



VET NOTES

MAY 2009

Previous VET NOTES

- April 2009 - Equine cardiology
- March 2009 - Resistance to anti-parasitic drugs
- November 2008 - Periodontal Disease
- October 2008 - Interstitial pneumonia - a different kind of lung disease
- September 2008 - The yearling sales
- August 2008 - Eastern Equine Encephalitis—have you vaccinated
- July 2008 - Castration complications
- June 2008 - The use of acupuncture as a diagnostic aid in the equine lameness exam
- April 2008 - Current parasite control recommendations
- March 2008 - The use of Oxytocin in the post-partum mare
- January 2008 - Preparing your mares for the breeding season
- January 2008 - Proximal hind limb suspensory desmitis: (PSD): Part II: Treatment
- December 2007 - Pleuropneumonia - when shipping fever turns into a nightmare
- November 2007 - Proximal hind limb suspensory desmitis (PSD): Part I: Diagnosis
- August 2007 - Intramuscular injections

Single screw compression update

In the January 2007 Vet Notes, I discussed the pros and cons of single screw compression and screw and wire (Transphyseal bridging) techniques to correct angular limb deformities. At that time we had been using screws and wire for about 25 years and single screw compression for only 5 years (see overleaf for the full discussion). The information was provided to help you to decide for yourself which procedure you might prefer.

NOW, I am still being asked, “What would you do if it were your horse?” Well after a couple more years of experience, here it is

- I would always use the single screw on fetlocks on foals - time is usually running out and the cosmetic appearance is substantially better.
- I would always use the single screw on a hock - it creates better compression on the hock.
- I would always use the single screw on a knee of a yearling that is over 14-15 months old - again, time is running out.
- I would prefer to do yearlings when they are 12-14 months old and typically in this stage I would prefer to do a transphyseal bridging (screws and wire). Although many clients have had good success with the single screw compression, typically taking them out a little early and will likely not want to change.

However, we will continue ask for your preference.

Donnie E. Slone, Jr., DVM, DACVS.

Chiropractic services

Dr. Andrea Cogswell, Chiropractor, will be at Peterson & Smith on Monday and Tuesday, May 11 & 12, 2009. If you would like an appointment please call the main office: (352) 237-6151

Single Screw Compression v. Screws and Wire (Transphyseal Bridging), Donnie E. Slone Jr, DVM, DACVS— January 2007

We have now been using the single screw technique to correct angular limb deformities for about 5 years while the use of screws and wire for transphyseal bridging has been done for about 25 years. I want to share some of that experience with you so that you can make the best decision if your horse or foal needs some correction.

What are the pros and cons? Both procedures are based on the well established fact that compression of one side of a growth plate will stop growth on that side, allowing the other side to catch up. In most cases this compression needs to be temporary because over correction will result if the implants are not removed when the leg is corrected. The only time over correction is not a problem is when we are trying to correct a bone that is about finished growing in length. An example is when we are asked to correct a fetlock on a foal that is more than 2-3 months old or a knee on a yearling that is over 14 months old.

Transphyseal bridging (screws and wire) certainly works well on knees and fetlocks. It works a little slower because the bone needs to grow against the apparatus to apply more pressure than was applied at surgery. As explained previously, the apparatus must be removed when the leg is straight, otherwise it will over correct. However, I have never seen it cause a straightened leg to over correct after it was taken out. In other words, it does not cause a prolonged cessation of growth on that side of the growth plate. Over the years there have been very few foals that were allowed to over correct when screws and wire were applied, but most of those foals came back to normal without needing a second surgery. Infection is obviously never desirable especially when implants (foreign bodies) are present, but I have never seen infection around screws and wire cause a serious problem. We have generally treated them (mostly foals) with antibiotics; left the implants in place until the leg straightened and then removed the implants. No serious bone or growth plate infection has ever occurred. Screws and wire take more time to put in (obviously more implants) and take out and will likely cost more for the combination of application and removal than the single screw technique.

The single screw technique also works well most of the time. It typically corrects any deformity faster. It certainly is preferred if there is significant deformity on a growth plate that is about to stop growing. Probably the biggest and most controversial reason for using the single screw technique is cosmetics. Cosmetics, like beauty is in the eyes of the beholder. At the time of screw removal, the single screw technique results in a smaller, but usually more discreet bump while screws and wire result in a broader more rounded bump. I think there is probably little difference if the animals are compared about 2 months post implant removal. What do you think?

If infection occurs with this technique, it can be a major problem because the screw traverses the growth plate. Luckily, we have not had a major problem in any of our cases, but we know of a few horses that have been lost because of infection involving the growth plate. Based on what we have seen, I would take out the single screw immediately, if infection around the screw occurred.

Although not common, the most aggravating problem with the single screw technique has been over correction. We have seen yearlings that over corrected a little, at least partly because the correction occurred quickly, the screws were removed and they continued to over correct. Second surgeries on the opposite side have met with mixed results I think because the horses were ready to stop growing by then. Past surgical principles dictated that we did not want to injure the growth plate by applying screws across a growth plate, whether they were part of transphyseal bridging or fracture repair. Certainly we never like to see fractures that involve a growth plate as it is known that angular deformities may result. This principle is the reason this surgery was not done previously. Obviously this principle can be ignored most of the time as the damage to growth plate is not significant enough to fuse it. However, this is the reason for the continued correction resulting in over correction when the implants are removed. The best advice I can give relative to the over correction phenomena is to watch the animals carefully and if anything, remove the implants a little early. All but one of the significantly over corrected yearlings were starting in that direction at the time of screw removal. One yearling who all parties thought looked good at the time of screw removal, started to over correct about 1 month after screw removal when training began.

If you have a foal with an angular deformity of the hock (which is not very common), the single screw compression of the appropriate side of the growth plate is the ideal approach. This is the first area that this technique was performed on because the shape of the growth plate on the distal tibia makes the application of screws and wire difficult. This surgery is usually done when the foal is about 5-7 months old. Again, over correction must be guarded against, but so far I have not seen it in this joint.

If you have a foal with an angular deformity of a fetlock, especially if it is approaching or past the time growth should have stopped (about 3 months of age), the single screw technique would be ideal. This **may** be an area where the cosmetics of the single screw are better. A yearling that is over 14-15 months old with a carpal angular deformity should be considered a candidate for single screw compression as this area definitely slows in growth after 14 months of age.

Obviously neither technique is perfect in all aspects for all horses. We have seen for example the rare horse that corrected, perhaps when they were too young, and then reverted back to their original deformity when the implants were removed. We need to watch these animals carefully, both before and after implant removal, to make sure they do not over correct and that they do not revert back to the original deformity after implant removal. With the single screw technique it usually takes 3-4 weeks to see much of anything and then the correction can go pretty quickly, especially if the animal goes through a growth spurt (again correction requires growth which is not always linear versus time). Optimally, I think they should be looked at carefully on a weekly basis starting about 3 weeks post surgery. Some people start looking at them daily which seems to be confusing.

They should be observed standing as well as walking towards us and away from us. The bone below the deformity should be straight when standing or walking. I find it easier to see the deformity when the horse is walking away. It is important to come up with an average of all aspects. Some horses walk better than they stand and vice versa. Some horses are more off set in one knee than the other making them appear more bowlegged in that leg. We make no attempt to fix the off set knee, only the angular deformity resulting in the cannon bone tipping out at the knee and in at its bottom end.

These are my thoughts and experiences at this time. Obviously another year will bring new experience for us and others who do this type of surgery. I hope this information will help you make an informed decision regarding which surgery you want and also help you know what to look out for.