Treatment of Quarter Cracks & Laminitis with EDSS: A Case Study

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I was presented this case on 20th May 2000. The horse was a warm blood mare 15:3 hands high, her job is dressage, at grand prix level. She was presented to me with bleeding quarter cracks on the medial side of both front feet. A heavy toe first landing was observed. When she was walked in a straight line she appeared sound. When she was trotted in a straight line she exhibited 5 out of 10 lameness on both front limbs.

Lateral radiographs were taken of both front feet, which showed a palmer angle of 12° and 5° of hoof capsule rotation on both feet. The shoes were removed (toe clipped 3/4 x 3/8" fullered concave). Breakover was occurring 1 1/4" dorsally to the distal border of the distal phalanx.

The conclusions drawn from this are; both front feet, despite a regular shoeing schedule, re-shod every six weeks, breakover was occurring too far ahead of the distal border of the distal phalanx. The heels were too high but, had mistakenly been allowed to reach this height in an attempt to align the hoof and pastern axis. The front feet were trimmed using the sole plane as a guide, (Natural Balance® guidelines) and removed the distortion (flare) of the dorsal hoof wall. This lowered the palmer angle of the distal phalanx to 5° and realigned the dorsal surface and the dorsal hoof wall.

Both feet were hoof tested and no significant pain was found around the sole, frog and bars. The hooves were tested around the quarter cracks and (on a scale of 1 to 5) there was a 3 reading.

The horse was fitted with size 1 Equine Digit Support System shoes. The point of breakover was placed 6mm (1/4") ahead of the distal border of the distal phalanx. The shoes were then fitted to medium (EDSS) pads. The pads were screwed to the shoes at the toe. The feet were filled with (EDSS) impression material and a hard impression plate was taped onto the bottom of both front feet. The impression material was allowed time to set up. During this set up time, I drilled pilot holes through the shoe/pad combination, to allow for easier nailing. Once the impression material had set up, I removed each impression plate and nailed each shoe onto the front feet. I finished both front feet (clinched up) and walked her in a straight line. At this point I was looking for a slight heel first landing. She was still landing slightly toe first. I attached a low base frog insert to each foot and walked her in a straight line again. She started to land slightly heel first, this was observed by a slight flip up of the toe just as the foot touched the ground. I walked her on a 20 metre circle and observed lameness on circles both to the left and right, at trot this lameness increased by 1 out of 5.

We removed the protective bolts from the shoes and screwed on low (EDSS) rails. To gain frog contact on the ground, I changed the frog inserts to medium

base inserts. The owner walked and trotted her in a straight line again and she increased her stride length and showed no signs of lameness. We then walked and trotted her, on both reins and no lameness was observed.

I did not see the need to repair the cracks at this time, as they seemed to be more stable and when hoof tested again following shoeing, neither crack was bleeding or painful to hoof tester pressure.

The horse was booked for re-shoeing in eight weeks. The idea of extending the shoeing period was to allow time for the quarter cracks to heal and the hoof to gain secure stability.

The horse returned at the agreed shoeing appointment, there was a noticeable improvement in soundness and stride length both in a straight line and on a circle. She exhibited a much improved and free stride. The owner reported that she had been sound and had returned back to full work, with no bleeding from the cracks. The feet had grown 15 mm during this time but were growing at a better orientated angle than before.

I removed the shoes and trimmed the feet using Natural Balance™ guidelines. She was walked in a straight line and a slight heel first landing was observed. She was then walked and trotted in a circle on both reins. No lameness was observed.

I re-packed the front feet with impression material and once this had set up, I re-shod her using the same shoes and pads that I had removed. Once I had finished off the feet, I walked her in a straight line and a slight heel first landing was observed. She was then trotted on a circle on both reins and no lameness was observed. She was maintained on a six week re-shoeing schedule until the quarter cracks had grown out. The cracks did not bleed again and grew out to reveal a sound function hoof capsule. When the cracks had grown out I shod her using number 1 aluminium Natural Balance® shoes The horse was returned to the owner's farrier, who had been kept informed throughout the entire time and following each visit for re-shoeing, the owner's farrier visited the horse and we spoke on the phone thus we were able to discuss each change in the shoeing process.

