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Association of Ultrasound and Anatomopathologic Findings of Equine Metacarpophalangeal Lesions

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INTRODUCTION

- Functionally, the metacarpophalangeal joint.
- The joint's anatomy is relatively simple.
- Ultrasonography the palmar/plantar aspect of the fetlock.
- The primary limitation of US of the MCP joint.

The present study aimed to describe the US changes observed for the MCP joint of 37 forelimbs and compare them with their respective anatomopathologic findings.



Denoix, 2000.

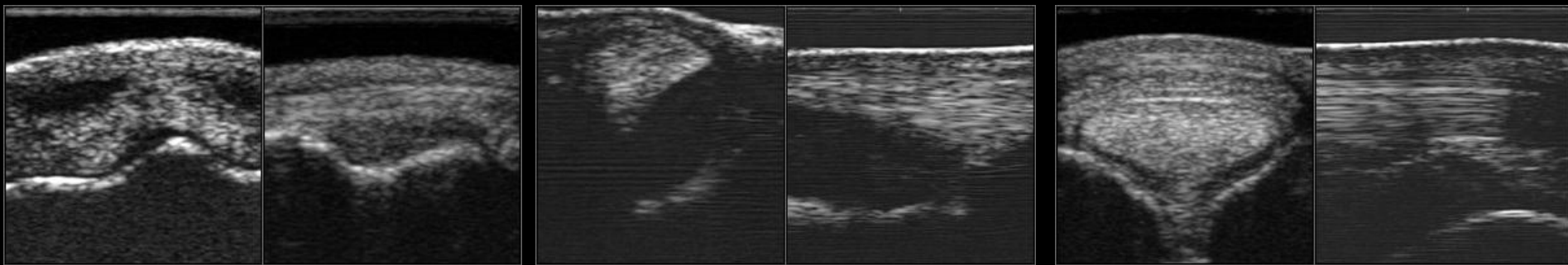
MATERIALS AND METHODS

- At slaughterhouse in Southern Brasil, 37 forelimbs were selected for this study because:
- Physical changes such as deformation of the dorsal profile the MCP joint, digital flexor tendon sheath distension, thickening the SL branches and flexor tendons.

MATERIALS AND METHODS



MATERIALS AND METHODS



DORSAL

LATERAL / MEDIAL

PALMAR

MATERIALS AND METHODS

- Structural changes in size, shape, architecture and ecogenicity identified on the MCP joints were documented.

MATERIALS AND METHODS

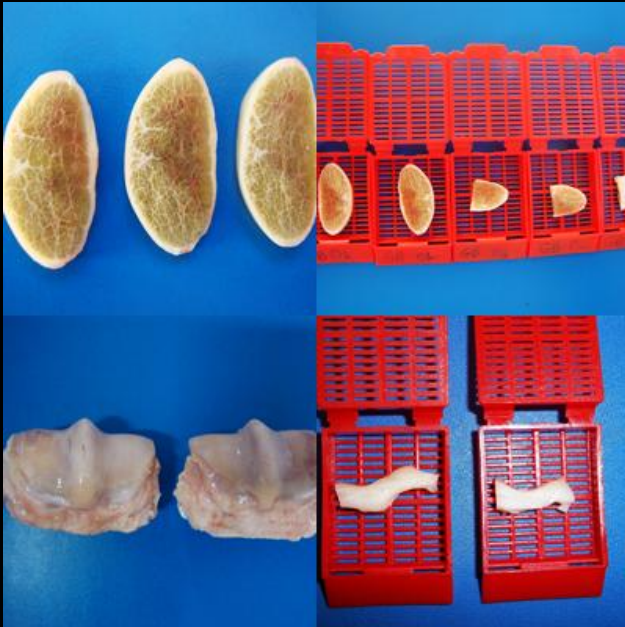


- The structures identified on ultrasound were dissected and subjected to a systematic study.
- Changes in size, shape, consistency, color and presence of adhesions were observed.

MATERIALS AND METHODS

- Gross lesions were photographed, collected and fixed in 10% buffered formalin for 14 days.
- The soft tissue samples were then routinely processed for histopathology.
- Sections were prepared (3 μ m) and stained by H-E and Alcian Blue.
- Bone tissue samples after fixation were descalcified in formic acid sodium citrate solution.

MATERIALS AND METHODS



➤The histologic findings were analyzed and subsequently compared with their US and macroscopic counterparts, with their relationships being established when possible.



