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CEH HORSEREPORT

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School of Veterinary Medicine

Equine Fractures

Emergency First Aid and Stabilization Techniques

Larry D. Galuppo, DVM

Lacerations (tears in the skin and underlying muscle), punctures and fractures comprise the vast majority of injuries in horses. A successful outcome for an injury often requires both prompt recognition of the injury and appropriate interim treatment before a veterinarian arrives. To accomplish this, horse owners should be prepared for a variety of emergency situations. In this issue of the *Horse Report*, we focus our discussion on fracture injuries specifically and the application of emergency first aid and appropriate techniques to stabilize the injured bone. We also provide a pull-out chart that describes different types of fractures and their locations and the kinds of splints that can be used for temporary stabilization to prevent further injury until professional help can be sought.

With many fractures, damage continues to occur after the original injury due to lack of stabilization of the broken bone(s). Moreover, horses will constantly attempt to bear weight on an unstable limb. ***Consequently, the most important action an owner can take is to immediately immobilize the fracture site and protect the injury from contamination.*** Attempt to keep the horse quiet and do not move it from the location it is in until the limb is adequately stabilized. If the horse is extremely distressed, it may be necessary to sedate the horse. However, if sedation is used, use the lowest possible dose that provides the desired effect. Use sedation with care because it could compromise coordination and reduce pain sensation, such that the horse will move about and potentially cause greater damage. Pain relief may be provided with nonsteroidal anti-inflammatory drugs, but if the veterinarian is already on the way, it is better to wait.

If there is an open wound associated with the fracture injury, the wound should be quickly cleaned with water and bandaged to protect it from further contamination. Clean wounds only with water, because inappropriate disinfectants can cause tissue damage and

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DIRECTOR'S MESSAGE

A Horse Owner's Guide for Emergency Fracture Response

Dr. Gregory L. Ferraro

Few events are more traumatic to the horse owner than the discovery of a horse with a fractured leg. Compounding the trauma may be a feeling of helplessness when one realizes they are unprepared to adequately respond to the situation. Many, many horses have suffered needlessly and even lost their lives due to a lack of knowledge and preparedness on the part of their handlers. Our *Horse Report* this quarter strives to prevent that from happening.

Most prospective parents educate themselves on the basics of parenting by becoming properly informed as to what to expect and by preparing against potential medical emergencies prior to the birth of their first child. The American icon Dr. Spock became the pocket companion of several generations of mothers and fathers, guiding them through the difficulties and around the pitfalls of childrearing. Our horses, pre-adolescent teenagers all, require no less prior knowledge and preparation on our part than do our children.

The old adage that *To be forewarned is to be forearmed* has definite applicability for the horse owner concerned with the health and safety of their animals. Good sound reference information and preparedness will allow for early recognition as well as intervention of medical problems, thereby minimizing their consequences. This could not be more dramatically demonstrated than in cases of leg fractures. Badly broken long bones in the horse are acute emergencies that require immediate action and proper patient handling. Any equine orthopedic specialist will tell you that what transpires in the first 30 minutes after a fracture often determines the final outcome of the case, in spite of what happens later.

Any equine orthopedic specialist will tell you that what transpires in the first 30 minutes after a fracture often determines the final outcome of the case, in spite of what happens later.

Equine limb fractures are indeed frightening events to horse owners who may be "paralytic" to an effective, perhaps life-saving response. However, fractures can be handled even by the novice horseman, if one has the knowledge of certain "principles of fracture handling" and has properly planned in advance against such occurrences. The application of specific measures taken in their proper sequence can be the difference between life or loss to one's horse. What follows in this issue of the *Horse Report* is a horse owner's guide for emergency fracture response.

Our equine Dr. Spock is Dr. Larry Galuppo from the Department of Surgical and Radiological Sciences, UC Davis School of Veterinary Medicine. Dr. Galuppo has spent years studying fracture repair. He is well known for his prowess in fracture surgery and has instructed countless veterinary students on the principles of orthopedic surgery. After too often experiencing the frustration of losing patients because proper emergency measures were not taken prior to surgery, he decided to take action. In this *Horse Report*, we present the product of his expansive knowledge and his ability to explain the complicated in a simple way. Careful reading of Dr. Galuppo's recommendations combined with acquisition of the few simple materials he recommends having on hand at all times will prepare you for almost all possibilities. The center pull-out chart we have prepared is designed to be posted in your tack rooms or dispensaries for a ready reference guide in case of emergencies.

