

# Lameness of Equines

## Discussion of Most Common Types

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WHEN THE automobile replaced the driving and riding horse as a means of transportation and the tractor and truck began to replace the draft horse, the problem of lameness became progressively less important. Now with the return of the light horse to popularity the veterinarian is again confronted with this old-time problem.

It would be impossible to cover the subject of lameness in anything less than a large book. This discussion will therefore be confined to a sketchy review of a very few of the most common types of lameness in equines.

Having served as an army veterinary officer with mounted troops for some period of years, I believe that I have seen every type of lameness that horseflesh is heir to. As I look back over the hundreds of cases of lameness that I have observed, 3 types stand out in sharp relief. In my experience at least 75 per cent of all lameness in equines has been located in the foot. Even though the symptoms may point to trouble higher up I always examine the foot first. The importance of this was very clearly impressed upon me shortly after I started practice of veterinary medicine. A competent veterinarian sent a lame horse to my hospital for treatment. His diagnosis was tenosynovitis. There appeared to be no reason to question this diagnosis as all symptoms of this condition were present. After treating the case several days with no improvement I decided that something must have been missed on the examina-

tion. By carefully scraping the sole with a hoof knife, much to my surprise, a small nail was discovered completely imbedded in the frog. After removing the nail and treating as will be described later, the case made a complete and uneventful recovery. Since that time I never fail to examine the foot in all lameness cases no matter what the symptoms short of a compound fracture.

The diagnosis and treatment of lameness requires very little specialized equipment. The average hoof tester can be considerably improved. I take mine to a blacksmith and have the jaws drawn out to make the head about twice the original size and the contact ends reduced to about  $\frac{3}{8}$  of an inch in diameter. This makes it possible to much more accurately interpret what is found on use of the tester. I also have special hoof knives as well as a regular one. Mine are made from an old hay rake tooth. The shanks are straight and stiff and as small as is consistent with strength. I use both a right and left-hand knife. Even though I am right-handed, there are many times when the left-hand knife is much more convenient to use. An ordinary pointed hoof-groover and a pair of tin snips complete my special equipment. All other instruments needed will be found in the average veterinarian's bag (knives, forceps, etc.). One should keep a supply of about 18 gauge galvanized sheet iron strips about 1 to  $1\frac{1}{2}$  inches wide on hand. With the tin snips pieces of the proper length can be cut as needed.

Foot lameness includes a long list of conditions, only 2 of the most common of which I will attempt to cover here.

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Puncture wounds are probably the most common type of foot injury. In most cases there will be little difficulty in locating the trouble. I much prefer to have the foreign body (nail, wire, splinter, etc.) left in the wound until I arrive if one is present. This enables one to determine the extent of penetration and the direction which the offending article took through the tissues and may enable one to determine whether or not fragments of it have broken off and remain in the wound. It is very surprising how a man can pull a nail out of a horse's foot and promptly forget where it had been. At times they will be sure that it was pulled out of the right front foot and after much searching you will find the hole in the left front. They do usually know whether it was a front or a hind foot. Some of these cases will go sound as soon as the foreign body is removed and until suppuration begins.

#### **Providing Drainage**

After removal of the foreign body the horny tissue is pared away entirely through the sole making the opening large enough to provide adequate drainage. The next step is to thin the sole to relieve pressure on the surrounding tissues. When the operation is complete you should have a concave area at least  $\frac{1}{2}$  to 2 inches in diameter with the wound in the center. This will provide drainage and the sole will be thinned enough to allow some expansion when swelling occurs. If the foreign body is wood or some other material which may break and leave fragments in the wound a very careful search must be made to be sure that all foreign material is removed.

If the wound is comparatively clean a dressing can be applied at this point. However, if the wound is suppurative or is contaminated, the foot should be soaked in hot creolin solution (or other antiseptic solution of your choice) for about 15 minutes before a dressing is applied. This soaking will help clean the wound and soften the horny structures. If the sole has been loosened by suppuration, all of the loosened sole should be pared away and the thinning of the horny sole

extended back some distance from the edges of the opening.

If the foot is shod a pledget of cotton saturated with strong antiseptic (iodine) is then placed over the wound and a piece of oakum large enough to cover the entire sole and thick enough to provide good protection is held in place by a strip of galvanized sheet iron about 1 to  $1\frac{1}{2}$  inches wide which is wedged under the shoe. This strip of sheet iron will not in any way bother the horse if he has been properly shod. If the shoe has been "burned" on, as is common practice with some of the poorer shoers, it will be necessary to undermine the shoe to accommodate the iron strip. This sheet iron should be about 18 gauge.

As soon as suppuration stops the antiseptic pack is replaced with a pine tar and oakum pack. This pack may be left several weeks for protection of the thinned sole.

In the absence of a shoe it will be necessary to bandage the foot to protect the bandage with a burlap or canvas foot stall. In many cases it will be an advantage to have a shoe put on to hold the pack. A pack under a plate is very little trouble to keep in place or to change while a bandage is very hard to keep on most horses.