RESULTS

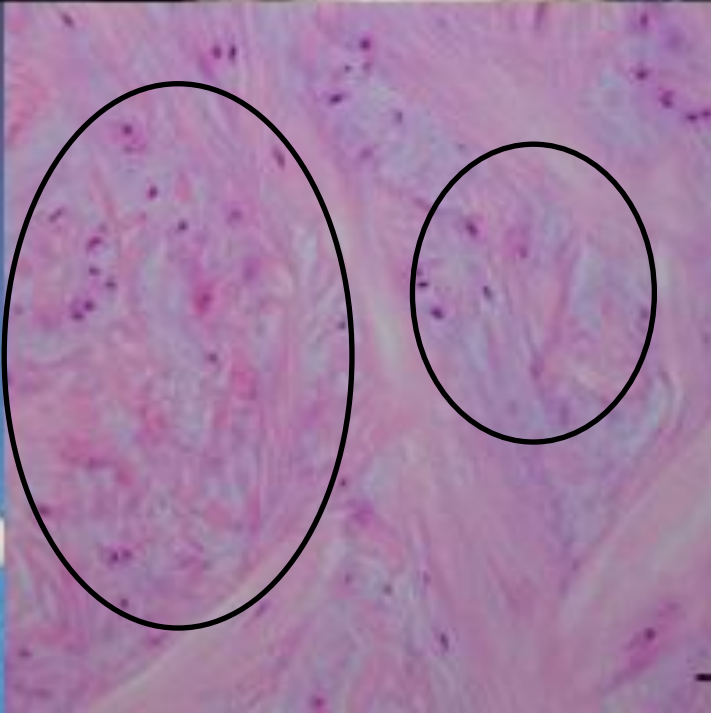
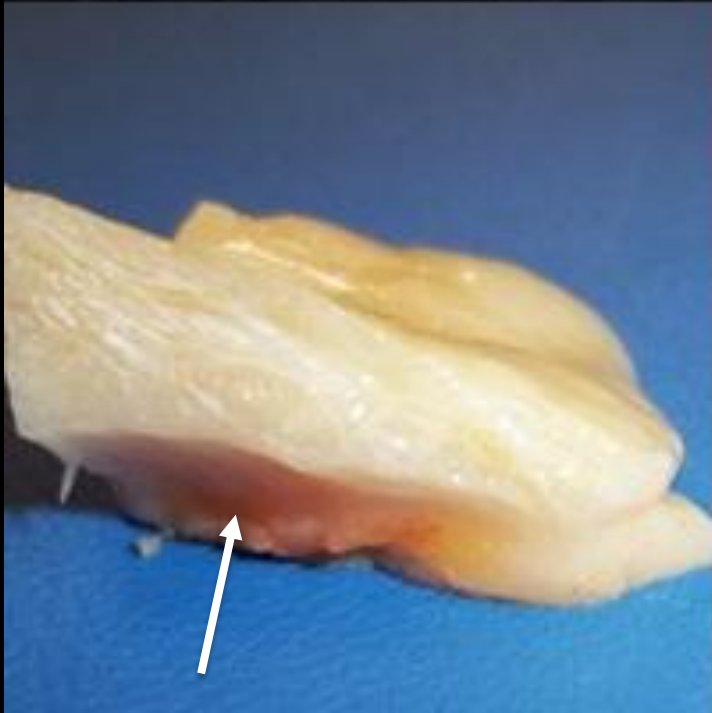
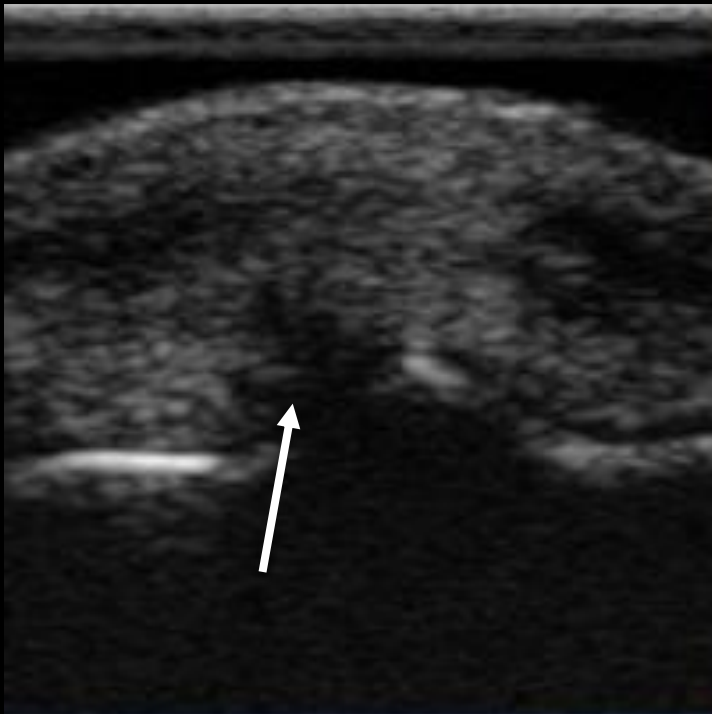
Joint Capsule n=14

