Case Report Dubay

Name of the animal: Dubay

Animal (Horse, donkey, mule, etc): Horse

Genre: Male

Age: 23 years-old

Breed: Crossed breed

Type of problem he has:

The horse had an accident in the stable which was trapped against the wall of the box. When the grooms took him out of the box, the horse walking in straight line had 3/5 left forelimb lameness (AAEP lameness scale). When struggling to get out of that situation, he sustained multiple injuries over the palmar area of the metacarpal region of his left forelimb. The palmar aspect of the left forelimb was totally swollen so we decided to proceed with the radiographic examination since we had the suspicion of a fracture. Ultrasonographic examination was not possible at this moment due to the great inflammation which could lead us to a wrong diagnosis.

Detailed explanation of the Diagnostics with some clinical images if possible:

The approach taken are the four initial standard radiographic views , (latero-medial, dorso-palmar, dorsolateral- palmaromedial oblique, and dorsomedial- palmarolateral oblique), of the left metacarpal bone was performed to decide if further radiography is required. In most cases with these views, you can identify bony abnormalities, e.g., displaced fractures. If bone abnormalities are seen, lesion orientated projections or small increments of 5 degrees can be performed to assess the whole lesion before referring the horse for further assessment. After our procedure, we found out a periosteal reaction on the middle- low third of the fourth metacarpal bone.