We hope that you enjoy assimilating this information and that you will heed its message. For in the case of the horse owner, the old Boy Scout motto of *Be Prepared* has never been more appropriate.

Be prepared!

Equine Fractures — Continued from page 1

affect subsequent healing. Do not apply ointments or other medications before a veterinarian can assess the injury, because they can impair evaluation and treatment.

If bleeding is excessive, control it by direct pressure over the wound. Pressure bandages for controlling bleeding should be applied before splinting is attempted.

For fractures that do not have a wound or opening, these can nevertheless become open and contaminated if the horse flails about or moves excessively. Thus, stabilization using an appropriate splinting technique for the fracture location should be attempted as soon as possible.

We emphasize here that the use of inappropriate first aid or stabilization measures can have devastating results, including excessive skin, muscular and neurovascular trauma that could destroy all potential for fracture healing. Preparation is the key to being successful in any emergency situation. Having the necessary emergency supplies organized and easily obtainable will greatly increase the success of treatment for all orthopedic emergencies.

Typical supplies needed for orthopedic injuries include bandage material, clean wound dressings, and splints made from common building materials such as boards, PVC pipe, electrical conduit and duct tape.

Transportation

If a veterinarian cannot come to your horse, additional stress in the form of transportation will be necessary to seek medical treatment. Transportation is extremely stressful for horses with an unstable limb. Even with an appropriate splinting device, they still must balance most of their weight on three legs. Anything that can be done to improve transportation of the fracture patient will increase the chances for a successful outcome.

If available, horses should be transported in a specialized trailer containing a sling. The sling will allow the horse to rest intermittently and will prevent it from falling down. Photo courtesy of Mikki Alicorn, Mikki's Horse Rescu, Valley Springs, CA.

If available, horses should be transported in a specialized trailer containing a sling. The sling will allow the patient to rest intermittently and will prevent the horse from falling down. However, since specialized trailers usually cannot be obtained, another good choice is a large slant-loading trailer with a low step, moveable partitions, and a ramp. Horses require a lot of room to load and unload but need a firm wall to lean on during transportation.

Horses with forelimb fractures should be positioned facing backward in the trailer. It is much easier for them to support their weight if there is a sudden stop. Similarly, horses with hindlimb fractures should be transported facing forward.

Having a step trailer that is low to the ground or a trailer with a ramp will greatly facilitate loading and unloading the fracture patient. Horses with either forelimb or hindlimb fractures should be loaded forward. However, when unloading, horses with forelimb fractures should be unloaded backward, and horses with hindlimb fractures hould be unloaded forward. With all of the position changes required for loading, transportation and unloading, it is easy to see that a large trailer with movable partitions is necessary.

Decision-Making

Once the fracture patient has been stabilized, the next step is to consider the options for treatment and whether the horse is a candidate. The main factors that should be considered are:

- Patient condition and temperament
- Patient size
- Severity of fracture
- Location of fracture
- Open fracture grade
- Cost of treatment

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Equine Fractures — Continued from page 3

In general, a small horse (500-700 lb) that has an excellent temperament and is in good condition with a closed, simple fracture of the distal limb has the best overall chance for survival. Large horses with highly fragmented open fractures of the proximal limb have poor prognoses for survival. Horses that have lost blood supply to the limb should be humanely destroyed.

Although there are many variables to consider for each patient, one of the main factors is cost. The cost for treatment can range from $10,000 upward and exceed $20,000 in more complicated cases. And there are no guarantees for survival.

Conclusion

Long bone fracture repair in horses is extremely challenging. Each step of treatment, beginning immediately after injury (first aid and stabilization), is critical for improving the chances for a successful outcome. Without appropriate first aid and emergency splinting, the overall prognosis for survival can be poor. However, if emergency first aid is performed properly, the chance for a successful outcome can be increased, sometimes significantly so. In summary, if your horse sustains a limb fracture:

• Keep the horse quiet and do not move it from the location it is in until the limb is adequately stabilized with an appropriate temporary splint.

• Provide pain relief with nonsteroidal anti-inflammatory drugs only.

• If there is an open wound, clean it with water only and bandage it to protect it from further contamination.

• Control blood loss by applying direct pressure over the wound with bandages. Pressure bandages should be applied before splinting is attempted.

