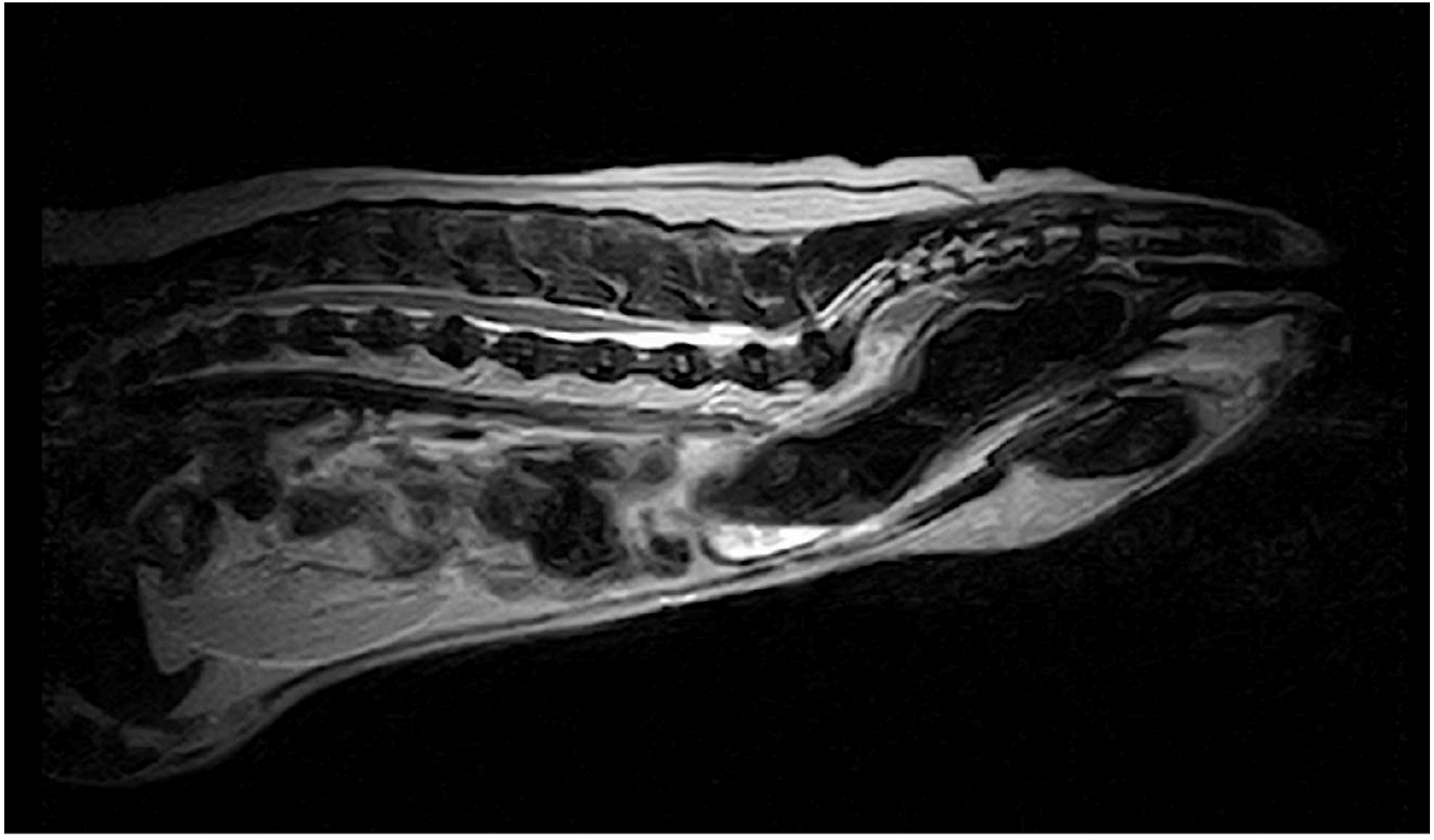
Abstract

Congenital vertebral malformations are common findings on diagnostic imaging of the vertebral column in "screw-tailed" brachycephalic dogs. The aims of this study were to evaluate the prevalence and anatomical characteristics of lumbosacral congenital vertebral malformations in French Bulldogs, English Bulldogs, and Pugs presenting for problems unrelated to spinal disease, as well as possible associations with the degree of tail malformation, lumbosacral intervertebral disc herniation, or spondylosis deformans. In this retrospective cross-sectional study, CT scans of vertebrae L6 to S3 and of the coccygeal vertebrae were reviewed for type of congenital vertebral malformations (hemivertebrae, block vertebrae, lumbosacral transitional vertebrae, and spina bifida), lumbosacral intervertebral disc herniation, lumbosacral spondylosis deformans, and degree of tail malformation. In 76 (51.0%) of the 149 included dogs (53 French Bulldogs, 37 English Bulldogs, and 59 Pugs) at least one type of congenital vertebral malformations was found, with lumbosacral transitional vertebrae being the most common (34.2%). There was a significantly higher prevalence of lumbosacral transitional vertebrae (54.2%) and lower prevalence of hemivertebrae (1.7%) in Pugs compared to English (13.5% and 24.3%, respectively) and French Bulldogs (26.4% and 32.0%, respectively). Tail malformation was significantly more severe in dogs with evidence of hemivertebrae. Congenital vertebral malformations are a common finding in the lumbosacral vertebral column of French Bulldogs, English Bulldogs, and Pugs. These anatomical variances need to be considered when interpreting diagnostic studies and when planning for neurosurgical and neurodiagnostic procedures. Furthermore, this study suggests a possible association between the degree of tail malformation and lumbosacral hemivertebrae.

KEYWORDS

brachycephalic, butterfly vertebra, hemivertebra, screw-tail, spina bifida, transitional vertebra

