Sore shins (bucked shins) (dorsal metacarpal disease) (Metacarpal Periostitis) (Mashash in Gulf area) in racing dromedary Camels (One humped Camels)

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Definition:

It's a common non infectious disease occur in recently trained racing camel (1-2 years old) due to overload of exercise, which lead to modulating the morphology of the dorsal surface of metacarpus or metatarsus and form bone exostosis .

Causes:

As a result of stress and overload of extreme exercise of young racing Camels in which their bones still in growing phase, the Cannon (Shin) bone bear a lot of this load as shown in(figure1).



Figure 1: Show the most common sites that bear the Load of exercise (Red colors).

The load of exercise and stress factor also depend on the preparation of track as soft sand bedding decrease the incidence of soreness and injuries of Shin bones (Metacarpus) & (Metatarsus) (David M. Nunamaker).

Continuous stress of extreme exercise leads to modulation of the bone of 3rd metacarpus as the

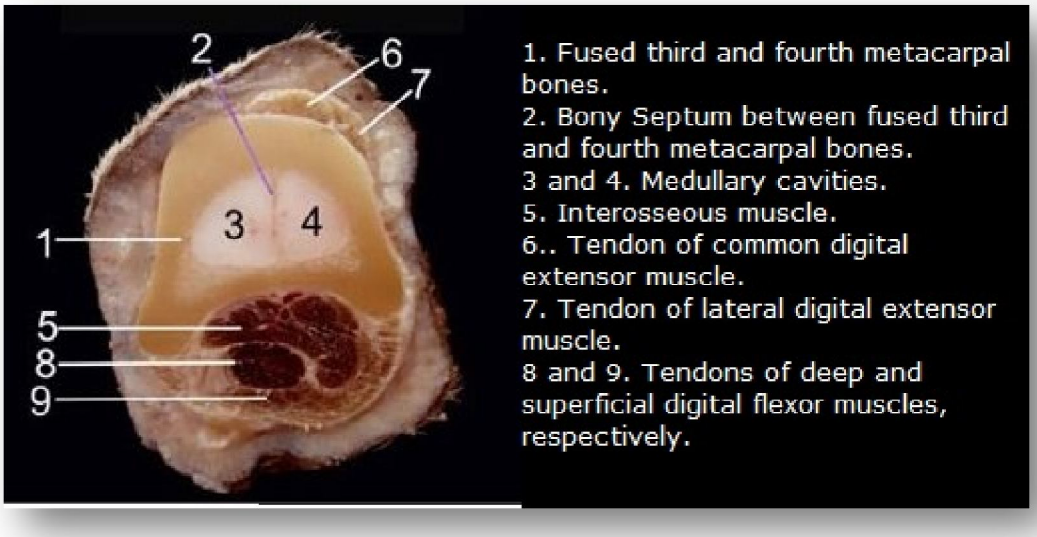


Figure 2 C.S in the 3rd metacarpal bone of Camel.

Theory and practical trails on racing Horse show that. However the Camels are different in morphology of the skeleton of legs but the signs of the disease and susceptible ages in both animals seem largely convergent.

The modulation of the bones occur in the cortex of the dorsal aspect of 3rd metacarpus (external structures of the bone)as shown in the figure (3) the difference between the shape of cross section in the Cannon bone in both of trained and un trained horses. That picture show