• For all fractures, stabilize as soon as possible using an appropriate splint based on the location of the fracture. Refer to the chart on page 6. ❋

EMERGENCY SPLINTING SUPPLIES TO HAVE ON HAND

- Hardwood boards of varying lengths
- Plastic PVC pipe (3- and 4-inch) of varying lengths, split in half lengthwise
- Kimzey Splint, if desired (available from Kimzey Welding Works, Woodland, CA)
- Cast padding materials such as cotton, synthetic foam or old bed pillows
- Aluminum electrical conduit
- Duct tape (2-3 rolls)
- Sterile 4 x 4 gauze pads/sponges (3-4 packages)
- Sterile stretchable gauze bandage (4-6 rolls)
- Medical adhesive tape (2-4 rolls)

Dr. Larry Galuppo with Possible Royal Flush.

Dr. Galuppo is an Associate Professor of Equine Surgery in the Department of Surgical & Radiological Sciences at UC Davis. He received his DVM from UC Davis and completed an internship at Rood and Riddle Hospital in Lexington, Kentucky, and a residency at the Veterinary Medical Teaching Hospital at UC Davis. He is board-certified by the American College of Veterinary Surgeons. Over the past decade, he has devoted his efforts to equine orthopedic research as well as to clinical instruction of residents and students in equine surgery and lameness and in the principles of clinical orthopedics.

West Nile Update

In our July issue of the *Horse Report,* we stated that West Nile Virus had made its appearance in California this year. The most recent statistics we had immediately prior to publication were 11 confirmed human cases and 4 confirmed equine cases, all occurring in Southern California.

Today, those figures have increased dramatically. As of September 7, 2004, the number of confirmed human cases increased to 438, confirmed equine cases is now at 199, and dead birds infected with West Nile Virus have been found in 56 of 58 California counties.

Our recommendations remain the same: Horse owners should prepare for this rapidly escalating problem by ensuring that all horses are properly vaccinated and that all standing water is removed or treated for mosquito larvae. Infected birds are capable of spreading WNV northerly throughout their Pacific migratory flyway at any time and should be expected to do so by late summer or fall. Horses exhibiting neurologic signs of disease, whether vaccinated or not, should be examined by a veterinarian.

Keep in mind that partially vaccinated horses—horses whose vaccinations have lapsed or have not completed a series—are susceptible. For more information, visit our Web site.

Queuing up at the drinking fountain.

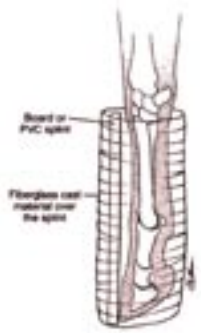
VACCINATE YOUR HORSES AGAINST WEST NILE VIRUS!

Emergency Splinting Techniques for Stabilizing Equine Fractures

DISTAL FORELIMB FRACTURES

Includes cannon bone, long and short pastern bones and sesamoid bone.

The goal of splinting is to align the bony column and protect the soft tissues in the fetlock and pastern from excessive compression. The splint should cover the entire foot and extend to the upper portion of the cannon bone. A commercially available splint that has been specifically designed for these injuries is the Kimsey Leg Saver. This splint is easy to apply and is very effective for stabilizing all of the above-listed injuries.



(Left) The dorsal board splint must incorporate the entire foot to be effective. (Right) The Kimsey Leg Saver is easy to apply and is very effective for stabilizing lower limb fractures and suspensory apparatus failures.

Splint Application

• Apply a bandage of medium thickness from the coronary band to the upper portion of the cannon bone.
• Place a board or other rigid material against the front lower portion of the limb and secure it with nonelastic tape or casting material. It is important to include the entire foot within the splint to avoid causing more trauma at the fracture site.
• A Kimsey Leg Saver can be applied in place of the dorsal splint.

MID-FORELIMB FRACTURES

Includes cannon bone, knee and forearm.

The goal of splinting is to realign the bony column and prevent the lower limb from moving in four directions. This is best accomplished by applying two splints placed at right angles: a caudal splint placed from the ground to the top of the olecranon (point of elbow), and a lateral splint placed from the ground to the elbow.

Two splints are placed at right angles to align the bony column and prevent movement.

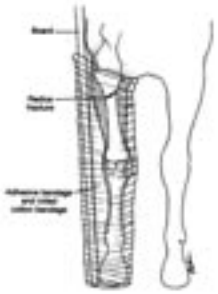
Splint Application

• Apply a bandage of moderate thickness from the coronary band to the highest point of the elbow. Typically, three levels of bandage are required to reach the elbow.
• Place a caudal splint extending from the ground to the point of elbow against the limb and secure it with nonelastic tape.
• Place a lateral splint extending from the ground to the elbow joint against the limb and secure it with nonelastic tape.
• The entire foot should be included in the splint to increase stability.