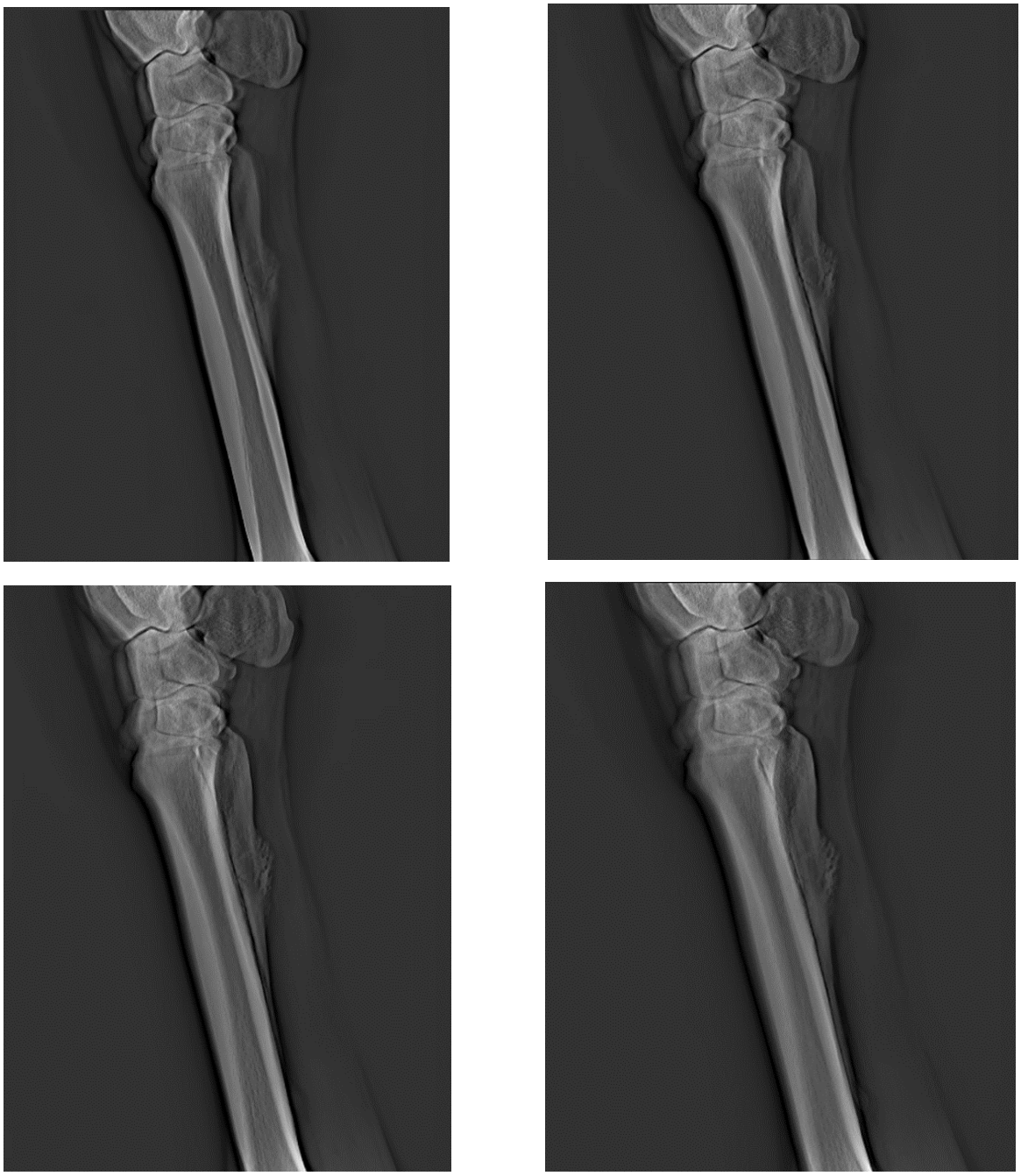
Latero-medial view

Dorso-palmar view

Dorsolateral-palmaromedial oblique view

Dorsomedial- palmarolateral oblique view

Having the opportunity to use the EqueTom™ linear digital tomosynthesis unit, 4 days later we performed the procedure. We decided to only perform a latero-medial view of the left metacarpal area. In our findings, we could observe periosteal reaction, several fissures of the fourth metacarpal bone, and new bone formation due to the traumatic concussion. Sequences of the tomosynthesis procedure showed below.



Slice sequences latero-medial view EqueTom™ linear digital tomosynthesis unit.

Conclusion and treatment.

One of the greatest advantages of the EqueTom™ unit is that we only need to do one projection to fully evaluated the metacarpal bone compared with the four projections needed with the normal digital radiographic procedure. Since we only need the one projection stated, there is a reduction in radiation exposure to the patient and the personnel involved the diagnostic imaging procedure. When talking about human medicine, reducing radiation doses comes from a correct optimization of the DR systems. Radiation dose should be as low as reasonable achievable (ALARA) and obtain image quality as good as possible to achieve an accurate diagnosis.

In the present case report, the total number of radiographic abnormalities counted on the EqueTom™ unit was much higher that the digital radiography system which indicate that

radiography has less sensitivity and specificity in detecting abnormal findings of the metacarpal bone than the EqueTom™ system.

The difference between the one projection of the EqueTom™ system and the four of the digital radiography system permitted a higher visualization of the metacarpal bone indicating better visibility of pathological findings. Pathological changes that were ill defined or indetectable on radiography could be visualized on the EqueTom™ images. These ill-defined changes could be detected on the DT system due to the computed tomography properties were lack of superimposition of the surrounding structures and the high sensitivity for detecting bone in detail.

If we only performed the radiographic procedure, our definitive diagnosis would have been periosteal reaction of the fourth metacarpal bone whereas with the EqueTom™ system we could detect several fissures and new bone formation. The fissures could lead to the slow onset of healing and soundness of the horse, and the new bone formation could lead to impingement of the suspensory ligament.

Given the presence of active bon, a period of 6-12 weeks of rest was recommended with box rest with bandages. NSAIDS, phenylbutazone (4.4 mg/kg, q 12 h, 5 days), where given due to the quick and short period of time providing good analgesic properties and anti-inflammatory response. Centesis of the metacarpal bone with corticosteroids, 16mg triamcinolone acetonide (Trigon Depot), has been shown to be more beneficial for the treatment to stop the new bone formation.

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