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THE TREATMENT METHOD OF THE DIGITAL BONE CHIP IN THREE SPORT HORSES

V. COCIOBA, A. GAVRILĂ, I. CRĂCIUN, EUGENIA DUMITRESCU, M. PENTEA

*University of Life Science" King Michael I" from Timisoara, Faculty of Veterinary
Medicine, 300645, 119 Calea Aradului, Timisoara, Romania*

E-mail : cocioba99@gmail.com

Abstract: Three sport horses with lameness were examined and digital bone chip identified. Based on clinical signs and radiographies the affected regions prepared for the treatment.

The digital extremities were cleaned, and antisepticated with alcohol 75° followed up by two applications of 10% iodine. Meanwhile the cryogenic probe was immersed for one minute into the liquid nitrogen. Two applications were made; first probe duration was for 45 seconds, followed by a pause of 5 minutes, while the second application lasted 30 seconds. After 24 hours the place was brushed in a proximo-distally direction using the Ball solution and the extremities were protected by a swathe.

Before resuming training, a control x-ray was made and the transition to exercise is staggered. After four weeks the horse should work under normal conditions, but without jumping.

Introduction

Lameness is a condition which involves all structures of the digit and, is considered to be the principal cause of the degenerative disease of the digits which can affect the domestic animals, but in particular occurs in the sport horses.

The digital osteochondritis is a disease in which small parts of the cartilage or bone isolate and float around the metacarpus or phalanges inducing pain and lameness. In active horses in the first year of life the osteochondritis develop in the limbs, but the clinical signs do not manifest until later in life when the athletic challenges, the practice and effort lead to the clinically noticeable lameness. The lesions in Thoroughbred and Half-bred horses develop faster and more obvious than in trotting horses.

While osteochondritis is present in many different joints in the horse, the present research is focused on the digit, starting with the metacarpus and phalanges. Concerning the sport horses and not only, the lameness is important and affects animal performance and welfare in a significant manner.

Material and method

The study was carried out in the period October 2023- April 2024 on a number of 3 sports horses of different breeds and ages. The animals belong to private breeders from Timiș County and were ridden horses which participated within various competitions, and thus they are known, felt and observed how they behave and what changes occur both before and after initiation of treatment.

Horse no. 1, Sanchez van de Zuidakker, Belgian Thoroughbred breed, 6 years old, place of origin Belgium, with an estimated market value of approximately 30,000 euros, with several sporting performances.

Horse no. 2, Venus, breed Romanian Sport Horse, 16 years old, place of origin Romania, with an estimated market value of approximately 5,000 euros used for various sport activities.

Horse no. 3, Lamborghini, breed Dutch Sport Horse, aged 8 years, place of origin Belgium, with an estimated market value of approximately 25,000 euros. It does not have a rich track record, but it has been used in numerous 120 cm show jumping competitions.

Results and discussions

The three sport horses taken in the study were clinically examined, a series of radiographs were taken which were examined, interpreted and based on them the diagnosis of osteochondritis was established in the left metacarpal bones for the Sanchez horse (Fig. 1), in the region of the proximal phalanges close to the metacarpophalangeal joint on the thoracic limb for the Venus horse (Fig. 2), and in the Lamborghini horse the lesions were diagnosed at the level of both metacarpal bones. For the treatment procedure the animals are restrained and sedated, the affected region is prepared for local anesthesia which is performed with Lindocaine injected subcutaneously both proximally and distally (Fig. 3).

The region identified with osteological changes is trimmed, degreased with 75° alcohol and then 10% betadine solution is applied. The procedure is carried out in two successive passages. In parallel with the procedure described for antiseptics, the cryoprobes were cool down in the tank with liquid nitrogen for about 1 minute.

Based on the radiographs, a layer of gel is applied to the area where the cryogenic treatment will be performed, after which the cryoprobe was applied at an angle of 45°, for 45 seconds in the first phase of the treatment (Fig. 4). After 5 minutes, during which the cryogenic treatment allows nitrogen to penetrate to the affected area of the bone, the second application of the cryogenic probe is carried out, in the same place, but with the reduction of the working time, which will be 30 sec/point.

After 24 hours from the application of the cryoprobes, the treated area will be brushed with Ball solution (produced by McTarnahans) for 30 seconds. The application is applied only in the distal direction (downwards), and an elastic bandage or a specific stable bandage will be fixed locally. This treatment is applied for 10 days post-intervention. After a period of 10 days of rest, brushing with Ball solution is reapplied for 30 seconds, this time in both directions proximally and distally, after which a gamgee bandage is recommended.



Fig. 1. The horse Sanchez with the metacarpal osteochondritis



Fig. 2. The horse Venus, osteochondritis of the proximal interphalangeal joint



Fig. 5. The first day of treatment application



Fig. 6. The day 14 of the first application



Fig. 7. After 4 weeks from the first



Fig. 3. The local anesthesia of the site of treatment



Fig. 4. Cryoprobe application on the interphalangeal joint

After 10 days of local treatment, it is suggested to continue brushing alternately with the application of talcum powder, 1 day and 1 day, until the region heals and the crusts fall off (Fig. 5, 6 and 7). Before resuming training, a control x-ray is recommended, and the transition to exercise is staggered, the first 10 days step by hand for 30 minutes on a hard surface, followed by 10 days with low-intensity training, 20 minutes step by step followed by sequences 2-3 minute gallop. Approximately after 4 weeks the horse should be working under normal conditions, but without jumping. Complete recovery is considered after 6 weeks.

Conclusions

In general the traumatic osteochondritis most commonly affects the bones and cartilage of young horses that perform training on hard terrain. For the horses taken in study the metacarpal and proximal interphalangeal regions were the most exposed due to the pressure exerted on the joint capsule and implicitly on the epiphysis of the bones.

Although osteochondritis is a multifactorial disease, the interphalangeal joints of overweight horses will be controlled predominantly.

The management the practice and the infrastructure of the surfaces used for training, as well the periodic control of the exposed regions should improve the condition. The application of the a layer of clay along the entire length of the thoracic and/or pelvic autopodium could help for a faster tissue regeneration. The working bandages will be applied to any type of training, and at night bandages with cushions will be fixed.

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