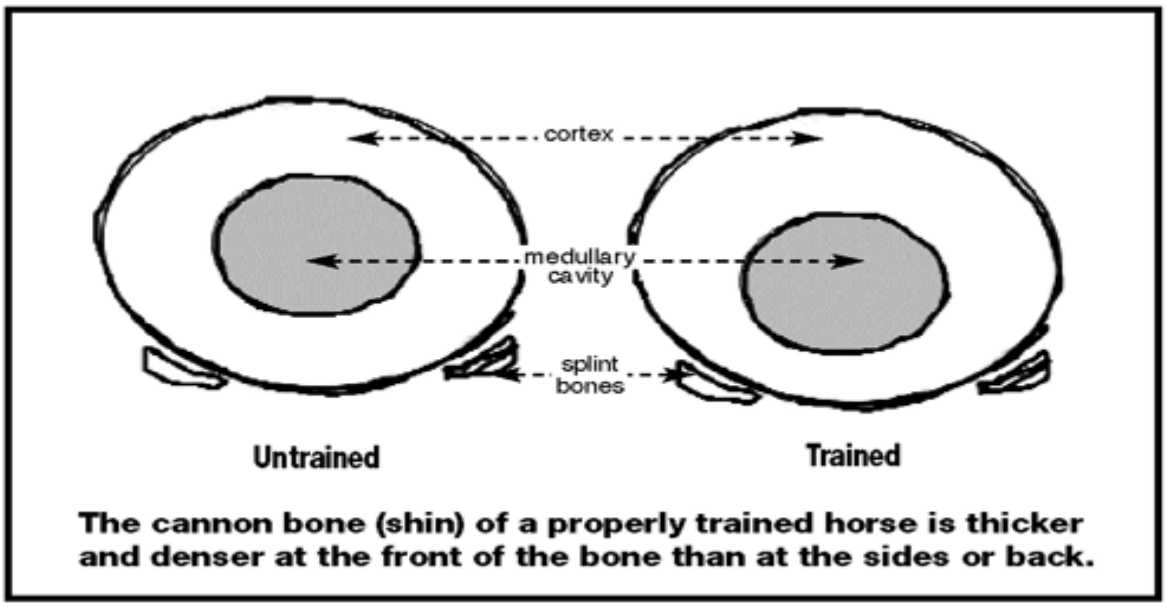


Figure 3

accumulation of additional bone tissue lead to increase the thickness of the cortex.

The change in morphology of the bone to adapted with the stress and load of the extreme exercise (Figure 3). In another hand this change considers as a predisposing factor for the injury and inflammation of the cortex (Figure 4) and periosteum (Periostitis) in which occur imbalance of the function of Osteoclast cells activities which lead to destruction of periosteum and begin to appear some bone exostosis which are so painful and that appear clearly when try to touch the Shin of the Camel and sometimes cause lameness.

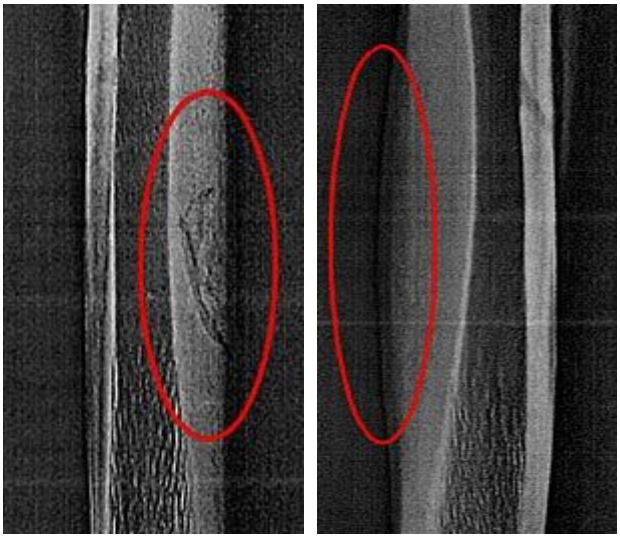


Figure 4

This explained by the following theory:

The modulating of external cortical structures followed by remodeling of the internal cortical structures in which there is no changes in the shape of cortex but the change mainly in the internal tissue to adapt the overloading, during this phase of remodeling occur reabsorbing of bone tissue leaving week point in which micro fracture or complete can be occurred.

Figure (5) show the 3rd metacarpal bone (dorsal view) and direction of overload of extreme exercise and sites of bearing surfaces.

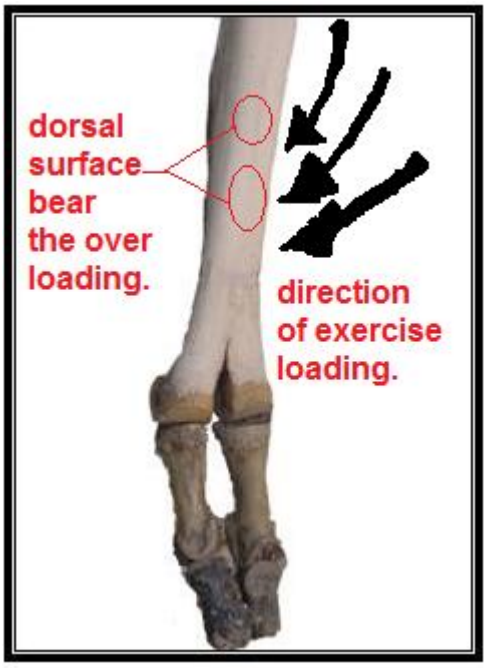


Figure 5 metacarpus of Camel (Shin)

There are other predisposing factors that can cause this disease:

Factors related to animals:

- Age (young 1-2 years more susceptible).
- Sex (no significance but female slightly more susceptible).
- Diet (deficiency of minerals and vitamins).
- Training (fatigue increase susceptibility).

Factors related to the track (mentioned previously).

Signs:

Unfortunately, we can`t recognizes the disease by clinical signs in early stage (Acute phase), but only in (Chronic stage) in which the animal shows those signs:

- Painful small hard swellings like projections (bony exostosis).
- Uneven dorsal surface of Cannon (Shin) (animal lift his leg when try to touch it because of pain).
- Slight lameness.