Predisposizione altre patologie



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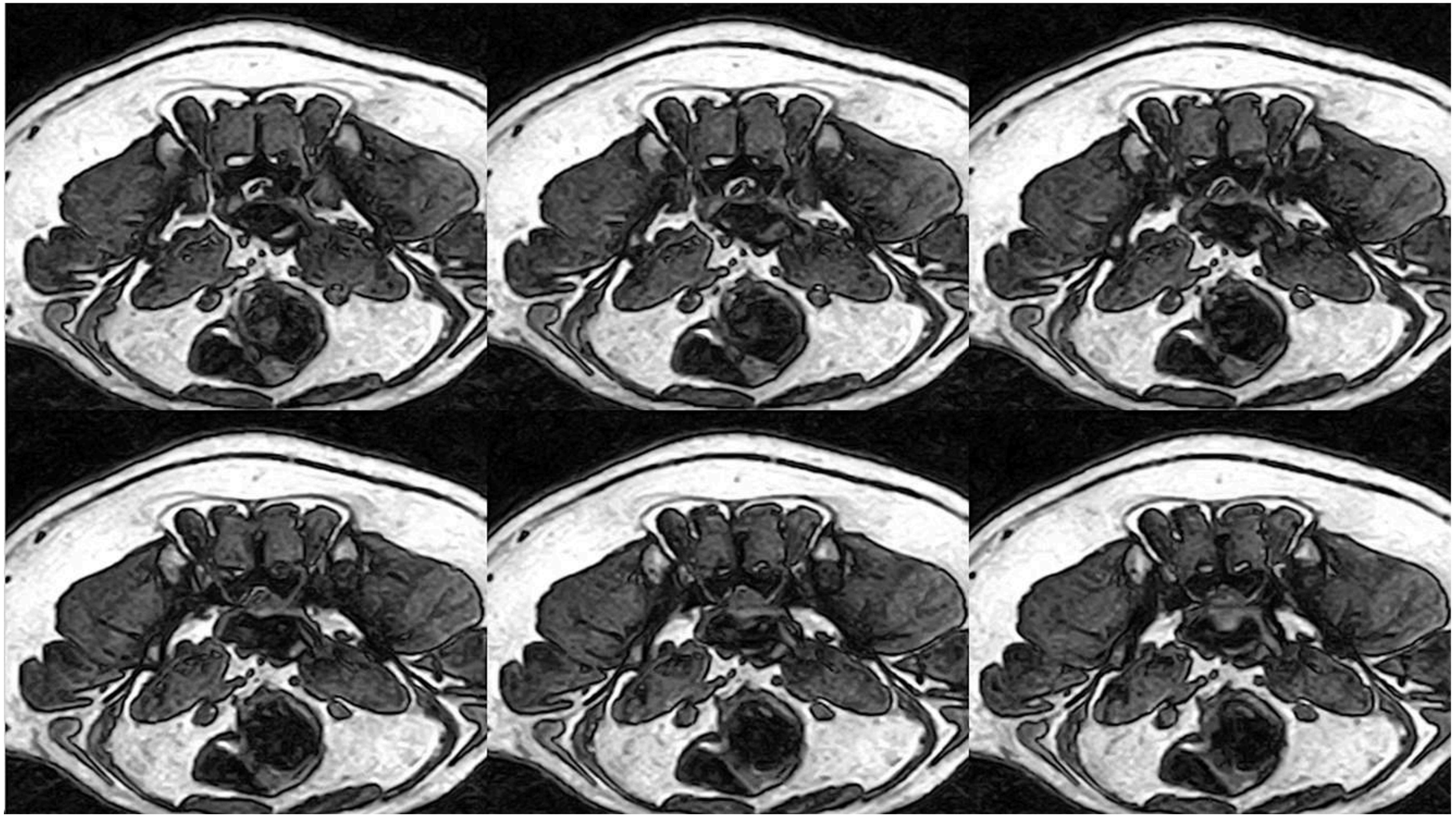
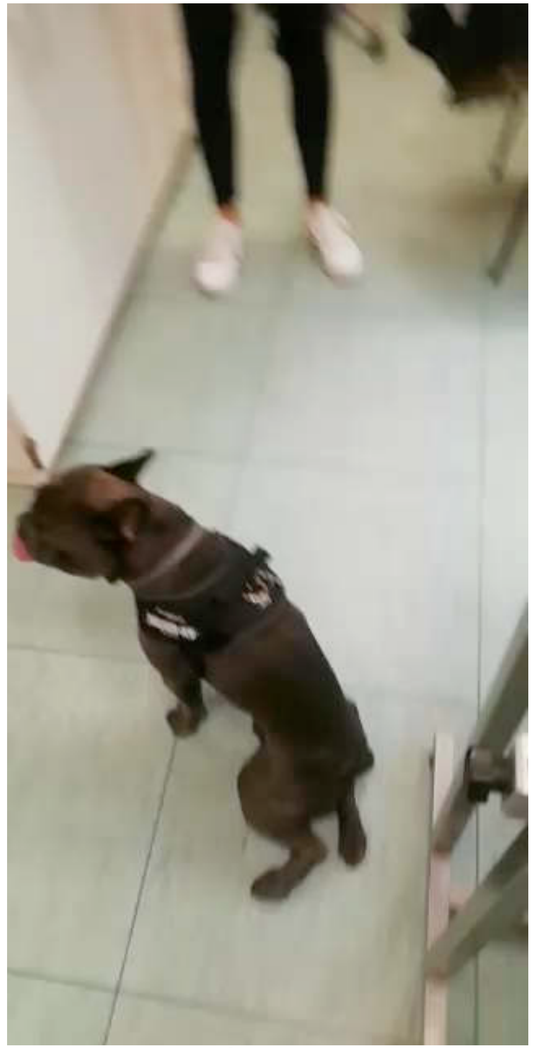


