

UPWARD FIXATION OF THE PATELLA IN THE HORSE

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Key words: veterinary medicine; patella; horse

Surgical treatment of four horses by means of an upward fixation of the patella has been described. A desmotomy of medial patellar ligament has been performed.

When resting, the horse's patella hooks temporarily over the dorsal medial trochlear ridge. This has been described as some kind of a lock of the horse's knee joint. Whenever the horse feels a need to relax the patella from the described position, he contracts m. quadriceps femoris, lifts the patella from the described position and returns it, after relaxing the muscle, into the trochlear groove. In case of a disturbed coordination of relaxing the patella from the described position, the animal does not flex the affected extremity.

Clinically, the signs of an animal with a dorsal fixation of the patella, are fairly typical. The affected limb is visibly extended backwards. The horse can lean on the affected limb just with the front part or the dorsal wall of the hoof.

In the past five years, dorsal fixation of the patella in the horse has been performed at the Clinic of the Veterinary Faculty of Ljubljana in three Thoroughbreds and one pony horse. All horses have been treated surgically by means of desmotomy which was performed on the standing animal. After surgery the animals rested 4 to 6 weeks. By means of a questionnaire we found out that in all cases the treatment was successful.

PROKSIMALNA FIKSACIJA POGAČICE PRI KONJU

Ključne besede: veterinarska medicina; pogačica; konj

V prispevku so opisani primeri kirurškega zdravljenja štirih konj s proksimalno fiksacijo pogačice. Opravljena je bila dezmotomija medialnega patelarnega ligamenta.

Med počivanjem se konju pogačica začasno zaskoči nad medialnim trohlearnim grebenom. Pojav opisujejo kot nekakšne zaklep konjskega kolenskega sklepa. Če ima konj potrebo po sprostitvi pogačice, skrči m. quadriceps femoris, dvigne pogačico iz opisanega položaja in jo po sprostitvi mišice vrne v trohlearni žleb. V primeru, če je koordinacija sproščanja pogačice iz opisanega položaja motena, žival prizadete noge ne skrči.

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Klinična slika živali s proksimalno fiksacijo pogačice je precej značilna. Prizadeta noga je izrazito iztegnjena nazaj. Na prizadeto nogo se lahko žival naslanja le s prednjim delom ali z dorzalno steno kopita.

Proksimalne fiksacije pogačice pri konjih so bile na kliniki Veterinarske fakultete v Ljubljani zdravljene v zadnjih petih letih pri treh toplokrvnih konjih in enem poniju. Vse konje smo zdravili kirurško z dezmotomijo. Poseg smo opravili na stoječih živalih. Po operacijskem posegu so živali počivale še 4 do 6 tednov. Iz ankete smo ugotovili, da je bilo zdravljenje v vseh primerih uspešno.

Introduction

The upward fixation of the patella occurs in the horse, the cow and the camel (1, 2). Silbersiepe (3) describes this disease also as the upward luxation of the patella.

It has been discovered (1, 2) that the patella in the horse hooks over the dorsal medial trochlear ridge when the animal rests. Robinson (1) describes this phenomenon as the locking of the horse's patella. Whenever the horse feels a need to relax the patella, he flexes the quadriceps femoris muscle, lifts the patella from the described position and, after relaxing the muscle, returns it to the trochlear ridge. In case of a disturbed coordination of relaxing the patella from the described position, the animal cannot bend the affected limb.

Among the causes that can lead to the appearance of the upward fixation of the patella, Robinson (1) mentions the reduced size of retropatellar fat pad. The same author claims that it appears more frequently in those horses that have been losing weight and, above all, in the animals that are physically unfit. The upward fixation of the patella has been noticed in the horse diagnosed with the tuber coxae and the luxation of the femur (2). It has been discovered that this disturbance occurs more frequently in those horses that excessively straighten the hindleg in the knee joint. This disturbance has been frequently observed in the pony horse; hereditary predisposition has not been excluded (2).

The clinical signs of an animal with the upward fixation of the patella are fairly typical. The affected extremity is namely, at a certain moment, extremely straightened in the knee joint. The flexibility of the leg is limited to the pastern joint as well as the atriculus phalangis III. As the knee joint remains straightened and inflexible, the affected limb points backwards in extreme extension. The animal leans on the affected limb only with its front part or the dorsal wall of the hoof. The described position of the hindleg can last for a few steps only; afterwards the horse normally uses the extremity without any help. But it may happen that the leg remains extended backwards for hours, days or permanently. The patella can slide above the medial trochlear ridge during a walk or a trot. Very frequently this happens right after the first steps, when the horse moves off or when turning around. The disturbance frequently recurs. There are exceptions though, when it only occurs once. Robinson (1) reports the cases when it occurred in both extremities. According to his experience – in the case of bilateral involvement – the clinical signs differ on either extremity.