MID-FOREARM FRACTURES

Includes the forearm above the knee.

The goal of splinting is to realign the bony column and prevent movement of the bone in any direction. Two splints should be applied at right angles: a caudal splint placed from the ground to the top of the olecranon (point of elbow), and a lateral splint placed from the ground to above the shoulder to prevent lateral movement of the limb.



(Left) With the lateral splint placed above the scapulohumeral joint, the lower portion of the limb cannot deviate laterally. (Right) As shown, the splint is placed to the level of the withers to ensure that it crosses the shoulder joint.

Splint Application

• Apply a bandage of moderate thickness from the coronary band to the highest point of the elbow. Typically, it will require three levels to stack the bandage to the elbow.
• Place the caudal splint from the ground to the highest point of the elbow and secure it with nonelastic tape.
• Place the lateral splint from the ground to above the shoulder joint and secure it with nonelastic tape.
• Secure the highest portion of the splint to the trunk, as shown, by wrapping elastic bandage material around the neck and chest, through the forelimbs, over the withers, and under the girth in a figure-eight pattern.

PROXIMAL FORELIMB FRACTURES

Includes the elbow, shoulder above elbow, and shoulder blade.

The goal of splinting is to fix (lock) the knee (carpus). By doing so, horses that have lost triceps function will immediately become more comfortable. Fixing the knee and aligning the bony column is best achieved by applying one splint that extends from the ground to the elbow on the caudal (rear-facing) aspect of the limb.

(*Left*) Horses that have lost triceps function cannot fix the knee and cannot bear weight on the limb. (*Right*) A single splint is applied on the upper-back aspect of the limb to fix the knee and realign the bony column.

Splint Application

• Place a bandage of medium thickness from the coronary band to the highest point of the elbow. Typically it will require three levels to stack the bandage to the elbow.
• A caudal splint extending from the ground to the elbow point is taped to the limb with nonelastic tape.

PROXIMAL LIMB FRACTURES

Includes shoulder blade.

Splinting is contraindicated, either above or below the fracture, and could increase trauma directly at the fracture site.

DISTAL HINDLIMB FRACTURES

Includes lower cannon bone, sesamoid bone, and long and short pastern bones.

The goal of splinting, as with the forelimb, is to align the bony column and protect the soft tissues in the fetlock and pastern from excessive compression. This can best be accomplished by applying a splint on the plantar (lower-back) aspect of the limb. The splint should incorporate the entire foot and extend to the highest portion of the cannon bone. The Kimsey splint is very effective for these fractures.

(*Left*) A plantar splint is placed to realign the bony column and protect the plantar soft tissues. (*Right*) A Kimsey splint is easy to apply and is very effective for stabilizing these fractures.

Splint Application

• Apply a bandage of medium thickness from the coronary band to the top of the cannon bone.
• Place a board or other rigid material to the lower-back aspect of the limb and secure it with nonelastic tape. It is very important to incorporate the entire foot within the splint to have it be effective. If the entire foot is not incorporated, it will cause more trauma at the fracture site.
• A Kimsey Leg Saver is as effective as a plantar splint.

MID-HINDLIMB FRACTURES

Includes cannon bone and hock.

The goal of splinting is to realign the bony column and prevent movement in any of the four directions (back, front and sides). This is best accomplished by applying two splints placed at right angles: a caudal splint placed from the ground to the highest point of the hock, and a lateral splint placed from the ground to the hock. For fractures involving the tarsal bones, the lateral splint should be bent in the shape of the hindlimb to extend the splinting device higher up.

(Left) A lateral and caudal splint, placed to the highest point of the hock, can stabilize these fractures. (Right) A lateral splint, bent in the shape of the limb, should be used for tarsal bone fractures and dislocations or simply for greater stability.

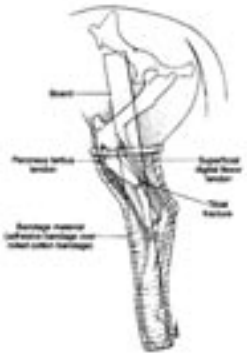
Splint Application

• Apply a bandage of moderate thickness from the coronary band to the stifle (see skeleton). Typically, three levels of bandage are required to reach the appropriate level.
• Place a caudal splint extending from the ground to the highest point of the hock against the limb and secure it with nonelastic tape.
• Place a lateral splint extending from the ground to the highest point of the hock, or to the stifle (as in photograph), against the limb and secure it with nonelastic tape.
• The entire foot should be included in the splint.