This same horse remained sound, with no re-occurrence of the cracks and competing successfully until April 2002, when she returned to my practice. She was extremely lame on both front limbs, shifting her weight onto the hind limbs. She stood with her front limbs out in front of her. I removed her front shoes and carefully rasped a slight rocker at the toe of both front feet. Her veterinary surgeon called and took lateral radiographs. The feet had a dorsal wall marker placed at the junction of the coronary band and a drawing pin placed into the tip of the frog, (where the frog inserts down into the sole). The radiographs showed 8° of hoof capsule rotation, no sinking. A diagnosis of laminitis was made by the

veterinary surgeon. I applied a 50mm TFP Styrofoam Support Block® kit to each of the front feet. This made her immediately more comfortable. The veterinary surgeon increased her comfort by administering some pain medication. This horse has always been barefoot on its hind feet and I thought as she experienced no signs of pain in them I would leave them barefoot unless they became involved. It was decided that she was not able to travel at this time and the owner made arrangements for the horse to stay until she was more comfortable and had become more stable. That night she was given a stable with a small concrete yard to walk around in. I filled out an EDSS work up form to start this case off and keep an accurate record of events. I have found if this is not done, it is impossible to remember small details at a later date.

To our surprise, the next day she was walking, with some effort, around the yard to try and visit with some of the other horses. The Styrofoam had crushed down, slightly more at the toe than the heels. It was decided that we should leave the blocks for another day.

The following day I carefully removed the Styrofoam blocks and hoof tested both of the front feet. I found the most painful areas to be forward of the widest part of the feet. I trimmed the crushed blocks back behind the painful areas and replaced them into the back part of the feet, behind the painful areas of the feet. I then taped another spare styrofoam block onto the top of the crushed block I had already taped into the feet. I then made protective pads out of duck tape and taped them onto the bottom of the blocks. The idea behind this was to protect the bottom of the blocks and prevent them from wearing out.

She stayed like this for the next two weeks, during which time she was visited regularly by the owner, the veterinary surgeon and me. As she improved each day, decisions were made to reduce the pain medication, until after two weeks she was walking sound without the assistance of pain medication.

A decision was made to shoe her. The veterinary surgeon decided to take more lateral radiographs. I removed the styrofoam blocks and prepared the feet for the radiographs. The new radiographs showed an increase in the thickness of the dorsal wall, 4mm of sinking of the distal phalanx and 13° of hoof wall rotation. The increase of wall thickness and rotation was attributed to the medical condition of the horse and it was not considered abnormal in this circumstance.

I measured on the radiographs, from the drawing pin to the distal border of the distal phalanx and transferred this to each of the front feet. (This will give me an idea of the placement of the distal phalanx within the hoof and allow me to correctly place the shoes relative to the distal phalanx).

The type of shoe was discussed and the veterinary surgeon wanted me to shoe the horse using some form of heart bar shoe. Both I and the horse owner asked if he would mind if we used the Equine Digit Support System. The veterinary

surgeon had no experience in this system and took some convincing, but after an extensive explanation he finally agreed.

I trimmed the feet using Natural Balance® guidelines, it is important to de-rotate the back of the foot to eliminate sole pressure. I fitted a number 1 EDSS shoe to both front feet. The point of breakover was placed directly under the distal border of the distal phalanx. I marked the foot with a felt tip pen and continued the line up the side walls of the feet, this is to correctly place the shoe and pad onto the foot. I re-hoof tested the feet and marked the painful areas of the feet. I mixed equal amounts of EDSS impression material and packed this into the foot behind the painful area. I then taped on the hard EDSS impression pad. I followed this procedure on each of front feet whilst the impression material was setting up. I fitted the pads to the shoes. I started by screwing the pad and shoe together. (there is a special metal plate set into the pad, thus when screwed onto the seated out part of the shoe, it draws the pad away from the sole of the foot, removing any sole pressure). I drilled through the nail holes in the shoes and continued through the pads. Once the impression material had set up, I carefully removed one of the impression plates and trimmed the impression material so it was behind the painful areas of the sole. I then nailed the shoe and pad onto the foot, carefully placing it at the pre-marked line. I completed this on both front feet and finished them off.

Now I had finished the hoof preparation & shoe placement process, the most important phase of the entire process. We now move on to the individual comfort process, aka “The Set Up”.