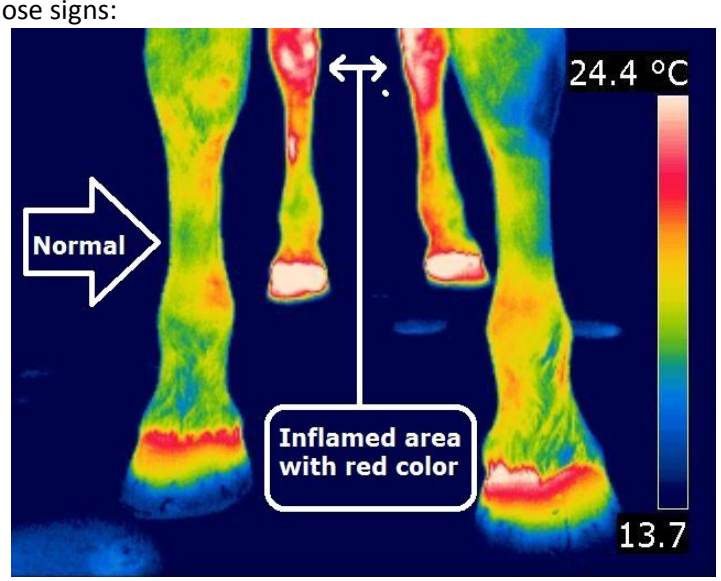


Figure 6 show the comparison between normal and inflamed area by using ThermaCam (Infrared sacanning).

Diagnosis:

Mainly by clinical signs, as mentioned before that clinical signs can`t be noticeable in early stage, but modern technology can sued for that purpose. Infra red rays (ThermaCam) used for detection the early soreness of metacarpus depending on the heat production of hyperemia in the inflamed area (Figure 6). Which can be scanned and compare with the normal leg but this way of diagnosis may be useless if all cannon suffer from the same soreness.

In chronic case diagnosis is so easy because the clinical signs are clear and also we can using the X-ray to detect clearly the bone exostosis and if there is any micro fractures (Figure 7)



Figure 6.25. Lateral and dorsopalmar radiographs of a normal neonate llama carpus. (A) Ulnar physis, (B) radial physis.

Figure 7

Treatment:

Acute cases:

Using of anti-inflammatory systemic and topical will be beneficial.

Give rest for the animal then begin training regularly.

Decrease over load and training stress for young new trained camels.

Using of special clay to decrease soreness after every extreme exercise.

Chronic cases:

Using the modern technology for treatment (Extracorporeal Shock Wave Thereby)(ESWT) which has analgesic and osteogenic properties. The trial of using this technique on horse shows healing of all grade 3 type-fractures and 33% of grade 4 type-fractures within 60 days of treatment.

Using of traditional treatment can give a satisfied prognosis like firing on the cannon region (Mashash) above the bone exostosis as shown in the (figure 8 & 9).

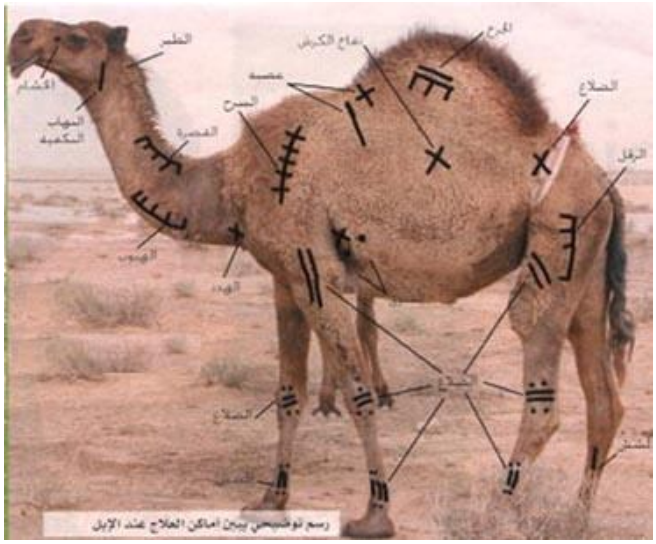


Figure 8

Using of counter irritant solution topically for 2 times per day for long time may be extending to one month the active ingredients of mainly Iodine preparations and anti-inflammatory like acetyl salicylic acid. That will induce hyperemia and so lead to convert the inflammation back to acute.



Figure 9

Prevention:

1- Decrease the exercise overload for young camels.

2- Increase the load of training gradually.

3- Using of special clay with herbal mixture as anti-inflammatory and astringent to remove

soreness after extreme training or exercise. This to be applied topically on the cannon region and you can cover it to give better results and leave for 12 – 24 hrs (Figure 10).



Figure 10

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