

Explaining Laminitis and its Prevention



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Chapter 4 - Medical Treatments

The medical treatments used on a case of laminitis fall into three basic groups;

- 1) Pain killing drugs
- 2) Drugs which dilate the blood vessels in the foot, and
- 3) Anti blood clotting drugs.

The pain killing drugs of most value are the Non Steroidal Anti Inflammatory Drugs (NSAIDs) of which there are five in common usage for horses. The most common and cheapest is phenylbutazone (bute); this is available as a powder or a paste and is sold under various trade names such as, Equipalazone and ProDynam. It is also available as an injection for intravenous use only (it is very irritant to the tissues if injected outside the vein). The second drug is meclofenamate and is sold as granules under the trade name of Arquel. An injectable form is not available. Flunixin meglumine is the third drug sold as Finadyne. I have not found this drug as effective a pain killer for laminitis as the other two but its use should be considered for animals which are ill in themselves (systemically ill) or are infected as well as having laminitis. This is because flunixin has an action against some of the toxic products produced by bacteria, the endotoxins. The fourth drug is common-or-garden aspirin, or salicylate. Aspirin is a moderately good pain killer but has an action to help prevent platelets in the blood clumping together. This clumping is part of the blood clotting process and is an undesirable secondary effect in digital blood vessels following periods of constriction in the early stages of laminitis. The fifth and most modern drug is suxibuzone (Danilon) which is provided in a microencapsulated form and is less irritating to the stomach and intestinal mucosa. As pain killers the NSAIDs have an indirect effect of reducing the animal's blood pressure which tends to rise, largely in response to pain. This reduction in blood pressure is a good thing; the longer the horse has been in laminitic pain the less effective the drugs are at reducing the animal's blood pressure.

The danger with the NSAID's is overdosage. These drugs can cause ulceration and bleeding from the bowel, (said to be much less likely with Danilon) which may prove fatal if too much drug is given or the correct amount is given for too long. These side effects are worse for ponies and are more likely to occur in elderly animals. Thus it is important to use the least amount of drug necessary to achieve the required amount of pain relief. The other problem with the use of NSAIDs for laminitis is that because they are pain killers they can mask how lame an animal really is. This tempts people to allow the horse more exercise than is good for it. By the same token, because the animal has less painful feet he is prepared to exercise more and lie down less. This puts more mechanical strain on the laminae and increases the risk of founder starting.

The second group of drugs, the vasodilators, or blood vessel relaxing drugs can be used in combination with the NSAIDs. The most useful of the vasodilators, particularly in the early stages of laminitis, is phenoxybenzamine, sold as Dibenylene. Unfortunately, the drug is not licensed for use in horses in the UK. Nevertheless it can stop deterioration of a laminitis case by normalising the blood supply and thus removing the pain. It is available as an injection but must be diluted in sterile saline solution and given as an intravenous drip over a period of an hour. Phenoxybenzamine has a marked tranquillising side effect so the dose is split and half given 24 or 48 hours after the initial dose. The drug is very effective at lowering the blood pressure and this can cause problems of shock in very sick or dehydrated animals. Animals often lie down and rest after this drug so they must be in a clean, well bedded stable. The fact that the horse's weight is off the feet is also a beneficial effect of this treatment.

Acepromazine (ACP) is a commonly used tranquillizing drug. It is available as tablets, a paste or by injection. It is nowhere near as effective as phenoxybenzamine as a vasodilator but can be a useful part of the treatment regime. ACP does reduce the animal's anxiety whilst having a mild vasodilator action and reducing the blood pressure. ACP is given at sufficient dosage to produce a mild tranquillizing effect. If phenoxybenzamine is unavailable then the use of ACP, a NSAID and frog supports is recommended as the first line of treatment for laminitis cases.

Isoxsuprine is another drug which is used to dilate the blood vessels in the feet, it has been used for the treatment of navicular disease in combination with correct shoeing. It is available as a paste and as a powder. Although this drug is unlikely to do any harm in the acute laminitis or founder case, in my hands it has failed to do any good either. In chronic founder Type 2 cases it is contraindicated by increasing the rate of resorption of the pedal bones.

