



Neck and neck: disease of the equine cervical vertebral column

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Disclosure Statement

Presenter: Sarah F. Colmer

Disclosure:
I do not have any relevant financial or non-financial relationships with industry or commerce to disclose



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Anatomy of today's discussion

- Summary of clinical presentations for various neck diseases
- Diagnostic criteria for various neck diseases
- ECVM aka ECCVM aka ECCVVM
- Case examples
 - CVSM
 - Foraminal stenosis
 - Cervical neoplasia
 - Diskospondylitis



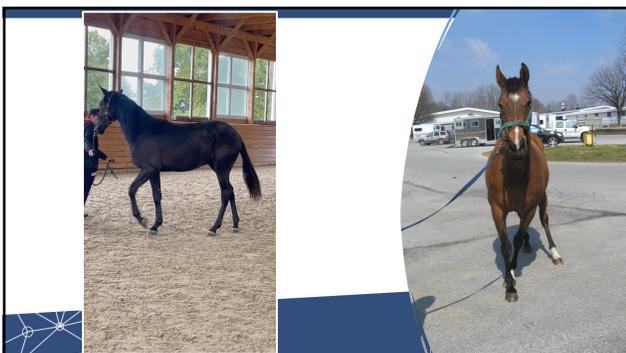
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Clinical signs of equine neck problems

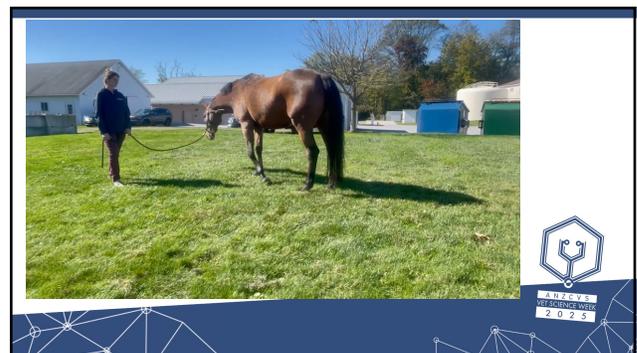
- Performance decline
- Behavior consistent with neck pain
 - Stiffness, episodic discomfort
- Unexplained, un-blockable forelimb lameness
- Stumbling
- Neurologic disease compatible with cervical myelopathy



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Orthopedic conditions of the equine neck

- **Cervical vertebral stenotic myelopathy**
- **Cervical osteoarthropathy**
- Trauma
 - Fracture, subluxation
- Infection
 - Diskospondylitis, abscess, osteomyelitis
- Neoplasia
- Congenital anomalies



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Diagnostic procedure

- Clinical examination
- Neurologic evaluation / lameness evaluation
- Imaging
 - Radiographs
 - Myelography (radiographic +/- CT)
 - CT
- CSF analysis
 - EPM
 - Lyme
 - Cytology




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Radiographic evaluation

- Subjective and objective analyses
- Large plate/overhead system may offer best images
- Include all articulations
- Ensure true lateral radiographs
- Assess basic anatomy/bone structure, alignment, vertebral canal, articular processes, intervertebral foramina, intervertebral disk spaces



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Normal neck radiograph



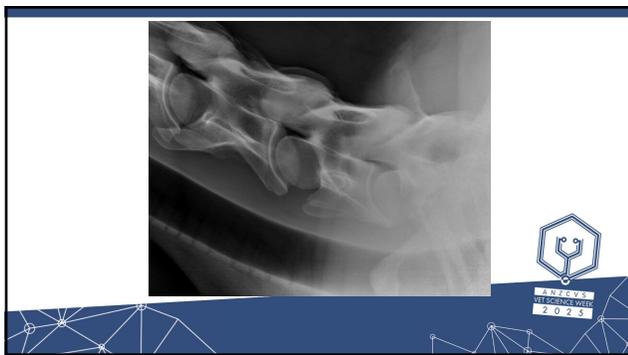

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> [Animals \(Basel\)](#). 2020 Apr 12;10(4):867. doi: 10.3390/ani10040667.