MID-PROXIMAL HINDLIMB FRACTURES

Includes hock, tibia, fibula and stifle (gaskin area).

Sharp bone ends from these fractures can traumatize skin, muscle and surrounding neurovascular structures every time the limb is flexed or extended. The goal of splinting is to realign the bony column and prevent fracture collapse as well as movement of the limb. This is best accomplished by applying one lateral splint extending from the ground to the hip. A caudal splint is contraindicated.



(*Left*) A lateral splint placed from the ground to the hip will effectively stabilize complete tibial fractures. (*Right*) The upper portion of the lateral splint is secured with elastic tape placed over the hip in a figure-eight pattern.

Splint Application

• Apply a bandage of moderate thickness from the coronary band to the stifle. Typically, three levels of bandage are required to reach the appropriate level.
• Place a lateral splint extending from the ground to the hip against the limb and secure it with nonelastic tape.
• Secure the upper portion of the splint with elastic tape placed over the hip, through the legs, under the flank, and over the lumbar spine in a figure-eight pattern.
• It is important to incorporate the entire foot in the splint.

MID-PROXIMAL HINDLIMB FRACTURES

Includes the femur between the stifle and the hip joint and the pelvis.

Splinting for fractures located above the stifle is contraindicated and could increase trauma directly at the fracture site.

Emergency First Aid For Equine Fracture Patients

The first step in administering appropriate emergency first aid to an injured horse is to perform a thorough physical examination. After the patient is assessed, the most critical conditions are treated first. Although every case presents itself differently and there is not a specific treatment order, these steps serve as guidelines:

1. **Stabilize the patient and control hemorrhage.**
2. **Relieve pain and anxiety.**
3. **Control wound infection.**
4. **Prevent neurovascular trauma.**
5. **Prevent trauma to muscle and skin adjacent to fracture site.**
6. **Minimize trauma to the fractured bone ends.**

1. Evaluate patient for shock and blood loss.

◆ Control any active hemorrhage by applying direct pressure over the wound or by packing the wound with a clean dressing and applying a pressure bandage.

◆ If the patient is suffering from extreme blood loss or shock (heart rates > 100, respiratory rates > 60, and pale mucous membranes), get your veterinarian to the horse as soon as possible. While horse owners should begin wound management, bandaging and splinting procedures, horses suffering from shock need immediate emergency medical treatment from a veterinarian.

2. Relieve pain and anxiety to achieve patient stability so that the horse is more comfortable and cooperative but not uncoordinated. Judicious administration of small doses of tranquilizers and analgesics can alleviate pain and anxiety to increase patient cooperation for wound care and stabilizing the limb. Note that drugs may be contraindicated if the patient is suffering from extreme shock.

3. Clean the wound or the area of injury with water to decrease bacterial contamination and prevent osteomyelitis (infection of the bone), even if an open wound is not evident.

◆ If the fracture is closed, the area should be cleaned and a light bandage applied to protect the skin from the sharp fractured bone ends.

◆ For all open fractures, flush the wound with copious amounts of clean water. A simple garden hose can be used to flush the wound with water.

4. Stabilize the limb to prevent further trauma. This is the most important part of all emergency first aid procedures because it increases the overall chance of survival. Key to stabilizing the limb is to apply an appropriate splinting device, which will prevent additional skin and muscle trauma and neurovascular disruption and will limit damage of the fractured bone ends. The splint also provides a strut for the horse to bear a moderate amount of weight, which relieves stress and anxiety.

◆ Correct application of splinting devices is essential because more damage can be done to the fracture if applied incorrectly. Nonetheless, not having experience in applying the appropriate splint should not be an excuse for not stabilizing the fractured limb.

◆ The ideal splint is not cumbersome, is easy to apply in standing horses, and is made of accessible materials. Some of the more common materials that are used as splints include PVC, wood, conduit, rebar, drainage pipe, and casting material. Although many farms have these materials available, it is very important to have a good set of various sized splints immediately at hand.

◆ The splinting technique used depends on fracture location and knowledge of how the surrounding muscles and tendons influence the fractured limb when there is a loss of an intact bony column. Splinting techniques are described in more detail (see pull-out chart).

