Standing computed tomography of the equine limb using a multi-slice helical scanner: Technique and feasibility study

Mageed et al. (2020), in *Equine Veterinary Journal*

Products
Computed Tomography (CT) for distal limb imaging in standing horses.

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Clinical Background
Equine distal limb pathologies are a significant cause of lameness. CT imaging offers cross-sectional diagnostics but has traditionally required general anaesthesia, which poses risks. Standing CT provides a safer alternative.

Aim of Study
To evaluate the feasibility and imaging quality of a multi-slice helical CT scanner designed for standing equine distal limb imaging.

Cohort Study
CT imaging was performed on 32 equines (29 Warmbloods, 2 Haflingers, 1 donkey) with a history of lameness or suspected bone pathology. A total of 94 scans were analyzed over a 10-month period.

Results

- Excellent imaging quality in 97% of cases; 29 horses graded as grade 1 (no motion artefact), 2 as grade 2 (minimal artefact), and 1 as grade 3 (severe motion artefact).
- Motion artefacts caused by limb instability were the main challenge; modifications like platform extensions significantly improved stability.
- **Imaging regions such as the foot and metacarpophalangeal joint were achieved easily**, while proximal limb regions were more challenging but still feasible.
- Contrast-enhanced CT (arthrography and venography) identified critical diagnoses, including chondropathy, subchondral cystic lesions, and masses in the hoof.

Summary

- **Standing CT eliminates the risks of general anaesthesia**, improving safety for diagnostic imaging.
- **High diagnostic accuracy for bone and soft tissue evaluation** using multi-slice helical CT.
- **Ability to image weight-bearing limbs enhances the assessment of joint conditions** and contrast distribution.
- Future improvements, such as motion correction software, could further optimize image quality.

Link to paper

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