Diagnosi differenziali

- Estrusioni discali
- Protrusioni discali
- Meningiti e meningomieliti
- Ecc ecc



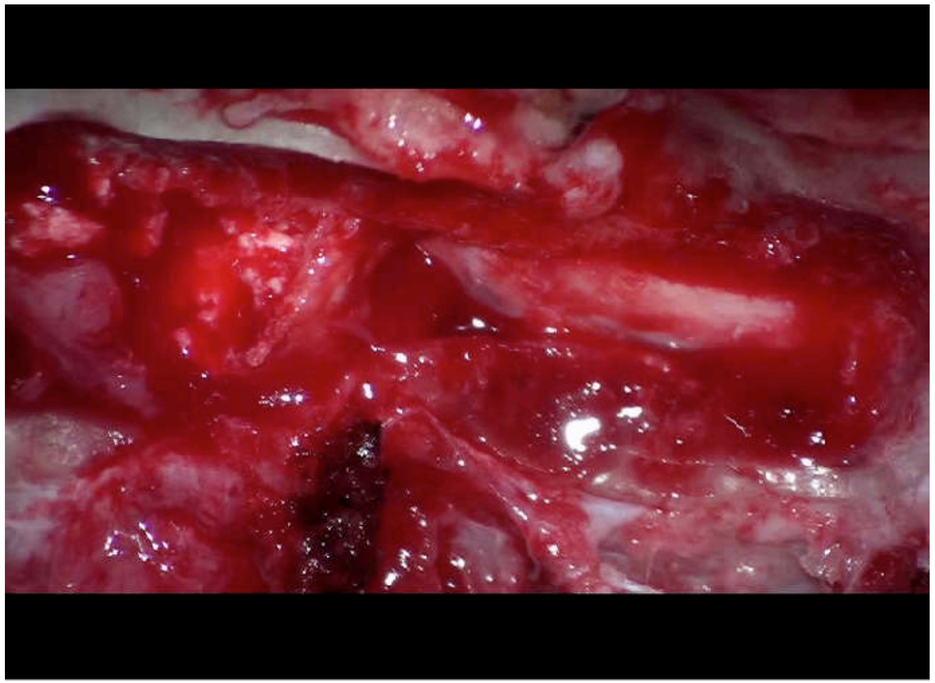
Dr.ssa Strada

Diagnosi differenziali

youtube.it

Diagnosi differenziali

….. estrusioni disco prono ecc



Tipi di malformazioni

Trattamento

- Medico - conservativo
- Chirurgico … cosa tratto?

Trattamento

Medico

- Riduzione esercizio
- Terapie mediche
- Fisioterapia
- Non favorevole
- Progressione

Outcomes of nonsurgical treatment for congenital thoracic vertebral body malformations in dogs: 13 cases (2009–2016)

Sophie Wyatt BVetMed
Rita Gonçalves DVM, MVM
Rodrigo Gutierrez-Quintana MVZ, MVM
Steven De Decker DVM, MVetMed, PhD

From the Department of Veterinary Clinical Science and Services, Royal Veterinary College, University of London, North Mymms, Hatfield AL9 7TA, England (Wyatt, De Decker); the Small Animal Teaching Hospital, School of Veterinary Science, University of Liverpool, Neston CH64 7TE, England (Gonçalves); and the School of Veterinary Medicine, College of Medical, Veterinary and Life Sciences, University of Glasgow, Glasgow G61 1QH, Scotland (Gutierrez-Quintana).

Address correspondence to Dr. Wyatt (swyatt@rvc.ac.uk).

OBJECTIVE
To characterize outcomes following nonsurgical treatment of congenital thoracic vertebral body malformations causing neurologic deficits in dogs.

DESIGN
Retrospective case series.

ANIMALS
13 client-owned dogs treated nonsurgically for congenital thoracic vertebral body malformations at 3 veterinary referral hospitals from June 2009 through May 2016.