Helpful Tips – Eye Problems

When to call the vet:

- Increased discharge (clear or yellowish)
- Squinting and/or excessive blinking
- Cloudy appearance
- Vision problems (bumping into fences and walls; performance horses not doing as well in their sports for no apparent reason)
- Blood in the eye (even a small amount is a sign of trouble)
- Any foreign object in the eye or eyelids
- Any sign of tumor development on the eyelids or eyeball

Do's

- Do seek veterinary advice early; eyes deteriorate rapidly, leaving only a small window of time for effective treatment.
- Remove a foreign object yourself ONLY if it is confined to the eyelids.
- Flush dirt, ash, sand or plant materials with water or saline solution if the horse will tolerate it, then see the vet to look for any further damage.
- Treat chemicals in the eye as you would in humans, by flushing the eyes with copious amounts of water and see the vet immediately.

Don'ts

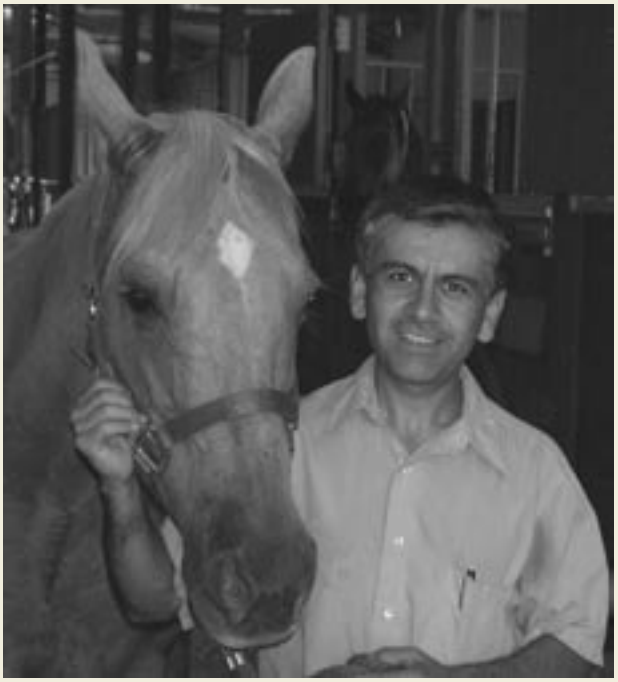
- Do not ignore eye problems thinking they are "just a little dust" or "allergies" (allergic eye disease in horses is very uncommon).
- Do not use a tube of ointment left over from a previous eye problem; some eye medications will make certain eye problems worse.
- Do not remove a foreign object yourself from the eyeball; get a veterinarian to remove it.

This is the newly completed exercise arena at the Center for Equine Health for CEM quarantine horses. The arena is approximately 60 x 120 meters and is surrounded by conifers. Horse owners may, by appointment, schedule time in the arena to exercise their horses.

Dr. Jorge Nieto Wins the 2004 Wilson Award

This year's James M. Wilson Award was presented to Dr. Jorge Nieto for his work on improved methods for early detection of and management of colic in horses.

The Wilson Award is given each year to an outstanding equine research publication authored by a graduate academic student or resident in the UC Davis School of Veterinary Medicine. Dr. Nieto's publication, "Characterization of Equine Intestinal Fatty Acid Binding Protein and Its Utility in Managing Clinical Cases of Colic," was honored with the Wilson Award.



Dr. Jorge Nieto with Hopie Lark.

Colic is a major cause of death in horses. Although most cases of abdominal pain in the horse can be resolved without surgery, many patients do require abdominal surgery. In some cases, there is mechanical restriction of blood flow to the intestines that can result in the death of segments of bowel. Horses that have this condition should have emergency surgery performed as early as possible to optimize the prognosis for survival and to minimize potential complications. It is estimated that the annual cost of treating colic in horses exceeds $115 million in the United States alone.

There is a family of proteins known as fatty acid proteins that help transport fat throughout the body. Fatty acid proteins are very specific and are present in different tissues such as the brain, liver, heart and intestine. When the intestine is not getting enough oxygen, the part of the bowel that is affected first is the mucosa, especially the tip of the villi where fatty acid proteins are most abundant. It is expected that if the bowel is deprived of oxygen, this protein will leak and be one of the first products detected in the blood or abdominal fluid of affected animals. Measurement of a similar protein found in the heart of human beings is currently used in intensive care units to detect early heart attacks. The purpose of Dr. Nieto's study was to determine whether this protein could be used to predict the presence of oxygen-deprived or necrotic segments of bowel in horses with colic and thereby determine the need for surgery.

