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IT'S YOUR CASE

Species: Equine Breed: Quarterhorse Sex: Mare Age:10 years

Clinical History:

10 year old quarter horse mare. Grade 4/10 left fore lame. Blocks to palmar digital nerve block.

Details of study and technical comments: Lateromedial, dorsopalmar, dorsal60proximal-palmarodistal oblique and palmar45proximal-palmarodistal oblique views of the left fore foot. The images are of diagnostic quality.

Diagnostic interpretation:

- Mild to moderate extension of the flexor cortex of the navicular bone, best seen on the LM view.
- There is widening of the navicular synovial invaginations.
- On the DPrPaDiO projection there is irregularity of the distal horizontal border of the navicular bone.
- The proximal border of the navicular bone is undulating on the DPrPaDiO view.
- Poor corticomedullary distinction of the navicular bone secondary to palmar endosteal sclerosis and generalized sclerosis of the spongiosa is present. This is best seen on the PaPrPaDiO view
- A large, concave region of ill-defined lucency in the compact bone of the sagittal ridge is present that extends into the navicular bone spongiosa. This is bordered by sclerosis.
- There is a neutral solar angle of the distal phalanx. The toe is mildly long. The dorsal surface of the hoof capsule is slightly concave.
- A few small rounded mineral structures are seen within the hoof capsule on the lateral aspect of the left foot, which most likely represent separate centres of ossification within the lateral ungual cartilage of the foot.
- The margins of the proximal interphalangeal and distal interphalangeal joints are within normal limits.

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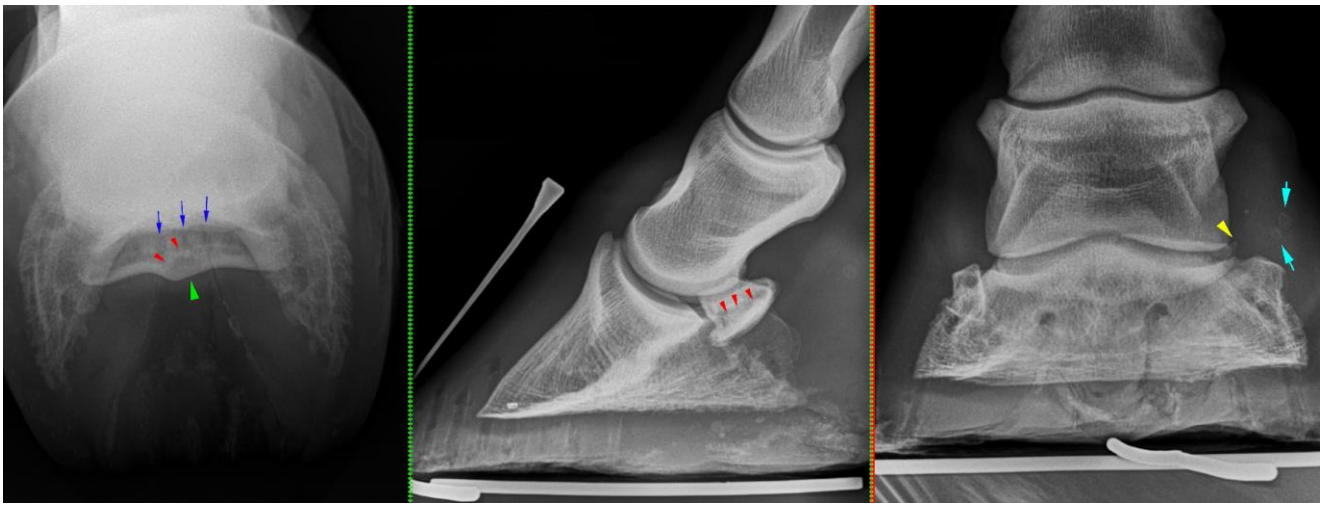

Figure 1: Labelled PaPrPaDiO, LM and DP radiographs of the left front foot. Blue arrows indicate enlargement of the synovial invaginations. The concave lucency in the flexor cortex and extending into the spongiosa (green arrowhead) is bordered by sclerosis (red arrowheads). Smooth enthesophytosis is present on the medial and lateral aspect of the proximal navicular bone margins (yellow arrowhead). Small mineral bodies are present in the lateral soft tissues, most consistent with separate centers of ossification or partial ossification of the ungual cartilage (light blue arrows).

Conclusions:

1. Severe navicular disease with flexor cortex erosion
2. Flat-foot and long toe conformation.

Teaching points

Changes in the distal horizontal border synovial invaginations are commonly seen in cases of navicular disease. It is commonly said that there should be no more than 7 small evenly sized invaginations. If the invaginations are large, or irregularly sized and shaped, this is a cause for concern.

Severe navicular disease is rarely seen in isolation. Given the presence of a suspected flexor cortex erosion of the navicular bone, soft tissue injury to the deep digital flexor tendon or navicular bursa are possible. Ultrasound or ideally MRI of the foot could be considered to evaluate the soft tissues of the foot.

Navicular bone disease depending on the severity and presence of associated soft tissue injuries can be a career limiting injury.

Further reading

The foot, Ch 3 in Clincial Radiology of the Horse 4th Edition, Butler et al Wiley Blackwall 2017

Dyson (2011) Radiological interpretation of the navicular bone. Equine Vet Educ **23**(2) pp73-87m