PROCEDURES
Data were extracted from the medical records regarding dog signalment, duration and type of clinical signs before referral, general physical and neurologic examination findings, radiographic and MRI findings, and treatments provided after diagnosis. Follow-up data were obtained from records of recheck examinations and via a standardized owner questionnaire.

RESULTS
All included dogs were screw-tail brachycephalic breeds with a median age of 6 months. All dogs had ambulatory paraparesis and ataxia, and in 1 dog, signs of spinal hyperesthesia could be elicited. Nonsurgical treatments consisted of restricted exercise without (n = 5) or with (3) physiotherapy, physiotherapy without restricted exercise (3), and no exercise modification (2). Seven dogs received additional nonsurgical treatment consisting of prednisolone (n = 5) or gabapentin (2). Four dogs were eventually euthanized because of progressive neurologic deterioration, 2 underwent surgery for the same reason, and the remaining 7 dogs survived for ≥ 170 days after diagnosis, despite progressive neurologic deterioration.

CONCLUSIONS AND CLINICAL RELEVANCE
Nonsurgical treatment of congenital thoracic vertebral body malformations was associated with an unfavorable outcome in this group of dogs. Despite this treatment, all dogs had progression of clinical signs. (*J Am Vet Med Assoc* 2018;253:768–773)

Trattamento

Chirurgico

- Tecnica originale Dr Baroni
- 1 cane morto 24 ore dopo
- Migliorato angolo Cobb’s e VCA
- Migliorati 9 su 10

Transthoracic Vertebral Distraction and Stabilization in 10 Dogs with Congenital Thoracic Vertebral Malformations

Alba Farré Mariné[1] Luisa De Risio[2] Joan Mascort[3] Manuel Jiménez Peláez[1] Marta López[4] Fabio Stabile[2] Alejandro Luján Feliu-Pascual[1]

[1]Aúna Especialidades Veterinarias, Valencia, Spain
[2]Animal Health Trust, Newmarket, United Kingdom
[3]Ars Veterinària, Barcelona, Spain
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Vet Comp Orthop Traumatol 2021;34:367–374.

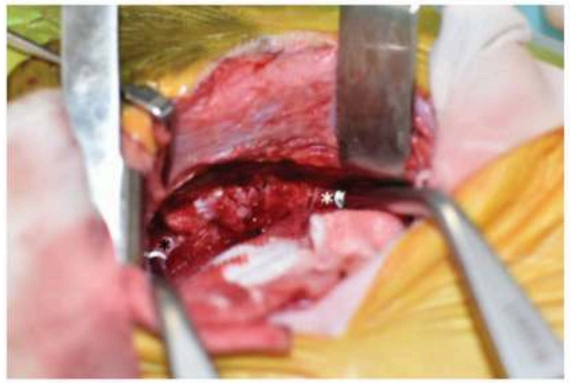

Fig. 1 Surgical approach and traction screws placement: Surgical image illustrating the ventrolateral aspect of the vertebral bodies from T4 (black asterisk) to T9 (white asterisk), with the paravertebral soft tissue dorsally retracted and after curettage of the intervertebral discs is seen. Note the distraction screws anchored to the vertebral bodies of T4 and T9 and inserted into the arms of the Caspar distractor before traction.

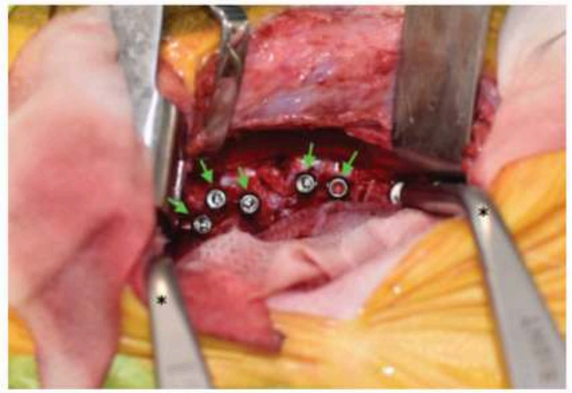

Fig. 2 Spinal traction and monocortical screws placement: Surgical image illustrating the traction screws anchored to the vertebral bodies cranial and caudal to the malformed vertebrae and inserted into the arms of the Caspar distractor (asterisk) once the traction has been applied and the monocortical screws (arrows) have been placed.