In this study, Dr. Nieto and his colleagues determined that horses indeed have the gene that produces the intestinal fatty acid binding protein and that it is almost 90% similar to the human gene. They observed that the protein is present in greater amounts in the small intestine compared with the large colon or stomach. They also found that detection of elevated values of this protein in the blood or abdominal fluid was useful for predicting the prognosis of each case and which colic cases required emergency surgery. Finally, they analyzed the factors associated with the presence of necrotic intestine and found that the best indicators of the presence of necrotic bowel were elevated levels of total protein and the enzyme creatine kinase, along with changes in abdominal fluid color. These results should contribute to improved diagnostic capability of colic in horses.

Dr. Nieto received his DVM from the University of Mexico in 1986, completed a residency in equine surgery at UC Davis in 1994, and earned a PhD in comparative pathology from UC Davis this year. He is a Diplomate of the American College of Veterinary Surgeons and has worked for a number of years in the Comparative Gastroenterology Laboratory at the UC Davis School of Veterinary Medicine. Congratulations Dr. Nieto!

Sweet Story of Success

Perhaps much more frequently than is reported, there is a medical story with a happy ending, one everybody loves to read about. This is the story of a horse named Sweets, and she was a medical success.

In early May 2001, a Quarter Horse filly was born to what surely must have been a striking mother and a handsome father to produce such attractive offspring, complete with a star marking her beautiful head. Her owners called the foal Sweets. By the time Sweets was three months old, however, she began having some respiratory problems, including pneumonia. Though normally kept on pasture, she had been spending more time lately in a stall due to the respiratory problems. One day, she was found in her stall with her mother to be non-weight-bearing on her left front leg. It was then that Sweets was brought to the Veterinary Medical Teaching Hospital at UC Davis. The filly was lethargic and unable to extend her distal limb or lock the carpus (knee). Radiographs of Sweets' leg showed a "closed, articular, metaphyseal olecranon fracture." In other words, Sweets had sustained a complete fracture of her elbow. A caudal splint was applied to stabilize the fracture until surgery could be performed.

Sweets — August 2004

As with most equine fracture patients, once the fracture has been stabilized, the next step is to consider the options for treatment, including whether the horse is a good candidate and the cost of treatment. Although a small horse that has an excellent temperament and is in good health with a closed, simple fracture of the distal limb has the best overall chance for survival, Sweets' fracture involved the olecranon (elbow), a bone that is difficult to repair because of its size, shape and location and the impossibility of keeping a complete fracture of this bone immobilized without attaching it to a metal plate. The prognosis was that she had a 50/50 chance for a successful outcome from surgery, and the surgery itself would be expensive given the bone that needed to be repaired. Sweets' owners were given a little time to weigh their options and decide what they would do.

