

22nd Annual Scientific Meeting



Ergife Palce Hotel, Rome, Italy

Proceedings – Large Animals

Edited by: Peter Clegg

July 4–6, 2013

Minimally invasive surgical pastern arthrodesis: an *ex vivo* study comparing 3 cartilage destruction techniques.

Van Hecke L, Martens A, Oosterlinck M.*

Faculty of Veterinary Medicine, Ghent University, Merelbeke, Belgium.

Introduction

The purpose of this study was to compare the degree of cartilage destruction using 3 different techniques for minimally invasive arthrodesis of the equine pastern joint.

Material en methods

Thirty-six cadaver distal limbs were randomly divided over 3 groups (12 limbs each). Each group had a specific technique of cartilage destruction. A 4.5 mm drill bit was used for all three techniques.(1) Seven passes were made through a dorsal midline incision in dorsopalmar/plantar direction across the joint space in the limbs of group 1 (Bras et al., 2011).(2) In the limbs of group 2, an additional pass was made to the drilling pattern as described for group 1. For the supplementary pass the drill was inserted in a lateromedial or mediolateral direction over the palmar/plantar aspect of the pastern joint. (3) In the limbs of group 3, 2 additional passes were made to the drilling pattern as described for group 1. To create these passes, the drill was placed consecutively into 2 dorsal stab incisions and guided through the dorsal cortex of the middle phalanx in a distodorsal-proximopalmar /plantar direction. Hence, the cartilage in the palmar/ plantar aspect of the pastern joint was removed. After drilling, the pastern joints were disarticulated and the articular surfaces were digitally photographed. The area of removed cartilage was measured with planimetry and the percentage of destroyed cartilage was calculated.

Results

The mean percentage of cartilage removed in the entire pastern joint was 34%±4, 45%±5, 43%±4 for groups 1, 2 and 3 respectively. There was significantly more cartilage destruction ($P<0.001$) in groups 2 and 3 compared to group 1. There was also significantly more cartilage destruction in the hind limbs of group 2 (47%±4, $p=0.016$) compared to the front limbs of group 2 (42%±5) and entire group 3.

Conclusion

Based on this study, the technique of group 2 gives the most cartilage destruction and seems to be the most practical to apply in an *in vivo* situation.