PROCEEDINGS OF THE THIRD CONFERENCE ON CURRENT VETERINARY PRACTICES

Abstracts are published in Frontiers in Veterinary Science

In collaboration with:

The Conference on Current Veterinary Practices aims at bringing equine veterinarians together to discuss the latest insights in veterinary surgery, medical imaging, drug treatment, and horse care. In the present conference, we highlight treatment of diseased cheek teeth and radiography of neck and back in a practical morning session.

In the afternoon, we have a theoretical conference that covers equine incisor diseases, cartilage repair in the veterinary field, radiography of tarsal lameness, and bone lesions in the equine tarsus.

The conference is registered with the Royal Dutch Veterinary Society (KNMvD), and therefore, study points will be acquired. Registration for the oral presentations (afternoon session) is free. Supported by an educational grant from GST-Anacura, Eickemeyer, and Orthopaedics.be.

PROCEEDINGS OF THE THIRD CONFERENCE ON CURRENT VETERINARY PRACTICES

Abstracts are published in Frontiers in Veterinary Science

Where: Venues in The Netherlands depend on session

When: 15th of October 2016

Practical Session 01: 08:00 am to 12:00 am
(Landhorst Clinic)

Practical Session 02: 08:30 am to 12:00 am
(Someren Clinic)

Theoretical Session: 01:00 pm to 05:30 pm
(Best Western Hotel Nobis Asten)

Keywords: horse, veterinary practice, rehabilitation, medical imaging, regenerative therapies

ISBN: 978-2-88919-992-1

DOI: 10.3389/978-2-88919-992-1

ORGANIZERS:

First Conference on Current Veterinary Practices: Tom Mariën, Equitom Equine Hospital, Meldert-Lummen, Belgium

Second Conference on Current Veterinary Practices: Jan H. Spaas, Global Stem cell Technology (GST) – part of Anacura, Evergem, Belgium

Third Conference on Current Veterinary Practices: Eickemeyer BV, BJ Culemborg, The Netherlands

SPEAKERS:

First Conference on Current Veterinary Practices:
Marieke Zimmerman
Tom Mariën
Jan H. Spaas
Edouard Adriaensen

Second Conference on Current Veterinary Practices:
Marieke Zimmerman
Emmanuelle Van Erck
Martin A. Vidal
Tresemiek Picavet

Third Conference on Current Veterinary Practices:
Practical sessions
Carsten Vogt at Animal Clinic Landhorst:
Venue: Grote Baan 9, 5445 PA Landhorst, The Netherlands
Marianna Biggi at Veterinary Center Someren
Venue: Slievenstraat 16, 5711 PK Someren, The Netherlands

Theoretical sessions
Dewi van Mechelen
Lise Charlotte Berg
Marianna Biggi
Carsten Vogt
Venue: Best Western Hotel Nobis, Nobisweg 1, 5721 VA Asten, The Netherlands

Table of Contents

The Third Conference on Current Veterinary Practices, 15th of October 2016, Asten, The Netherlands

PRACTICAL SESSION 1

Venue: Animal Clinic Landhorst, Grote Baan 9, 5445 PA Landhorst, The Netherlands

Oral extractions of equine cheek teeth

Carsten Vogt

Specialist European Veterinary Dental College, Veterinary Practice Ottersberg, Ottersberg, Germany

Abstract

The oral extraction of Equine cheek teeth (CT) is a frequent surgical procedure which has undergone several changes and improvements over the last 20 years. This lecture shows the difficulties and pitfalls in diagnosis, treatment, and follow-up examination of diseased cheek teeth.

Diagnosis

Indications for extraction are apical infections, fractures, periodontal disease, pulpitis, infundibular decay, supernumerary teeth, dysplastic teeth, and loose teeth, and the surgeon should be absolutely confident to find out the affected tooth. For this reason, it is very helpful to judge the trinity of case history, clinical examination (of the mouth), and x-rays. If there is any doubts which tooth is affected, Computer Tomography is the first choice of further diagnostic imaging. In a lot of cases, a secondary sinusitis complicates the procedure because of the necessity of additional sinus treatment after extraction.