A Radiographic Technique for Assessment of Morphologic Variations of the Equine Caudal Cervical Spine

Christine Gee ¹, Alison Small ^{1, 2}, Kathleen Shorter ¹, Wendy Y Brown ¹

- Relatively common congenital anomalies in variety of breeds:
 - C6-C7 - Unilateral or bilateral transposition (most common)
 - May involve T1/T2 ribs
 - +/- muscles, nerves
- **Incidental?**
- **Unknown clinical significance**
 - Proposed by some to have potential impact on:
 - Poor performance, pain-based behaviors, lameness

A logo and 'VET SCIENCE WEEK 2023' are in the bottom right.

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ECVM – final thoughts

- Unknown clinical significance
- Malformation vs morphologic variation?
- Pre-purchase significance?
- Breeding decisions?
- What we need to know:
 - Clinical sign association?
 - Other radiographic abnormalities – OA, etc
 - Actively ongoing research



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Case: 20 yo QH mare

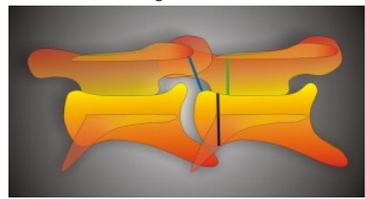
- Hx:
 - Ataxia, falling
 - Grade 2/5 ataxia, modified Mayhew ataxia scale
 - Neck pain




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Sagittal ratios

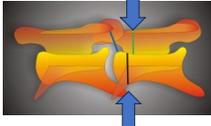
- Intravertebral vs. intervertebral sagittal ratio



Van Biervliet J. An evidence-based approach to clinical questions in the practice of equine neurology. *Vet Clin Equine* 2007;23:317-328.



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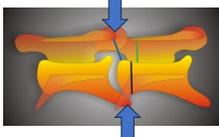
Comparative Study > *Am J Vet Res*. 1994 Jan;55(1):5-13.
Assessment of vertebral canal diameter and bony malformations of the cervical part of the spine in horses with cervical stenotic myelopathy
 B R Moore¹, S M Reed, D S Biller, C W Kohn, S E Weisbrode

- Cutoffs: 52% for C3-C6; 56% for C7
 - OK to use 50%
- Se and Sp about 90% in original paper
 - Lower in real life
- Not thought to indicate site of compression accurately

Intravertebral



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> *Vet Radiol Ultrasound*. 2008 Jan-Feb;49(1):1-6. doi: 10.1111/j.1740-8261.2007.00308.x.
Assessment of the utility of using intra- and intervertebral minimum sagittal diameter ratios in the diagnosis of cervical vertebral malformation in horses
 Caroline N Hahn¹, Ian Handet, Sherri L Green, Mark B Bronsvort, Ian G Mayhew

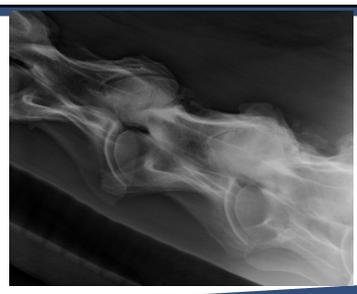
26 TB + WB horses; post-mortems on all; 8 confirmed to have CVCM (14 sites)

- Most (11/14) sites compression intervertebral rather than intravertebral
- In horses with CVCM, smallest intervertebral ratio always site of compression
- All horses with CVCM had at least one intravertebral ratio ≤ 0.485

Intervertebral



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Suspicion vs confirmation

- **Suspicion**
 - Neurological evaluation + lateral survey radiographs
 - Narrow intra and intervertebral sagittal diameter ratios
- **Confirmation**
 - Myelography
 - Postmortem findings