**Articular cartilage MCIII
condyle and proximal
sesamoid bones n=8**

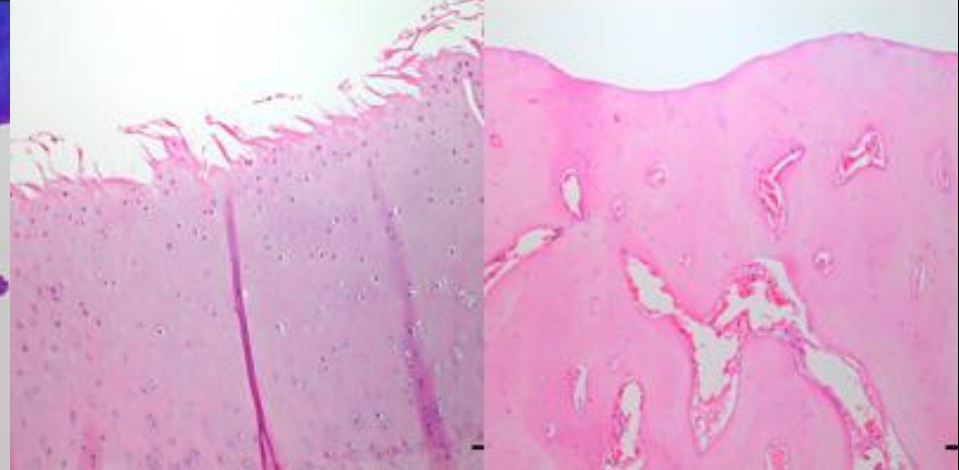
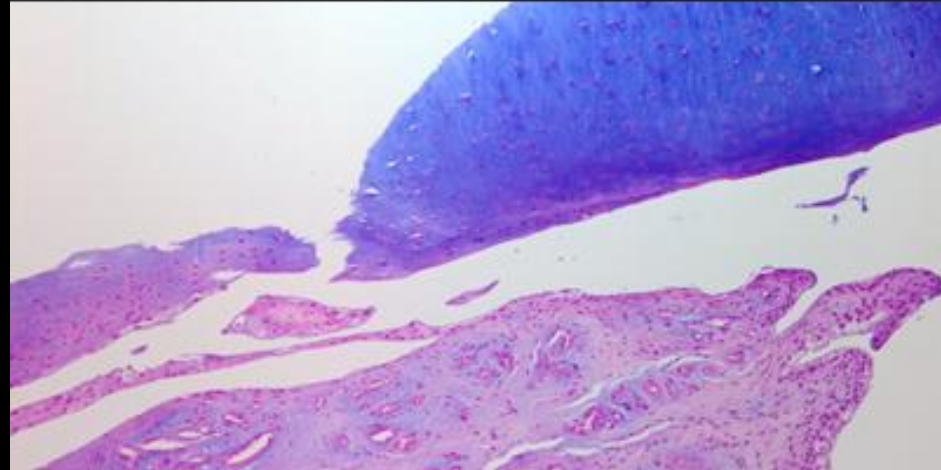
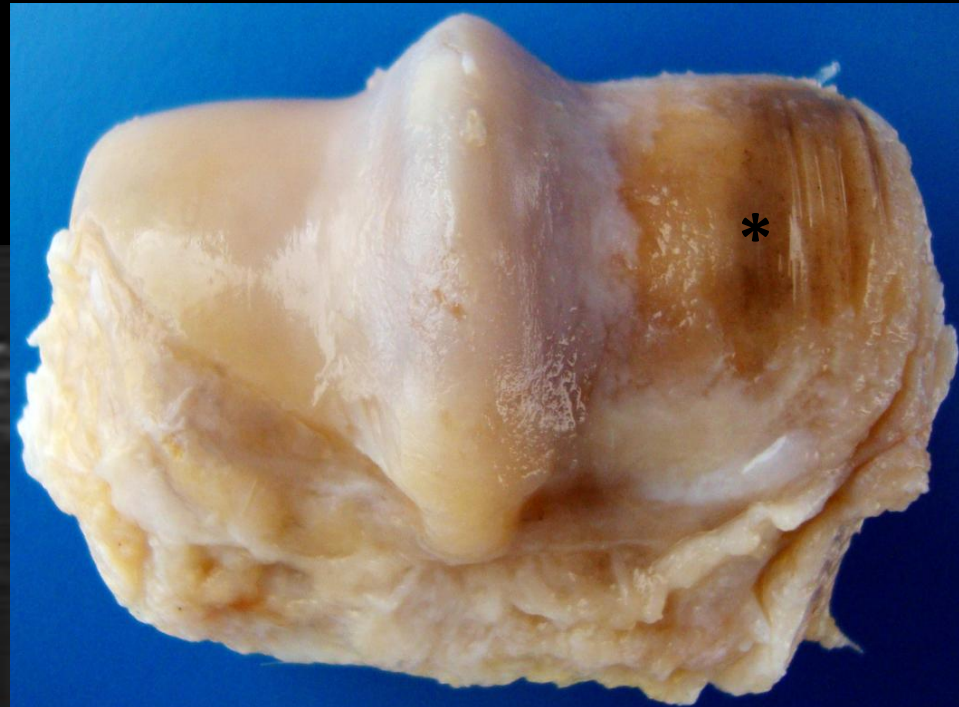
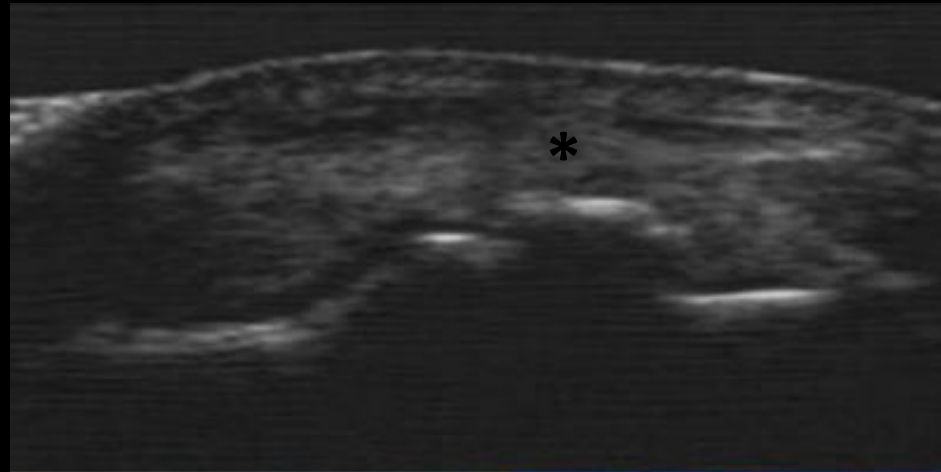
**54 Abnormal
structures**