The use of tetanus anti-toxin is always indicated in this type of wound as conditions are ideal for the development of tetanus.

#### **Contusion of the Sole**

The next most common cause of lameness in equines is contusions of the sole. This condition is most apt to be seen in animals that are used for fast work over hard surfaces. These contusions range in severity from those so slight that they are not noticed to those so severe that the entire hoof will slough. In the less severe conditions a veterinarian's diagnostic skill is sometimes severely taxed. First the affected foot must be located. If the animal is observed at a fast trot on a loose rein or if being led on a loose shank (the rein or shank must be loose or an accurate picture will not be obtained) one is usually able to locate the proper foot.

To some it may seem odd that a veterinarian would have trouble deciding which foot a horse is limping on, but I have seen many young veterinarians that were unable to tell. This is the natural result of lack of experience. In the slightly lame ones even the more experienced men occasionally have difficulty.

### **Examining the Foot**

After the foot has been located it should be carefully gone over with the hoof tester until the point of greatest tenderness is located. It is a good policy to have the owner or groom hold the foot for this examination and do not stand in a position where you could get hit if the leg is extended unexpectedly. Even the most docile animals may strike or kick when you hit the sore spot. It is a very good precaution to assume that all animals will at some time kick and strike. If one works on this theory it may save painful and serious injury. In the absence of a hoof tester a small hammer may be used, fairly satisfactorily, to locate the tender spot. By tapping lightly on the sole tenderness can be detected, but it is hard to accurately locate the point of greatest tenderness. However, caution must be observed as some animals will flinch from a hammer blow even though perfectly sound.

When the point of greatest tenderness has been located an exploratory opening should be made through the horny sole at this point. This is where the special hoof knives come into the picture.

If time enough has elapsed for suppuration to have occurred an accumulation of pus will probably be found. This pus may be under a great deal of pressure, will be dark in color (black and tarry in some cases), and very putrid. Many times a sizeable pus sinus is found. This sinus may be as much as  $\frac{1}{2}$  inch in diameter and either round or cylindrical in shape. It may be located on the sole proper or at the junction of the sole and wall.

If the injury has only recently occurred a blood clot will be found. The treatment of these recently injured cases is the same as for those which are suppurative except that the aim is to prevent infection if possible and that healing will be much more

prompt.

From this point on, these cases are treated the same as puncture wounds. All undermined sole is removed and the sole thinned back about  $\frac{3}{4}$  of an inch from the edges of the opening and a dressing is applied. The tendency is to remove too little rather than too much tissue. One should work on the theory that as long as damaged or diseased tissue is present and can be removed, the operation is not complete.

If these contusions are neglected the pus accumulation may completely separate the sensitive lamina from the horny lamina and leave the hoof entirely loose from the foot. In some cases the pus will burrow through the soft tissues and break out at the upper margin of the hoof. In these cases an opening is made in the sole and a mild antiseptic solution is flushed through and a protective dressing applied. Recovery will be slow as it is necessary for all of the damaged tissue to regenerate. In many of these neglected cases recovery will not be complete and prognosis should be guarded. Deformity of the hoof and chronic lameness may result.

Another point to consider is the possibility of multiple injury. There is always the possibility that more than one foot is injured at the same time. This greatly complicates the location of the trouble. Also there is the possibility that there may be more than one injury to the same foot. The possibility of tenderness from some cause other than contusion should also be considered (thin sole, laminitis, tight shoes, close shoeing nails, injuries to the well, etc.)

### **Aftercare**

In many cases the patient will go sound or nearly so as soon as drainage has been established. As soon as the animal goes sound he can be put to work (within reason) but protection must be provided with a pack under the shoe as before described and the foot should be cleaned carefully each day, or oftener, to be sure that dirt does not get under the pack or pack hard inside the shoe. The pack can be replaced as often as necessary. I do not like a leather pad or tin plate which is

nailed on with the shoe as they can not be removed for cleaning and replaced. If this type of dressing is used it often follows that dirt will pack in under it or small stones will get under it and will do more damage than the pad does good.

All equines are subject to the conditions of tendinitis and/or tenosynovitis, but they are seen most frequently in animals that are required to change direction or rate of speed frequently such as jumpers or polo ponies and horses that are worked on steep grades such as mountain climbing and in race horses where the strain on the tendons is severe.

### **Diagnosis and Treatment**

The diagnosis of this condition is not especially difficult. The degree of lameness will depend on the severity of the condition and the type of work being done. The involved tendons and/or sheaths will be tender to pressure and swelling may be present. However, if the sheath is not involved, swelling may not be present to the extent that it can be detected. Usually the involved area is warmer than the surrounding areas, but again this may be so slight that it is not noticeable.