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Myelography

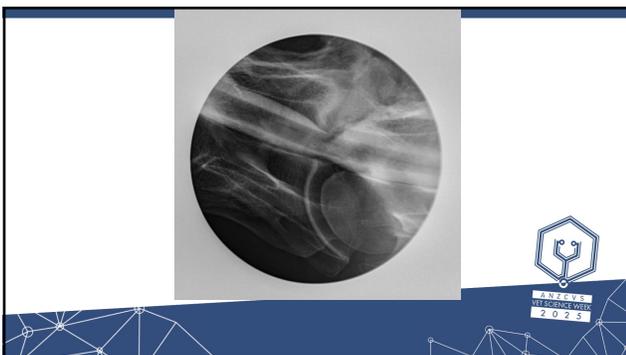
- Decision criteria not definitively established
- Dural diameter reduction (green) vs. dorsal column reduction (pink)

Van Biervliet J. An evidence-based approach to clinical questions in the practice of equine neurology. Vet Clin Equine 2007;23:317-328.

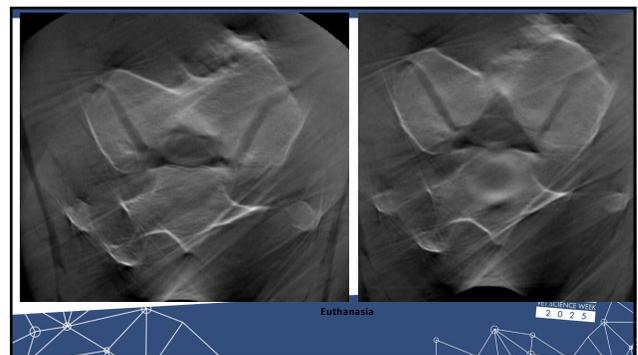
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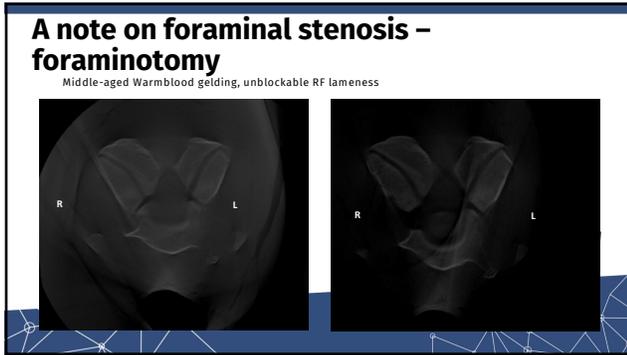
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Surgical options

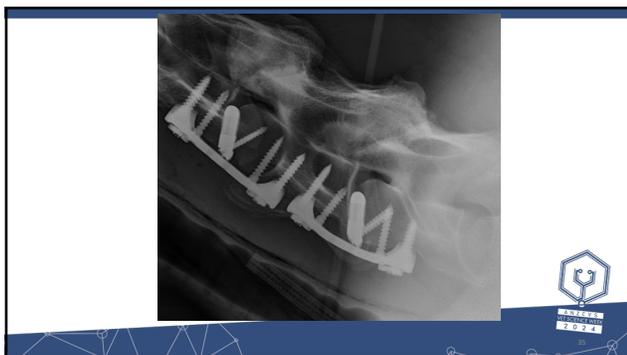
Clinical Reports | J Equine Vet Sci. 2023; Jul;35(7):04453. doi: 10.1016/j.jevs.2023.04.003. Epub 2023 Apr 17.

A novel surgical technique for treatment of cervical vertebral stenotic myelopathy (wobbler syndrome) in a filly

Mazen Maysan¹, Adnan A Shamsa², Ahmed Shamsy³, Islam M Hassan⁴, Adnan M Helwan⁵, Adnan M Abu-Setta⁶

- 1. "Basket" surgery – Kerf cut cylinder
- 2. Locking compression plate
- 3. Dorsal laminectomy (in the literature)
- 4. Titanium plate and screws with spacer (newer)

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Post-operative care

- 3 months of stall rest
- 3 months of hand walking
- 3 months lunging
- 3 months slow return to ridden work if applicable