Tendons n=13

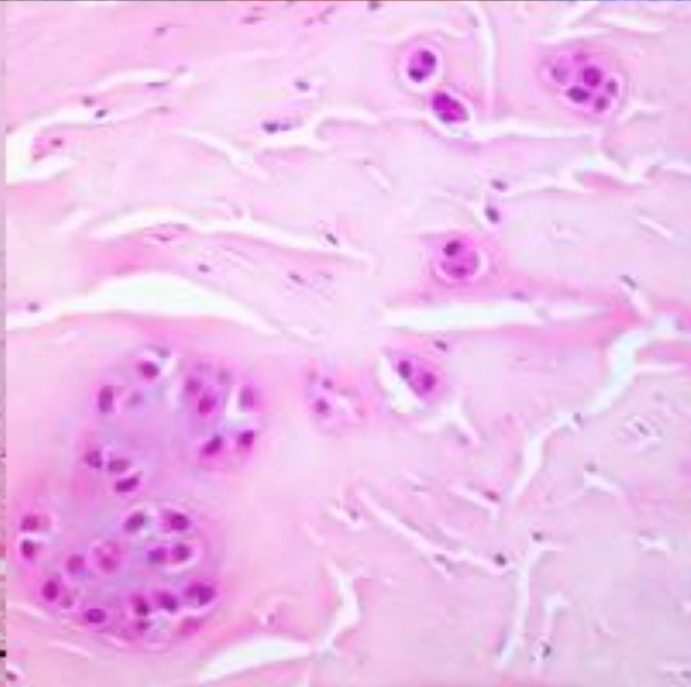
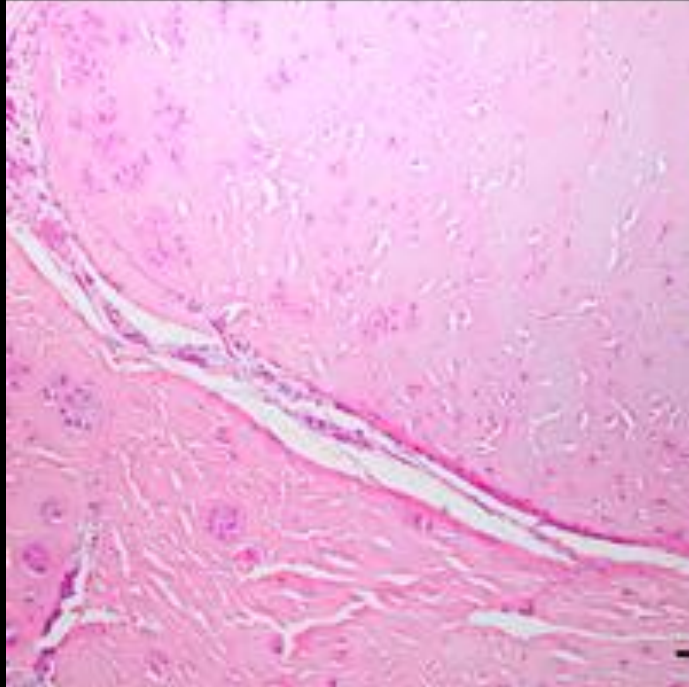
Ligaments n=19



