

A comparison between radiography and ultrasonography for detection of fragments at the dorsoproximal aspect of the proximal phalanx in horses

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Introduction

Osteochondral fragments at the dorsoproximal aspect of the proximal phalanx (P1) are frequently encountered during a radiographic screening. The aim of this blinded study was to compare the value of radiography and ultrasonography for detection fragments at the dorsoproximal aspect of P1.

Materials and Methods

The four limbs of 111 horses, corresponding to 444 fetlock joints, were collected immediately after slaughter. A lateromedial radiograph was obtained of each fetlock joint and an ultrasonographic examination of the dorsal aspect of the joint was performed. Afterwards, each joint was opened and inspected for the presence of a dorsoproximal P1 fragment.

Results

Macroscopic evaluation revealed a P1 fragment in 26 joints (26/444= 5,86%). Dorsoproximal P1 fragments were correctly diagnosed with radiography and ultrasonography in 20/26 and 22/26 joints, respectively. On radiography, a false positive diagnosis was made in another 8 joints. On ultrasonography, no false positives were observed.

Radiography had a sensitivity of 76,9% (confidence interval (CI) (60,7-93,1)), a specificity of 98% (CI (96,8-99,4)), a positive predictive value (PPV) of 71,4% (CI (54,7-88,2)) and a negative predictive value (NPV) of 98,6% (CI (97,4-99,7)) for detection of P1 fragments.

Ultrasonography had a sensitivity of 84,6% (CI (70,7-98,5)), a specificity of 100% (CI (100-100)), a PPV of 100% (CI (100-100)) and a NPV of 99,1% (CI (98,1-99,9)) for detection of P1 fragments.

Conclusions

Ultrasonography is the most reliable method for detection of fragments at the dorsoproximal aspect of P1 due to its high sensitivity and specificity. However due to its high NPV radiography can still be used as a screening method for fragment detection. Ultrasonography can then be used to confirm the presence of a fragment suspected on radiography.