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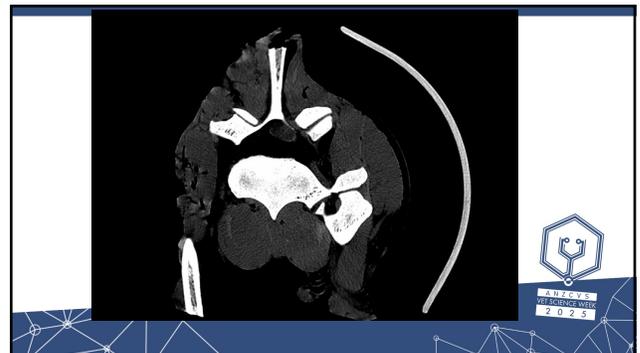
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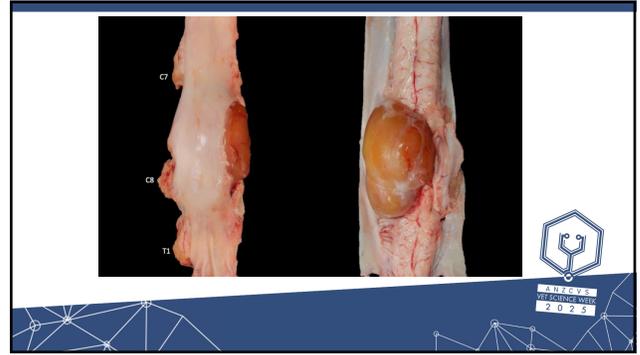
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Older Quarter Horse gelding

- Insidious onset moderate ataxia
- Restricted cervical range-of-motion
- Fibrinogen: 547 mg/dL



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PeerReview 2011 4 (July-Aug) 432-436

Ataxia due to vertebral hemangiosarcoma with evidence of disseminated disease in a 20-year old Swiss Warmblood mare

Lucie Unger¹, Christine Gassner², Anny Benoit³, Daniela Gergely⁴, Viktoria Gierber⁵ and Hans Paulucci⁶

¹Division of Clinical Neurology, ²Department of Pathology, ³Department of Clinical Pathology and ⁴Department of Clinical Pathology, ⁵Department of Clinical Pathology, ⁶Department of Clinical Pathology, University of Bern, Bern, Switzerland

VERTEBRAL BODY HEMANGIOSARCOMA IN A 16-YEAR-OLD MINIATURE SICILIAN DONKEY

KATHERINE CILLI-McGILLIVRAY, VMD, CHRISTINA R. SWEENEY, DVM, ROBERT McLEOD, VMD, PERRY L. HANCOCK, VMD

Veterinary Radiology & Ultrasound, Vol. 41, No. 4, 2011, pp 429-432

Equine Veterinary Education / Volume 23, Issue 3 / p. 138-141

An undifferentiated sarcoma in the cervical region in a horse

D. De Zani, D. D. Zani, S. Borgonovo, M. Di Giancamillo, M. Rondena, F. Verschooten

First published: 22 February 2011

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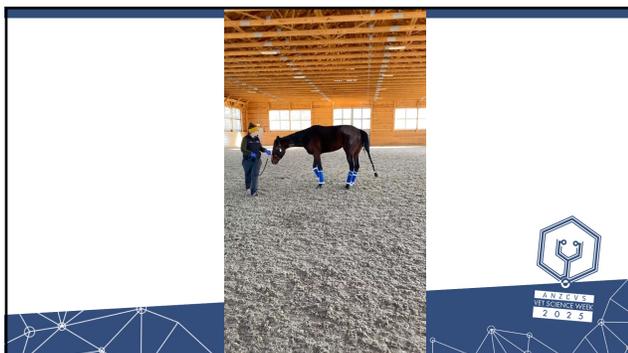


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Young Standardbred gelding

- Presented for ataxia
- History of falling
- History of respiratory infection
 - Antibiotic administration, intravenous catheter

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