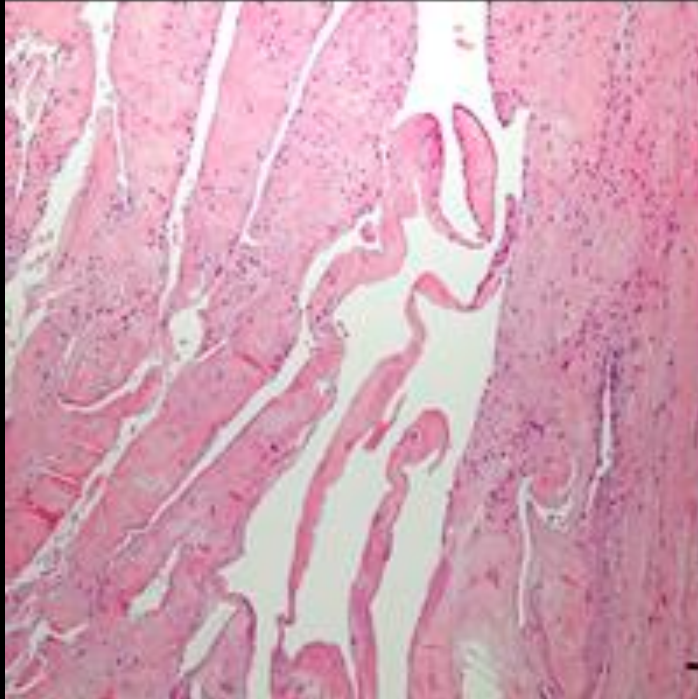
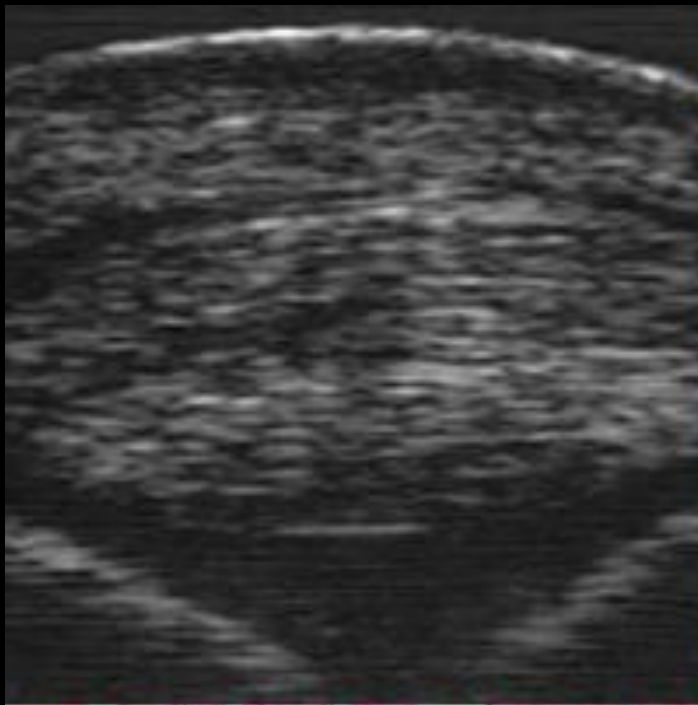
RESULTS



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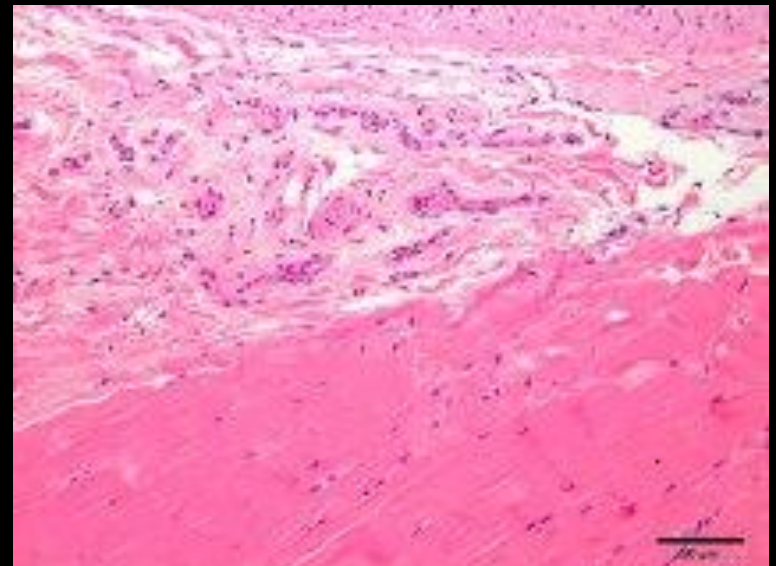
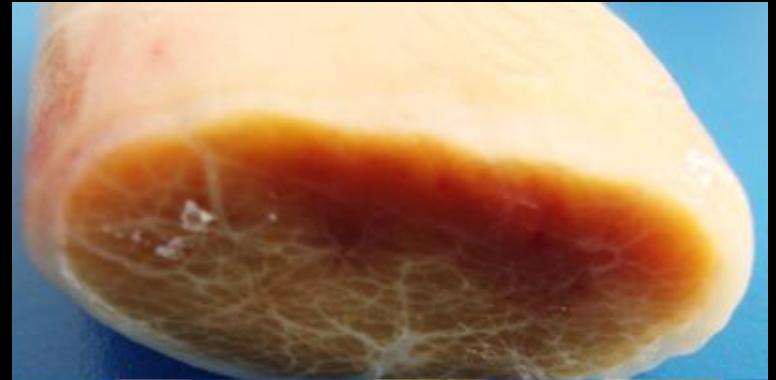


