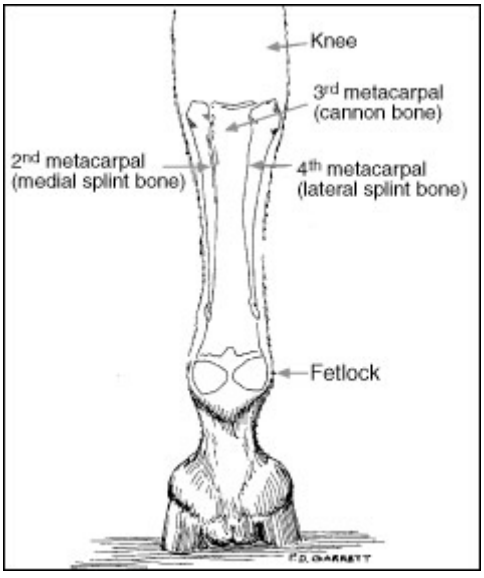
New England Equine Medical & Surgical Center
15 Members Way, Dover, NH

What is a Popped Splint?

Lori M. Smolkovich, DVM

One day as you are getting ready to ride your horse, you notice a bump around the cannon bone. Your horse seems sensitive to palpation, but overall is sound. You ask for advice from other people in the barn. They say it is a "popped splint", and before you know it, you are being flooded with advice and opinions leaving you confused and unsure of what to do. This is a common scenario we as veterinarians hear all the time. There seems to be some confusion among horses owners regarding metacarpal exostosis, better known as "a popped splint" or "splint". In this article, the different types of "splints" will be discussed, along with cause, diagnosis, treatment, and prevention.

Before discussing "splints" and how they occur, some anatomy needs to be reviewed. In the front leg, the horse has metacarpals II, III, and IV. The third metacarpal bone is the cannon bone. The second and fourth metacarpal bones are called splint bones because they are on either side of the cannon bone, "splinting" the leg. The second metacarpal bone is on the medial (or inside) of the cannon bone and the fourth metacarpal bone is on the lateral (or outside) of the cannon bone. The splint bones are held tightly against the cannon bone by the interosseous ligament (inter=between, and osseo=bone). In the hind leg, the anatomy is the same except instead of naming the bones metacarpals, the term is metatarsals.



What is a "splint"?

There are four types of "splints" but only two are common and noticed by horse owners. Those will be the only two types discussed in this article.

True splint: A true splint is tearing of the interosseous ligament. These tears most frequently occur on the medial (or inside) of the leg between the medial splint bone and the cannon bone. Usually the tear is in the proximal third (top third) of the leg. The body's way of repairing itself is to deposit calcium into the tear to make the area stronger. The "bump" that the owner feels on the leg is a result of inflammation and the deposited calcium.

Traumatic splint: A traumatic splint is the result of trauma to the periosteum. Periosteum is a dense fibrous membrane that covers the surface of bones. As a result of trauma, the periosteum becomes inflamed. If there is sufficient inflammation, the bone will heal itself by depositing calcium. The degree of inflammation is dependent on the level of trauma and the way in which the horse's body responds to that trauma. This is why some bumps are temporary and resolve when the inflammation subsides, and some are permanent, due to calcification deposition. A traumatic splint can occur on the cannon bone or either splint bone.

Why do "splints" occur?

True splints, as already stated, are a result of the interosseous ligament tearing, and that these tears most frequently occur between the cannon bone and medial (or inside) splint bone. A better understanding of anatomy and biomechanics are needed to explain why this happens. When a horse bears weight on a front leg, the lower row of carpal (knee) bones and the medial (inside) splint bone articulate (join) in a way that causes the medial (inside) splint bone to be pushed down and back. If a horse is overworked, or if the area is overloaded, the interosseous ligament cannot handle the stress of being pushed in two different directions, and it tears. Offset carpi, also known as benched knees, is a conformational abnormality that can also cause true splints even if a horse is not overworked. As horses age, the interosseous ligament naturally disappears as the splint bones fuse to the cannon bone. This is why true splints are usually a condition of younger horses, because in older horses, the ossified interosseous ligament can handle a much more demanding workload.

A traumatic splint can occur in many ways; getting kicked by another horse, interference (hitting one leg with the foot from the opposite limb), or hitting objects, are common occurrences. If the "splint" is on the outside of the leg, it is probably the result of external trauma, such as hitting a rail while jumping or being kicked by a pasture mate. If the trauma is on the inside of the leg, interference is the most common cause. Several conformational abnormalities predispose a horse to interfering, which can result in "splints". Base narrow horses or toe out conformations are naturally occurring conformational abnormalities, but improperly trimmed and/or shod horses can cause abnormal foot flight and as a result, interference occurs.

Diagnosing a "splint"

A "splint" diagnosis is usually fairly straightforward. There is heat, pain, and swelling over the bump. It is very sensitive to palpation and horses are usually mildly lame at the trot on hard footing. A radiograph should be taken to confirm it is a "splint" and not a fractured splint bone, which is a more serious condition. Although the "splint" by itself is usually a temporary lesion with no real long-term consequences, it can affect other structures and cause big problems. The suspensory ligament runs in between the two splint bones. Inflammation or calcification deposition that is caused by "splints" can impinge on, or interfere with the suspensory ligament, which can have serious effects on the horses long term use. This is why ultrasonic examination is often recommended. Through ultrasound, the suspensory ligament can be assessed. This gives your veterinarian a complete picture of what is going on and the best way to treat your horse.

Treating "splints"

The goal of treating a "splint" is to reduce inflammation. This is done by the use of non-steroidal medications, like bute, ice therapy, and wrapping the affected limb. Some veterinarians recommend DMSO or a DMSO/furazone sweat wrap underneath the bandage to further treat inflammation. Rest is given until the inflammation has subsided and the horse is sound. This usually takes approximately a month. If suspensory ligament involvement is suspected, treatment is usually more aggressive using intralesional corticosteroid injections, or shockwave therapy in addition to the inflammation reducing techniques already listed.

Preventing "splints"

The likelihood of splints occurring in your horse can be minimized but not completely eliminated. You can not change the way your horse moves or conformation. But by making sure your horse is properly trimmed, not overworking, and having protective wraps or boots on your horse while being turned out and ridden, can help minimize any trauma that might occur.

Should you consider buying a horse with a "splint"?

Overall, "splints" usually cause a temporary lameness with no long lasting problems. Once the inflammation has resolved, the bump that is left is nothing more than a cosmetic blemish. Before considering purchasing a horse with a splint, the splint should be thoroughly evaluated by your veterinarian to ensure the suspensory ligament is not effected and that the splint is not still inflamed or causing problems. The cause of the splint should also be investigated. If the horse has poor conformation, or a tendency for interference when ridden, then there is the likely chance that "splints" will be an ongoing problem.

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