The first consideration in the treatment of these conditions is removal of the cause if possible. This may be all that is necessary to overcome the condition. The cause may be a congenital weakness, the type of work required of the animal, irregular surface of the stall standing, improper shoeing, improper trimming of the foot and one must always consider the possibility that the symptoms are the reflection of conditions lower down. It may take some time to get information as to possible causes out of the owner or groom but it will be time well spent. Little can be accomplished by treatment of the condition if you do not remove the cause.

In the acute stages symptomatic treatment is indicated such as cold astringent packs (white lotion) alternated with massage and in the later stages supporting bandages and massage.

### **Massage**

It is almost impossible to get anyone to properly massage a horse's tendons unless

they are given something to "rub in." A good liniment (white liniment or some modification of it) is at least a good means of obtaining the desired massage and possibly does some good. I often use alcohol and olive oil (especially on animals that white liniment might blister). I put 7 ounces of alcohol and 1 of olive oil in an 8 ounce bottle with instructions to "shake well before using" as the oil will float out. This liniment is to be rubbed until all "rubbed in." This results in a good massage as the oil is visible on the hair and the attendant can see there is something to rub in.

If the condition is, or becomes chronic more drastic measures are indicated. Depending on the severity of the condition and the end results desired (whether the animal is to be put to work or to be used as breeding stock) blistering or firing is indicated. The severity of the blister will depend on the severity of the condition and the type of animal you are dealing with. On thin-skinned animals the blister must be comparatively mild and on old draft animals it should be much more severe. I prefer red iodide of mercury as a blister. The mixture can be varied from 1 to 10 for colts and thin-skinned older animals to 1 to 4 for old thick-skinned animals.

### **Blistering**

When a blister is applied measures must be taken to protect the animal from getting the blistering agent on his lips as a result of chewing on the bandage and from striking anything while pawing. In order to do this the animal can be cross tied backwards in a single stall with the tie ropes up high. Be sure that the halter and ropes are strong enough to hold him.

A blister should always be applied under a bandage. This bandage should be padded with cotton and left on for at least 3 days. If a bandage is not used the hair may be permanently lost and the skin badly damaged, even to the point of extensive sloughing. If properly mixed and applied neither the hair nor the skin will be permanently damaged. The skin will be dry and scaly for some time and have a tendency to chap and crack if no after

care is given. After the third day the bandage can be removed and a mild anti-septic ointment applied (plain petrolatum may be used). It may be necessary to apply this ointment several times at 3 or 4 day intervals. The length of after care required will depend on the degree of blistering obtained.

In firing cases of chronic tendinitis the number of points used will depend on the severity of the condition and the amount of tissue organization present. Always apply a blister immediately after firing. This blister can be a little less severe than you would have used alone. The after care is then the same as for blistering without firing.

Complete rest from work is imperative in treatment of all tendinitis and tenosynovitis. After the acute stage is over or 10 days after firing or blistering, 6 months on pasture will work wonders. However, a guarded prognosis is always indicated.

Wherever possible, I like to change the level of the foot to afford additional relief from strain on these tendons. If the horse is to be left barefoot, trim the foot leaving the heel about  $\frac{1}{4}$  inch higher, in relation to the toe, than normal. If shod, swelling the heel of the shoe  $\frac{1}{4}$  inch will help. This is of special value when the animal is to be put to work soon after treatment.

Colic and impaction in horses is more frequently seen during the winter than any other season. Subsisting largely on coarse roughage, or consuming frozen feeds and drinking ice-cold water are the chief causes of these troubles.

Histological examination of the ganglion nodosum, of the vagus nerve, by rapid staining of frozen sections with cresyl violet is considered to have advantages over the examination for Negri bodies in Ammon's horn and by other histological methods. The ganglion nodosum is easily accessible even in the decapitated animal and is relatively resistant to putrefaction. By using this method a diagnosis may be made in less than 1 hour.

K. Unsworth of the School of Tropical Medicine and Veterinary Science, University of Liverpool, found in his study of 91 normal dogs that 10 per cent harbored the parasite *Demodex canis*. The parasites were found in the skin of the eyelids and the nose, which are the usual sites where the skin disease first appears.

Isolation and purification of the growth hormone, without which no animal could grow, was reported by Prof. H. M. Evan of the University of California's School of Medicine. This hormone stimulates growth in young animals and children but will not produce growth in adults.

Brucellosis can infect dogs and cats without their ever showing clinical symptoms of the disease. Therefore, it appears that these animals are capable of spreading this disease to their owners as well as to other animals.

The ingluvies of all fowl are not the same. In palmipeds such as the duck and goose the crop forms only a spindle-shaped enlargement. In pigeons the crop consists of a strong bilateral sacculation. In insectivora, gulls and divers the crop is entirely lacking.

Sponges capable of absorbing up to 18 times their own weight and still retain the absorbed liquid are being made. These starch sponges may be used for internal surgical dressings to be absorbed in the body.

An average of 8,000 tiny holes or pores are found in the average hen's egg. There is a great difference in the number and size of the pores between different eggs. The best eggs have many small pores, with the pores so small that evaporation and escape of gases is slow.