Technique

The wide majority of cases can be done in the standing sedated horse. After sedation and local anesthesia, the mouth is flushed out, and the gingiva is peeled off. Next step is the widening of the interdental space by using a spreader. After careful widening of the mesial and distal interdental space, the forceps are put into position and locked by a bicycle inner tube or an adhesive tape. Now, the forceps are moved carefully to the left and right side in the longitudinal axis of the tooth. Spreading and moving the tooth

alternate until the tooth is considerable loose. At this point, a Hypomochlion is used to lever the tooth out of its alveolus. After successful extraction, the alveolus is flushed out, examined, and packed with gauze or Polyvinyl siloxane dental impression material.

Follow-up examination

Depending on the tooth and the involvement of adjacent structures, it is recommended to do the re-examinations after 5–10 days. Attention should be focused on the regular distribution of granulation tissue, because one of the most frequent complications is the "dry alveolus" – necrotic alveolar bone tissue building a bony sequestrum 2–3 weeks after extraction. If that occurs, it is recommended to remove this loose peace of bone as it will impair the complete healing of the alveolus.

Keywords: veterinary, dentistry, extraction, CT, equine

Author Biography

Carsten Vogt graduated in 1997 from the Veterinary University Hanover. Worked in an ambulant practice and an Equine clinic for 4 years before he came to Ottersberg, where he built up an Equine dentistry unit. Main emphasis on his work is ambulant dental treatments, diagnostic imaging, and oral extractions.

He was trained and qualified at the Academy of Equine Dentistry, Idaho and is an active member of the International Association of Equine Dentistry (IAED), the Internationale Gesellschaft zur Funktionsverbesserung der Pferdezähne (IGFP), American Association of Equine Practitioners (AAEP), and since 2014 he became a board certified specialist at the European Veterinary Dental College (Eq).

In 2011, he edited the first edition of the "Lehrbuch der Zahnheilkunde beim Pferd" in cooperation with 14 co-authors.

PRACTICAL SESSION 2

Venue: Veterinary Center Someren, Slievenstraat 16, 5711 PK Someren, The Netherlands

How to take radiographs of the cervical and thoracolumbar spine

Marianna Biggi

Specialist European College of Veterinary Diagnostic Imaging, Lecturer Royal Veterinary College, London, UK

Abstract

Radiographic examination of the cervical and thoracolumbar spine is commonly performed in the horse. Pain or stiffness arising from the spine is an indication for radiographic examination of this region. Other indications for cervical radiographs include ataxia or trauma to the neck region.

Horse preparation

Images are obtained with the horse standing and sedated. It is very important that the horse is standing square and the weight is evenly distributed on the 4 ft to avoid rotation of the spine. Positioning the head on a headstand is useful to reduce movements during imaging acquisition. The plate/detector is positioned with a plate stand or a ceiling suspended holder. Hand holding of the plate should be avoided in these regions because of the high exposures required. Diagnostic quality radiographs of the cranial and mid cervical spine and sometimes the summit of the thoracic spinous processes can be obtained using a portable x-ray machine especially when using digital or computed radiography system. However, imaging of C6–7, C7–T1, and thoracic vertebral bodies and articular process joints and lumbar spine requires high output x-ray machine to generate enough exposure to image these areas. The exposure setting needs to be increased from cranial to caudal in both the cervical and thoracolumbar spine and the use of an anti-scattered grid is recommended to improve image quality.

Image acquisition cervical spine

For the cervical spine, four latero-lateral views are acquired; the use of a large plate (35 cm × 43 cm) is recommended, so that multiple vertebrae are seen on the same image; this is helpful when vertebral alignment is evaluated. For a complete examination, the occipital bone and the first thoracic vertebra should be included in the study. Oblique

views should be obtained as part of the standard protocol. Ventrolateral–dorsolateral oblique projections from both sides of the neck are used to separate the left and right articular process joints. An angle of 45° to 55° is recommended to image the articular process joints between C4 and C7, while a shallower angle (approximately 35°) is used for the cranial cervical spine. Critical assessment of image quality is crucial especially if measurements of the inter- and intravertebral ratio are required; in a well-positioned latero-lateral view, the transverse processes and articular processes of each vertebra should be nicely superimposed.

