Visualization of anatomical structures in the fetlock region of the horse using cone beam computed tomography in comparison with conventional multidetector computed tomography

Bierau et al. (2024), in *Frontiers in Veterinary Science*

Products
Computed Tomography (CT) for imaging anatomical structures in the equine fetlock region

Hospital / Authors
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Clinical Background
Equine fetlock pathologies are common and difficult to diagnose due to complex anatomy. CT imaging provides enhanced spatial resolution and 3D visualization, addressing the limitations of radiography.

Aim of Study
To compare the diagnostic value of cone beam computed tomography (CBCT) with conventional multidetector computed tomography (MDCT) for evaluating clinically relevant anatomical structures in the fetlock region.

Cohort Study
Twenty-nine limbs from nine horses were scanned with CBCT and MDCT, both with and without contrast medium. Observers evaluated the visibility and diagnostic quality of osseous, soft tissue, and articular structures using a scoring system.

Link to paper

Results

- **CBCT and MDCT performed equally well for osseous structures**, with high interobserver agreement.
- **MDCT outperformed CBCT for soft tissue structures**, offering superior contrast resolution.
- Articular cartilage was visible only after contrast medium injection with both modalities.
- **CBCT is mobile, cost-effective, and practical**, suitable for standing, sedated horses in clinical settings, though motion artifacts are more common.

Summary

- **CT imaging is essential for diagnosing bony and cartilage pathologies in the fetlock**, with MDCT excelling in soft tissue evaluation.
- **CBCT is cost-effective and mobile**, making it suitable for routine orthopedic examinations in equine practices.
- Contrast-enhanced CT improves visualization of cartilage but offers limited soft tissue benefits, underscoring the need for adjunctive modalities like ultrasonography.
- Despite technical limitations, **CBCT remains a practical and reliable alternative to MDCT**, especially for clinics without fixed CT installations.

Source: Bierau, J., et al. (2024). DOI: 10.3389/fvets.2023.1278148, in *Frontiers in Veterinary Science*.