I attached the low base frog inserts onto the pads and walked the horse in a straight line. She would land positively heel first but did not complete a full stride length. I removed the protective bolts and screwed on the low rails. I also removed the low frog insert and added a medium base frog insert. This improved her stride length a little but when walked in a 20 metre circle she was still showing resistance to this on both reins. I removed the low rails and replaced them with medium rails. I also removed the medium frog inserts and screwed on the large frog inserts. This made an immediate improvement both in a straight line and an the 20 metre circles on both reins.

I decided to go on and try the high rails and increase the height of the frog inserts again. She did not approve of this change and shortened her stride length and did not like walking on a 20 metre circle on either rein. I changed her back to the medium rails and high frog inserts.

I was impressed that the veterinary surgeon stayed throughout the whole shoeing and set up process. He was surprised at the small changes that had made such a difference. He said that he did not know that horses were so discerning about what they had done to their feet. The horse stayed with us for one more day, but the owner was keen to take her home.

Horse, owner, vet and farrier turned up eight weeks later, complete with new radiographs. (What amazed me most was that everyone turned up at the appointment on-time). We all re-assessed the horse which was now landing extremely heel first, she even circled easily. I removed the shoes and trimmed the feet. The veterinary surgeon radio graphed the feet following this, (The owners farrier was intrigued at the attention to detail I paid to this process. He had not experienced correct Natural Balance trimming protocol until this time. He admitted he had just done his own version of NB shoeing!).

Using the radiographs, I refitted the shoes, placing breakover at the distal border of the distal phalanx. I then marked this both on the sole and up the hoof walls. (This was to enable me to achieve correct shoe placement).

I removed all the components from the shoes and pads. I hoof tested each foot and marked the painful areas both onto the soles and also the work up form. We made comparisons with the previous form. There was a marked decrease in pain in both front feet. The pain had moved from the widest part of the foot forwards to the tip of the frog on both feet.

I mixed enough impression material to fill behind this new pain line and taped on one of the impression pads. I completed this on both front feet. Once the impression material had set up I re-shod both feet and finished them off.

I fitted low base frog inserts to both pads and walked the horse in a straight line. We all observed a positive heel first landing. We progressed and circled her on a 20 metre circle on each rein. She was not as comfortable on either rein, so I added some low rails and altered the frog inserts by adding a medium cap frog insert on top of the existing frog insert. This improved her stride both in a straight line and on both circles.

I was asked to review her after four weeks, and after re-assessment I removed the cap frog insert and the rails. Since the last shoeing, she had become more ambulatory, it was thought prudent to start her back into a restricted work program, to assist in weight reduction.

Two weeks after this I re-shod her again. On this occasion I trimmed the feet following NB guidelines and hoof tested the feet. I found pain around the sole over the distal border of the distal phalanx. This was the largest reduction in pain in the foot during the whole case. I mixed enough impression material to fill the back part of the foot, behind the pain line in both feet. I taped hard impression pads onto both feet and waited for the impression material to set up. Once the impression material had set up, I refitted the EDSS shoes and pads and finished off the feet.

Set up took less time than normal as she was sound in a straight line and on both circles. She could trot both in a circle and in a straight line without exhibiting any detectable lameness.

Two weeks later she started back into her training program. I re-shod her after another month. This time I removed the shoes and assessed her bare foot with hoof testers and found no detectable pain around the soles. I walked and trotted her both in a straight line and on a 20 metre circle on both reins and no lameness was detected.

I re-shod her in a number 1 aluminium Natural Balance shoes, without any pads etc. She has returned to her normal work regime and is successfully competing back at Grand Prix level.

My conclusions about these two incidents are; Despite, my past successes with bar shoes, (in the case of the cracks) straight or egg bar shoes and in the case of laminitis, heart bar shoes. I am glad I have resisted putting bar shoes onto this horse during either incident. EDSS seems to have returned this horse back into work more quickly without the need to make expensive repairs in the case of the cracks and actually increasing the general soundness despite the laminitis attack.

I like the adjustability of the EDSS system which allows the horse to make choices about set up which no other system allows. The ability to attach the pad to the seated out portion of the shoes preventing sole pressure and protecting the fragile distal border of the distal phalanx, is an obvious advantage over any other system. The overall costs involved in both cases were less than the lifetime of wearing bar shoes.

I have made two new friends, both the owner's veterinary surgeon and farrier visit with me on a regular basis and discuss problematic cases and we usually find a solution between us.