Image acquisition thoracolumbar spine

For a complete examination of the thoracolumbar spine, the spinous processes, the vertebral bodies, and the articular process joints should be included. Four latero-lateral views of the spinous processes are obtained. Placement of lead markers (normally 5) on the summit of the processes is useful to divide the spine in equal portion and assure that the entire spine is imaged. A wedge filter is positioned on the x-ray machine to prevent overexposure of the summit of the spinous processes when high-output machines are used. The entirety of the spinous process should be included in the image. Care should be taken in the interpretation of interspinous processes at the edge of the image and if in doubt radiographs centred on the suspected lesion should be acquired. Laterolateral views of the thoracic and lumbar vertebral bodies should also be acquired, this normally required higher exposure setting compared to the spinous processes. Articular process joints are better evaluated using oblique projections, so that left and right process can be observed separately. A ventro-dorsal angle of 20° is adequate to image this region; images should be acquired at the end of the expiration to avoid the diaphragm being superimposed over the caudal thoracic articular process joints.

Keywords: horse, neck, back, radiology

Author Biography

Marianna graduated from the University of Parma with honors in 2004. After working in equine practice in Italy, she enrolled in a PhD program looking at fragment of the distal border of the navicular bone using radiology and high-field MRI. This was completed in 2010.

From 2010 to 2014, she worked at the Animal Health Trust were she completed a residency program in large animal diagnostic imaging. Since 2015 she is a diplomat of the ECVDI. She is lecturer in large animal radiology at the Royal Veterinary College since 2015. Marianna's passion is equine orthopedic imaging with particularly interest in equine MRI.

ORAL PRESENTATIONS

Venue: Best Western Hotel Nobis, Nobisweg 1, 5721 VA Asten, The Netherlands

A stitch in time saves nine

Dewi van Mechelen

Equine Physiotherapist (DD-Physio), Sporthorse Medical Diagnostic Centre, Heesch, The Netherlands

Abstract

Nowadays, we cannot imagine a world of sports without physiotherapy. A multidisciplinary approach is not only the key to success in many rehabilitation cases but also plays a major role in preventive situations. The required performance level for our equine athletes is increasing, but so is the level of expertise of riders, trainers, veterinarians, and therapists. To stay "fit to compete," it takes good teamwork from these people working with the horses on a daily basis. This presentation will show several cases, in which preventive physiotherapy played an essential role on the road to success.

Keywords: horse, physiotherapy, rehabilitation

Author Biography

Dewi van Mechelen founded her equine physiotherapy practice (DD-PHYSIO) in 2004 after graduation in animal and human physiotherapy. At DD-PHYSIO sport, horses are treated on veterinary referral but also preventively. As a chiropractor, Dewi is specialized in neck, back, and pelvic issues (she graduated with credits from the international course "Focus on the Equine Spine" in 2007) and for examination, as well as treatment, she cooperates mainly with the Sporthorse Medical Diagnostic Centre at Heesch – the Netherlands. This is where she treats most of her patients, besides regular treatments at professional stables.

Besides all this, Dewi likes to work as an instructor for several courses and teaches animal physiotherapy students. Just back from the Olympics in Rio De Janeiro, where she participated in the physiotherapy-team, Dewi prepared her presentation for this CCVP congress and it is her pleasure to tell you all about her passion.

Cartilage repair in the veterinary field – current best evidence and future approaches

Lise Charlotte Berg

Associate Professor in Applied Clinical Biomedical Sciences, Faculty of Health and Medical Sciences, School of Veterinary Medicine and Animal Sciences, University of Copenhagen, Copenhagen, Denmark

Abstract

Joint damage involving the articular cartilage is a large problem both in human and veterinary medicine. Current best practice can be divided into disease management and disease-modifying treatments. There is a grey zone between symptom management and actual treatment, where the drugs utilized may or may not support cartilage repair. Disease-modifying treatments include joint injections with pharmaceuticals or biologicals including cell-based therapies. The veterinary field is at the forefront of joint injections, whereas human rheumatologists and orthopaedics are looking at new approaches to chondroprotection and cartilage regeneration not currently applicable in veterinary practice.