RESULTS

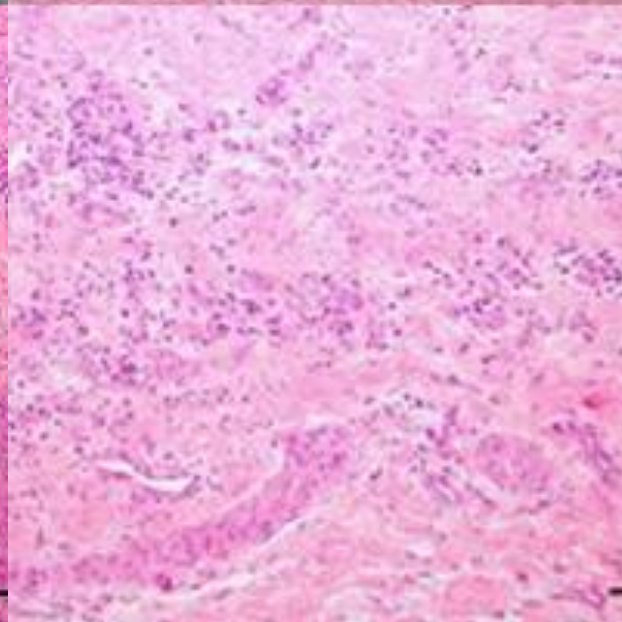
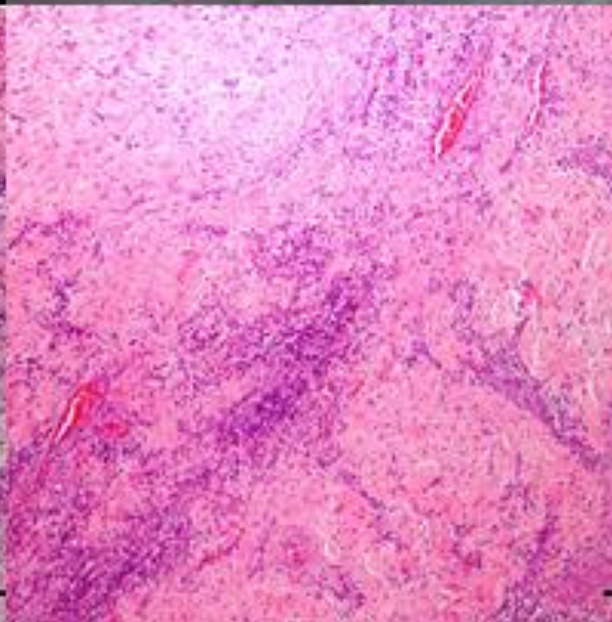
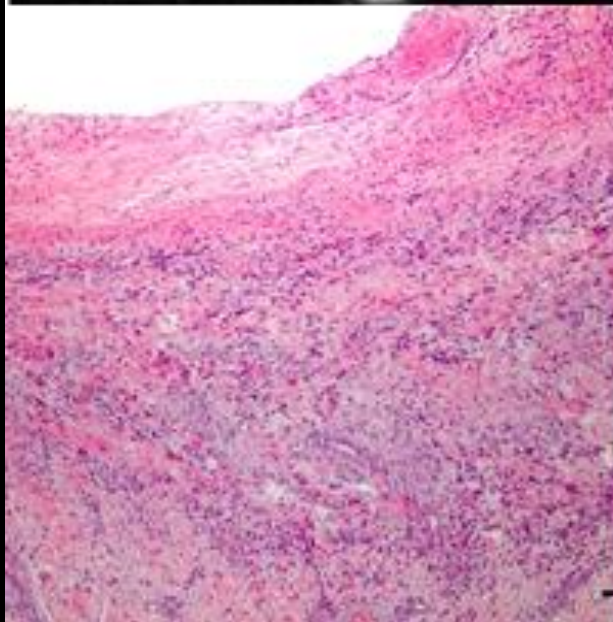
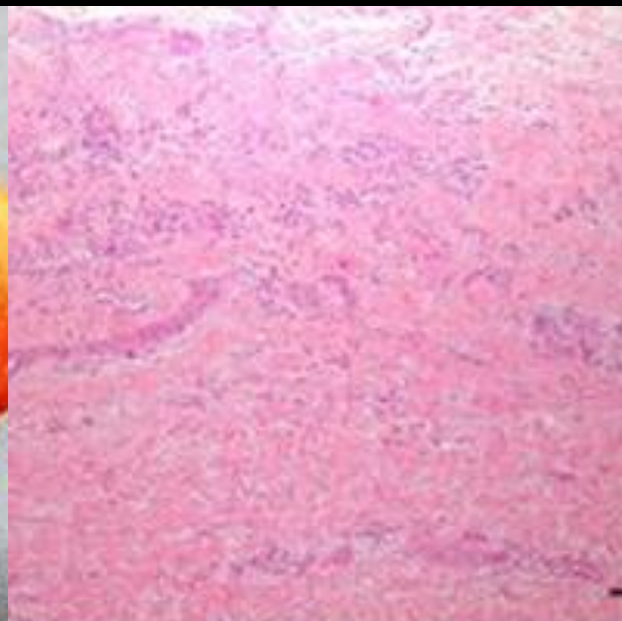
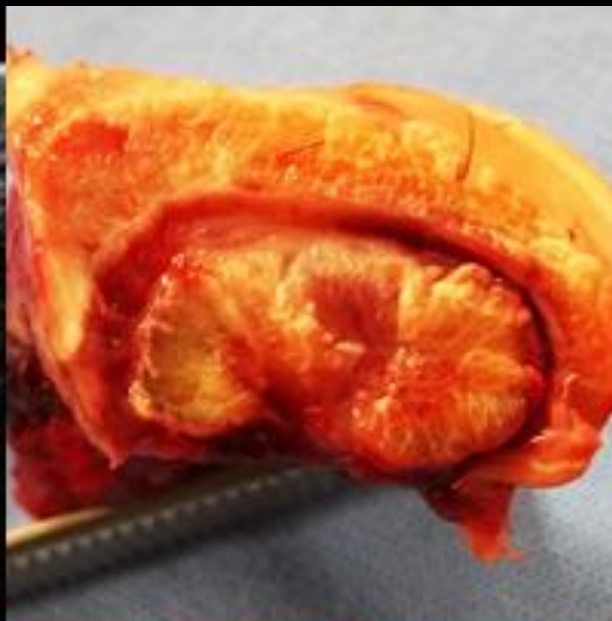
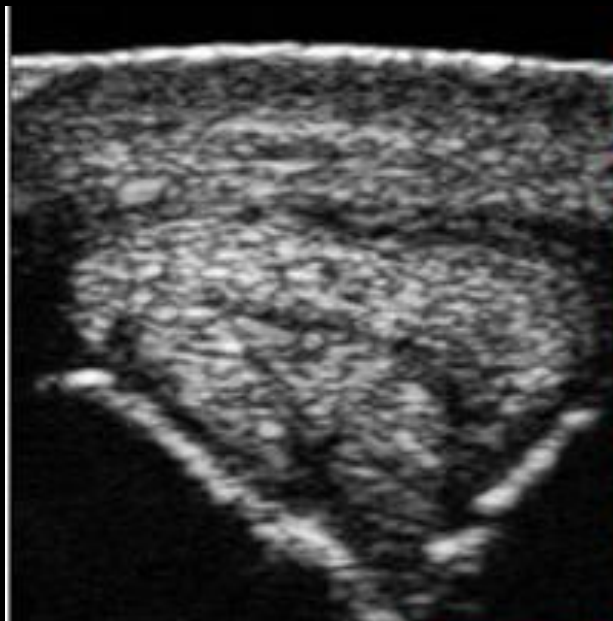