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Of the last group, the anti-clotting drugs, there is really only one which is safe to use in combination with NSAIDs, Heparin. This is available as an injection and can be given under the skin or intravenously. In my experience it is of use only in the early stages of the disease, i.e. the first week.

Nerve blocks

In order to deaden the feet some vets will use nerve blocks. This involves injecting local anaesthetic around the nerves which supply the foot. The nerves are located alongside the arteries at the back and sides of the fetlock joints (see Fig. 9). This was more popular in the days when it was thought that exercise was beneficial to improve the circulation in the feet. Although this treatment certainly removes the pain of laminitis, as with the use of pain killers the danger is that the horse will physically tear apart the laminae by increased weight bearing. Additionally, little is known about how the nerve supply controls the blood vessels in the foot. Blocking the nerves may worsen the constriction of the arteries and veins. Therefore I would never block a horse's feet if it had laminitis, certainly not if it was foundered or a sinker.

Exercise

Exercise was always recommended as a treatment for laminitis, the theory being that exercise promoted circulation in the feet. The problem in laminitis and founder is not a lack of circulation, in fact there is a greatly increased amount of blood entering the foot. The problem is that there is greatly reduced perfusion, i.e. the blood is entering the foot in greater quantities than normal and then going straight out again via the arteriovenous anastomoses (AV shunts) to the veins without nourishing the tissues of the corium. No amount of exercise is going to improve the perfusion within the foot; this can only be done by relaxing the constriction in the arteries and veins and closing the AV shunts.

Again, the more exercise taken the worse the mechanical strain on the laminae. On humanitarian grounds there is also no justification for making an animal in such pain walk about. The human analogy is to walk on the tip of one finger and toe per limb and have the nail tearing away from the quick as you go. Not a pleasant experience, I am sure.

I recommend absolute box rest, at least until the animal has recovered sufficiently to walk around the stable without pain killers and without lameness. After that I suggest a period of one month of further complete box rest. I strongly recommend this as experience has shown that premature exercise, of any sort, often results in what were diagnosed as laminitis cases foundering to the point of solar prolapse. This usually occurs six weeks after exercise started and the animal may not show much lameness during this time. Premature exercise results in gradual tearing of laminal attachments before healing has had a chance to take place. Thereafter walking out in hand two or three times a day for 15 minutes at a time can be started. Alternatively the animal can be turned loose into a quiet arena to amble about at his own pace. Nothing in the way of ridden exercise should be attempted for a month and then the animal should be brought back into work gradually.

Stabling and Bedding

Ideally the animal should be in a stable large enough for it to turn round easily. Turning is usually the most painful movement for lame horses and it certainly is for laminitis cases. The stable should be well insulated to prevent the extremes of temperature which can occur in single thickness wood walled stables. I prefer to use a clean whitewood shaving, with large leaf-like pieces (Bedmax are the best) rather than small dusty shavings. The lack of dust in the bedding can be particularly important if the animal is down most of the time with his nose in the bed. I use this type of bedding because the animals can be kept relatively clean and dry and shavings are rarely eaten by horses. For horses which are recumbent for much of the day there are important factors in their management, the heat of the stable / bedding and the amount of 'bottom' to the bed. Recumbent horses tend to paddle through a bed and soon end up lying on the concrete. An old bed with a good dry 'bottom' resists this more than a new bed. For these reasons I do not use straw as it is readily eaten, particularly if the animal is on a diet, and it does not form a dry bottom. Deep litter straw bedding is bad for horse's feet because the bed is wet underneath. The chemicals formed in a deep litter or dirty bed can actually attack the horn of the feet. There are also considerable amounts of ammonia produced which is bad for the lungs. Laminitis and founder cases need a quiet environment to encourage them to lay down and rest. A busy riding stable or livery yard is far from ideal.