So, what does the future hold for cartilage repair in veterinary patients? Research is focused on early detection and intervention, since the dream of restoring large cartilage defects is proving very difficult. Sophisticated imaging and molecular techniques make it possible to detect changes early, and new disease-modifying treatments have shown promise in slowing down and possibly even reversing the progression of cartilage destruction. But until we fully understand the underlying pathophysiological processes, we will not be able to achieve the most effective preventive and restorative treatment approaches. Fortunately, there is also interesting new evidence on that front. And finally, there are all the efforts to successfully prevent cartilage degeneration from happening in the first place.

Keywords: horse, cartilage, chondroprotection, orthopaedics

Author Biography

DVM in 2001 from University of Copenhagen, Denmark. PhD in equine cartilage and chondrocytes in 2004. Including 6 months with Dr. Dean Betts at University of Guelph, Ontario, Canada. Post Doc on *in vitro* models of osteoarthritis. Including 5 months with Dr. Lisa Fortier at Cornell University, NY, USA. Assistant Professor in Veterinary Biochemistry followed by Associate Professor in Veterinary Anatomy. Now tenured Associate Professor in Applied Biomedical Science at the Large Animal

Hospital, University of Copenhagen in Denmark. I am also certified animal chiropractor and enrolled in a certificate course in equine rehabilitation.

Our research areas cover the whole range from cellular signalling in articular tissues to a more holistic approach to equine performance physiology and musculoskeletal health. In our studies, we investigate inflammatory processes in the musculoskeletal system from different perspectives, including osteoarthritis, tendonitis, metabolic conditions, and performance-related physiological and anatomical changes. We use cell culture models to investigate the inflammatory components of tissue destruction and repair on a molecular level using chondrocytes, synoviocytes from joints and tendon sheaths, tenocytes, and mesenchymal stem cells from bone marrow, cord blood, cord matrix, adipose tissue, synovial fluid, and peripheral blood.

Bone lesion in the equine tarsus: a new prospective

Marianna Biggi

Specialist European College of Veterinary Diagnostic Imaging, Lecturer Royal Veterinary College, London, UK

Abstract

The tarsus is a common site for hind limb lameness in the horse.

Multiple lesions within this region can be responsible for pain and lameness including pathology affecting the bones, the joints, the soft tissues, or a combination of them.

Radiography is the method of choice for the investigation of tarsal lameness; however, interpretation of the findings is sometimes difficult. The first step for radiological interpretation is a critical evaluation of the quality of the images acquired. Subtle abnormalities can be easily missed with suboptimal image quality; also, the evaluation of unfamiliar view is proven challenging even for experienced radiologist.

In addition not every abnormality that we see on radiographs is necessarily clinically significant. Recent literature has tried to identify the association between some radiographic findings and lameness to assist the clinician with their interpretation and treatment of the horse. This includes lesions such as spur on the dorsoproximal aspect of the proximal metatarsal bone and fragments of the proximal tubercle of the talus.

Lesions in the tarsus are usually diagnosed based on radiology and ultrasonography; however, cross-sectional imaging has become a useful tool for the identification of lesion also in this region and an essential tool for surgical planning especially when lesion configuration is not completely understood using 2D radiographs.

Keywords: horse, hock, radiology, cross-sectional imaging

Author Biography

Marianna graduated from the University of Parma with honors in 2004. After working in equine practice in Italy, she enrolled in a PhD program looking at fragment of the distal border of the navicular bone using radiology and high-field MRI. This was completed in 2010.

From 2010 to 2014, she worked at the Animal Health Trust were she completed a residency program in large animal diagnostic imaging. Since 2015 she is a diplomat of the ECVDI. She is lecturer in large animal radiology at the Royal Veterinary College since 2015. Marianna's passion is equine orthopedic imaging with particularly interest in equine MRI.

Incisor diseases – it's not all EOTRH

Carsten Vogt

Specialist European Veterinary Dental College, Veterinary Practice Ottersberg, Ottersberg, Germany

Abstract

In contrast to cheek teeth problems, incisor diseases are often neglected and underestimated. The aim of this lecture is to show a structured overview of these incisor diseases.