Trattamento

Chirurgico

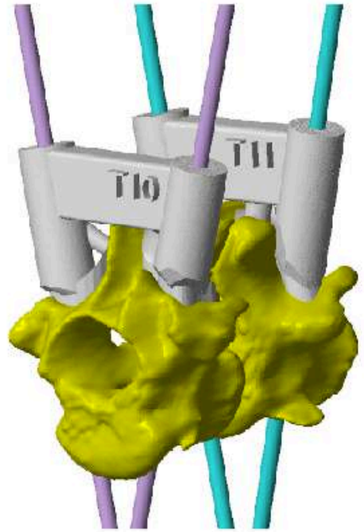

FIGURE 1 Oblique view of T10 and T11 virtual vertebral model with virtual drill guide in place and screw trajectory cylinders projecting through the drill guide

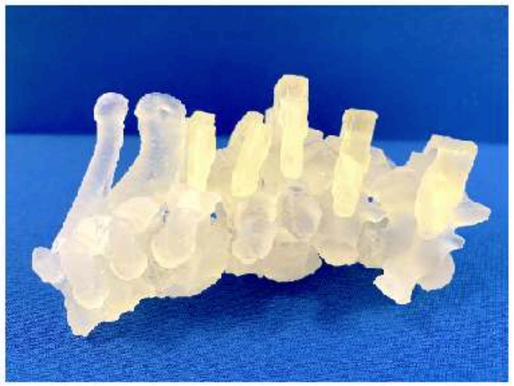

FIGURE 2 Three-dimensionally (3D) printed vertebral model with 3D patient-specific drill guide in place

2.3 | Surgical technique

The thoracic and lumbar vertebrae to be stabilized were exposed through a bilateral dorsal approach. To optimize guide fit, particular care was taken to elevate all soft tissues from the cortices in the region of the guide footprints.

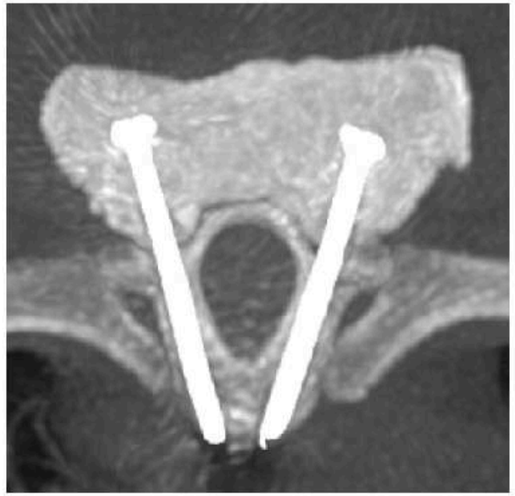

FIGURE 3 Transverse computed tomographic image of T6 with pedicle screws in place

TABLE 1 Pedicle screw placement according to modified Zdichavsky classification

Classification	Description
I	Optimally placed pedicle screw fully contained within the pedicle and vertebral body
IIa	Partial penetration of the medial pedicle wall
IIb	Full penetration of the medial pedicle wall (whole of screw diameter within vertebral canal).
IIIa	Partial penetration of the lateral pedicle wall
IIIb	Full penetration of the lateral pedicle wall (whole of screw diameter outside the vertebral canal)

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Conclusioni

- Genetica
- Clinica
- Diagnostica
- Scelta terapeutica
- Prognosi