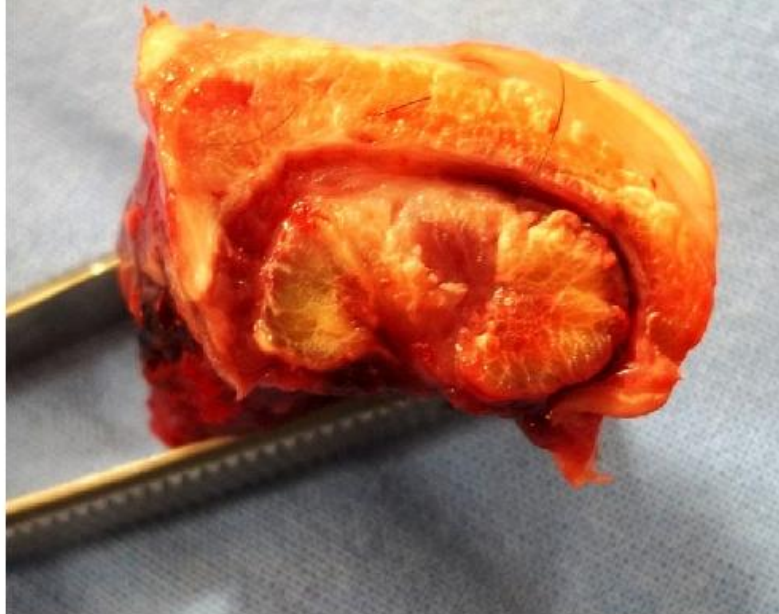
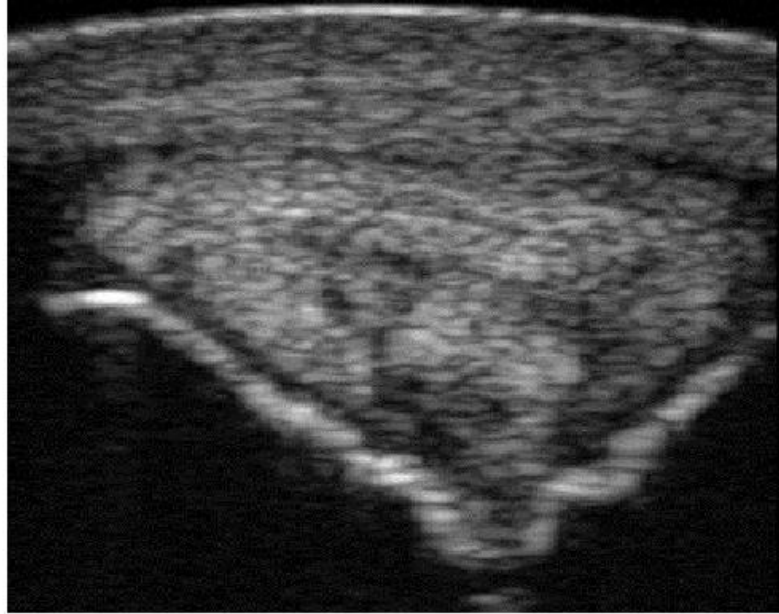
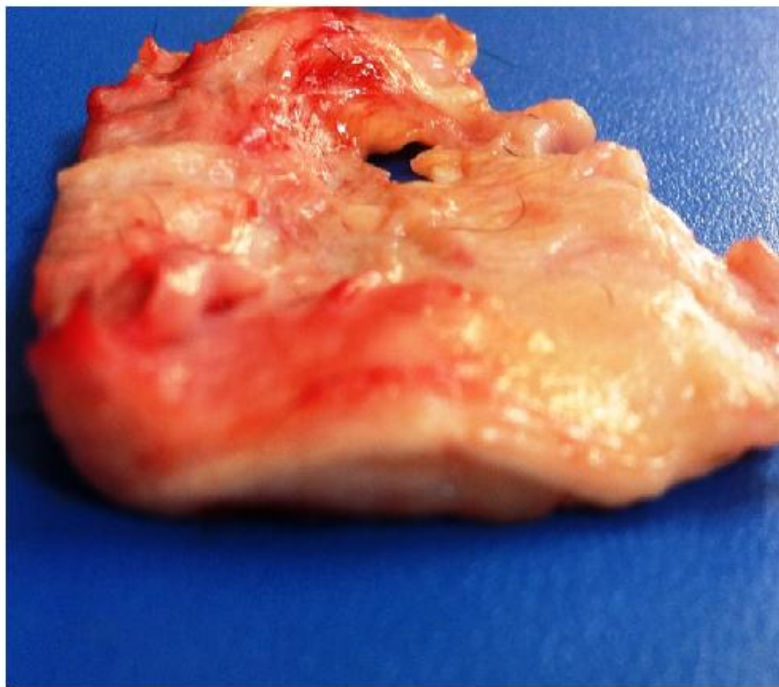
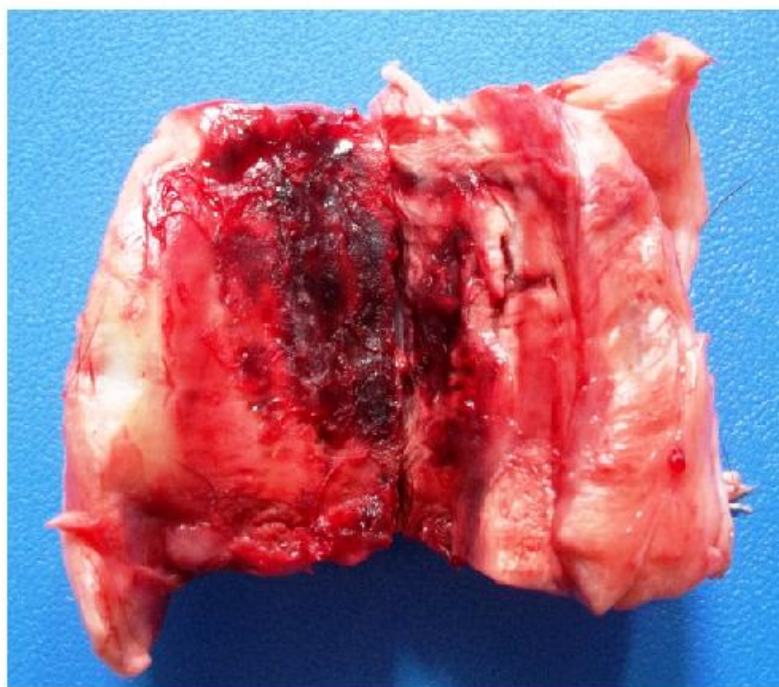
RESULTS

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RESULTS



a**b****c****d**

DISCUSSION

- The selection criteria of the forelimb specimens submitted to US examination was different from those in clinical routine workup.
- Based on the detection of changes by inspection and palpation only.

DISCUSSION

- Certainly, we might have missed forelimb injuries undetect to palpation and that perhaps could have been responsible for locomotor problems.
- Similarly, we may have selected forelimbs with injuries but without clinical manifestation.

DISCUSSION

- “Macroscopic findings including the appearance of necrotic tissue, angiomatous/edematous tissue, and the presence of hemorrhagic infiltrates, present little influence in the production of musculoskeletal problems. However, fibroplasia has significant influence. (DENOIX, et al., 1990)

DISCUSSION

- Limitations:
- Selection of the age range – potential bias, because the older animals more likely to be sent to slaughter.
- The level and discipline at which horses performed were unknown.
- Clinical signs associated with lesions unknown.

CONCLUSION

- Establishment of associations between US, gross, and histologic findings.
- Ultrasound examination of the MCP joint was particularly advantageous for detecting osteoarticular changes (fibrillation and eburnation of the articular cartilage), tendinitis, and cartilaginous metaplasia of the ligaments.

ACKNOWLEDGEMENTS