Diagnosis

Because of the good and easy visibility of the incisor most pathological processes can be examined by taking a close look at these teeth. Even x-ray of the incisors is easy to do as we can put the x-ray panel between the upper and lower arcade, so that we can obtain a good quality intraoral view. Computer Tomography is only in exceptional cases helpful (e.g., tumours).

Diseases

Oligodontia/polyodontia: In these rare cases, we find less (Oligodontia) or more (Polyodontia) teeth in an incisor arcade than in a regular arcade. We can find these supernumerary teeth within the normal arcade or even outside the regular arcade. While there is no therapy for a reduced number of teeth (Oligodontia), there are some cases of Polyodontia where it is recommended to extract the supernumerary teeth. This depends on the grade of peridontal disease and possible obstruction of the physiological movement of the mandible caused by the supernumerary teeth.

Malformations: In a few cases, we find dysplastic or twisted/shifted incisors. The decision on extraction follows the same principles like in supernumerary teeth.

Fractures: Fractures of incisors are frequently occurring, particular in young horses. It is very important to examine the fracture line (x-ray indispensable) – is it a simple or complicated crown fracture, is the pulp affected, is the intraalveolar part affected, or is even a part of the alveolar bone involved? Therapy depends on these findings, and several treatment options are possible: endodontic treatment with or without keeping the vital pulp, extraction of the affected incisor, or leaving them as they are.

Pulpitis/fistula tracts (ft): Pulpitis can result as a consequence of fractures, iatrogen pulp damage, or even idiopathic infections of the pulp. We find pulpitis with or without

fistula tracts. These fistula tracts occur at characteristic points on the gingiva and are subdivided into perio-endo-ft and endo-perio-ft depending on the pathogenesis of the infection.

Equine odontoclastic tooth resorption and hypercementosis (EOTRH): EOTRH is a condition described a few years ago with a characteristic resorption and reactive hypercementosis of the intraalveolar parts of the incisors of older horses (>15 years). This progressive disease is very painful and owners report among other things that their horses have severe problems with biting off carrots or other hard food. The aetiology is still unknown, and the only therapy consists in extraction of all affected incisors – means total extraction of all incisors in most cases!

Tumours: Tumours in incisors are rare, and some of them have a characteristic appearance, e.g., equine juvenile mandibular ossifying fibromas. These neoplasias occur in young horses and build a hard and painless swelling with disrupted gingiva. They can be excised by mandibulectomy with good prognosis.

Furthermore, rare cases of papillomas, epulis, dentinomas, and squamous cell carcinomas have been described in incisors.

Keywords: veterinary, dentistry, EOTRH, equine

Author Biography

Carsten Vogt graduated in 1997 from the Veterinary University Hanover. Worked in an ambulant practice and an Equine clinic for 4 years before he came to Ottersberg, where he built up an Equine dentistry unit. Main emphasis on his work is ambulant dental treatments, diagnostic imaging, and oral extractions.

He was trained and qualified at the Academy of Equine Dentistry, Idaho and is an active member of the International Association of Equine Dentistry (IAED), the Internationale Gesellschaft zur Funktionsverbesserung der Pferdezähne (IGFP), American Association of Equine Practitioners (AAEP), and since 2014 he became a board certified specialist at the European Veterinary Dental College (Eq).

In 2011, he edited the first edition of the "Lehrbuch der Zahnheilkunde beim Pferd" in cooperation with 14 co-authors.

Advantages of publishing in Frontiers

OPEN ACCESS
Articles are free to read, for greatest visibility

COLLABORATIVE PEER-REVIEW
Designed to be rigorous – yet also collaborative, fair and constructive

FAST PUBLICATION
Average 85 days from submission to publication (across all journals)

COPYRIGHT TO AUTHORS
No limit to article distribution and re-use

TRANSPARENT
Editors and reviewers acknowledged by name on published articles

SUPPORT
By our Swiss-based editorial team

IMPACT METRICS
Advanced metrics track your article's impact

GLOBAL SPREAD
5'100'000+ monthly article views and downloads

LOOP RESEARCH NETWORK
Our network increases readership for your article

Frontiers
EPFL Innovation Park, Building I • 1015 Lausanne • Switzerland
Tel +41 21 510 17 00 • Fax +41 21 510 17 01 • info@frontiersin.org
www.frontiersin.org

Find us on