When during a check-up the patella is not in the upward fixation, diagnosis is difficult. By moving the horse in different ways, we try to provoke the hooking of the knee pad over the inner trochlear ridge. We try it in slow walk, repeatedly halting the

horse, by leading it up and down the hill. The animals normally refuse to straighten the leg in the knee joint excessively. In the horses with lax collateral knee ligaments it is sometimes possible to push the patella above the trochlear ridge by hand. Robinson (1) reports the cases of partial locking of the patella. In such cases the patella returns to the right place spontaneously. The return can sometimes be heard as a typical click whereby the horses appear uncomfortable and they limp. In some of such intermittent cases the knee joint is swollen. The swelling is worse along the medial knee ligaments. When the animals are tired, the clinical signs are more obvious.

Diagnosis is simple when the patella is in the upward fixation. However, medial or lateral luxation of the patella must be excluded, as well as osteochondritis, cysts within the condillar areas of the femur and dislocation of the femur. Radiographs of the knee joint in AP and ML positions are necessary.

The repositioning of the knee joint is not easy. One of the methods requires to pull, with a rope placed around the pastern, the affected limb towards the shoulder joint all the while pushing, with the hand, the patella down. Sometimes it is possible to successfully reposition the patella by forcing the horse to make a few backward steps. Stashak (2) reports as a possibility intimidation of the animal (with a whip).

When the locking recurs, some try to increase retropatellar fat pads. The most important factors in this case are exercise and appropriate nutrition. Robinson (1) suggests in such cases an orthopedic horseshoe with longer nails.

Whenever the conservative method of treatment fails, surgical treatment needs to be carried out. Relatively successful is the treatment whereby a desmotomy of the medial patellar ligament (lig.patellae med.) (1, 2, 3, 4, 5) is performed. Normally this can be done in a standing, sedated horse in local anesthesia (2). A bent desmotom is used for this purpose. The entry is usually uncomplicated. The point of orientation is the distal ridge of the patella and medial condillus. During the search for the ligament it is sometimes necessary to make the horse place the weight on the affected limb and then unburden it. The cut should proceed lengthwise. Usually the most appropriate place is 2 to 3 cm anterior to ligament. Through a 1 to 1.5 cm long cut a desmotom is pushed under the ligament. Once the knife has been placed correctly, the surgeon turns it by 90° towards the ligament. By pulling the knife the desmotomy is performed (1, 2). Normally there is no heavy bleeding. The wound is sutured by means of 1 to 2 sutures on the skin. The suture material should be absorbable. After the performed desmotomy the horse should be confined to a stable for 4 to 6 weeks.

Normally there are no complications. Nevertheless, Robinson, Squire et al. (1, 6) report some fragmentation as well as chondromalacia of the distal articular part of the patella. Cases have been mentioned of operative injury of veins and lymphatic vessels.

As an alternative therapy the causing of aseptic inflammation of the tissue of the medial ligament and its surroundings is also mentioned. According to Robinson, this technique is relatively well known in the U.S. It is also mentioned by Stashak (2) – in the case when the operative technique might be dangerous (pregnancy, old age). In such cases iodine solutions are mostly used. They should be injected (1 to 2 ml) in multiple sites.

Our experience

In the last five years 3 Thoroughbreds and one pony horse were operated at the clinics of the Veterinary Faculty in Ljubljana. All animals were older than 2 years.

In the pony horse, the proximal fixation recurred in every few steps. Other horses suffered from intermittent locking. The most interesting was the case of the five-and-a-half-year old trotter. The stallion had a bilateral case of the upward fixation of the patella. We also diagnosed an inflammation of the talocrural joint due to osteochondritis.

All horses were treated surgically (desmotomy). The operations were performed in standing animals. Sedation was achieved by means of drugs normally used in castration. After the intramuscular application of Combelen (1 ml/100 kg) we added, intravenously, approximately 15 minutes later, Rompun (2 ml/100 kg) and Polamivet (3 ml/100 kg). Locally we applied 5 to 10 ml 0.5 % Lidocain.

A good sense of orientation is very important. Percutaneously, the ligament must be palpated in the whole. This was made easier when the animal was made to burden and disburden the extremity in turns.

On the prepared operative site a 2 cm long incision was made cranially from the ligament, approximately the width of a finger, parallel to the ligament. Using the Penn forceps and relative force, a kind of a tunnel was made under the ligament, later used as a place for the desmotom. The sharp part of the latter was turned downwards while it was being pushed into the wound. Once the knife was safely under the ligament, its sharp side was turned toward it. A slight pull and the desmotomy was over. Since the ligament is less elastic than other tissues, one has the feeling during the desmotomy, of having cut something fragile. The wound was sutured by two interrupted sutures. Absorbable suture material was used.

In the stallion suffering from osteochondritis of the talocrural joint as well as having the upward fixation of the patella in both legs, the artrotomy of the talocrural joint was performed first and approximately one month later the desmotomy in both hindlimbs.

After the surgery the horses left the clinic the same day or the day after the surgery. 4 to 6 weeks after surgery the animals went back to work. The owners reported that in all five cases the treatment was successful.

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