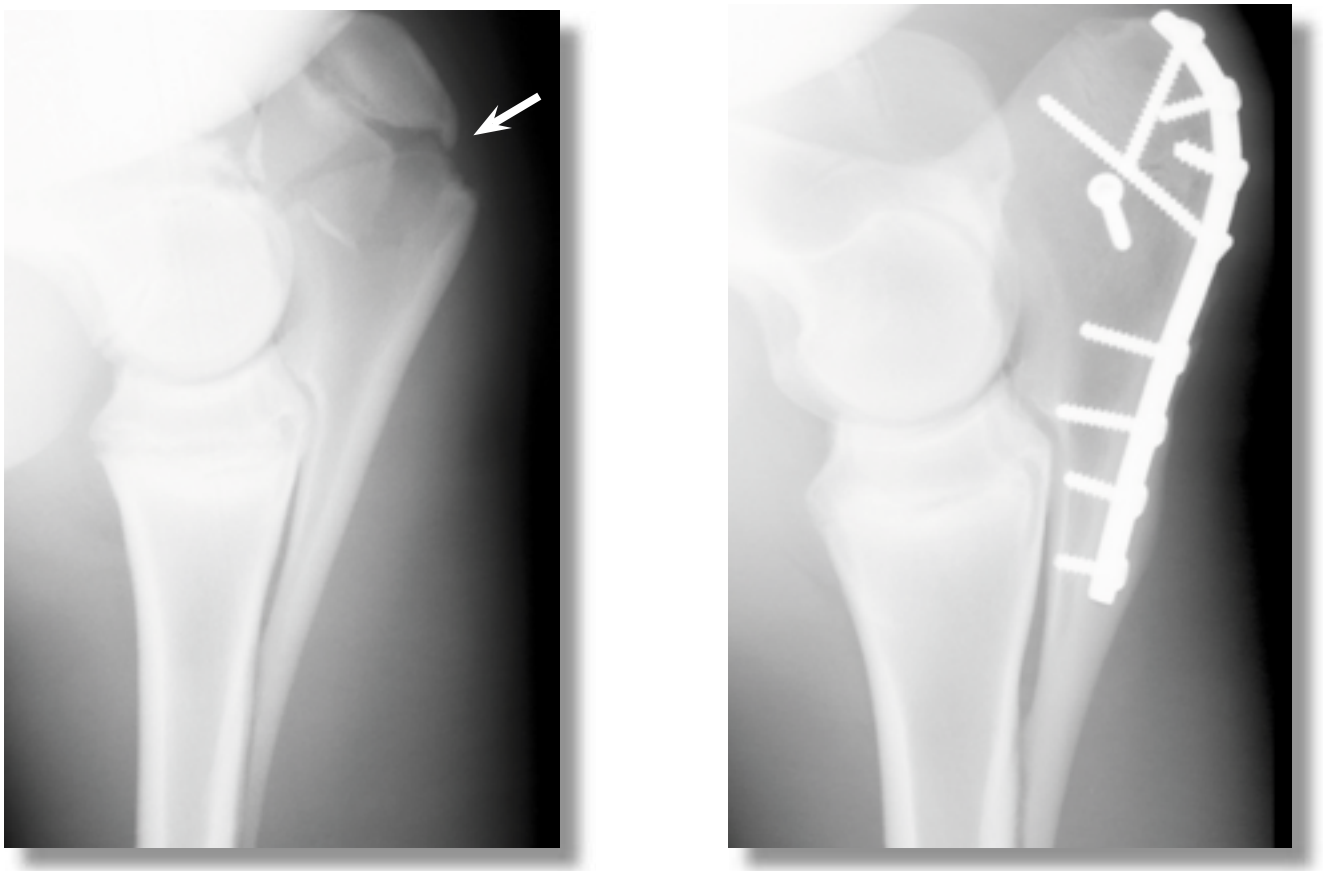
By the next morning, the owners had made their decision. They could not afford the surgery. Instead, they would donate the filly to the Center for Equine Health, and the surgery would be per-

formed at the Veterinary Medical Teaching Hospital for the learning experience. In spite of pre-operative blood chemistry results that were of concern—probably a result of the pneumonia—the surgery was undertaken by Dr. Carter Judy, a resident in surgery. Dr. Judy repaired the fracture using an 8-hole dynamic compression plate designed to repair long-bone fractures, which was contoured to fit the caudal aspect of the olecranon. One lag screw was used to secure the sagittal portion of the fracture, and eight 4.5-mm screws were used to secure the plate to the caudal aspect and to hook the plate over the top of the olecranon. The surgery took just under three hours.

The filly recovered from the anesthesia without incident and was reunited with her mother. She was observed closely for the next two days to ensure recovery was proceeding well. For Dr. Judy, this was "an awesome learning opportunity. Fractures are difficult to begin with and to be able to do the entire surgery from start to finish and have the ability to follow her closely in the post-operative period was great."

It was an awesome learning opportunity. Fractures are difficult to begin with and to be able to do the entire surgery from start to finish and have the ability to follow her closely in the post-operative period was great.

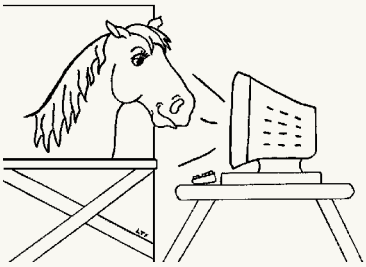
A few days after surgery, Sweets was eating and walking well and was adjusting to being weaned. In another few days, her chart noted that she had an excellent appetite, the incision from surgery looked great, and she was to be moved to her new quarters at the Center for Equine Health where she is today. Sweets still looks great and is now in foal with a little one due next spring. ❁



(Left) Radiograph of Sweets' elbow fracture. Note that the fracture was stabilized before surgery with a caudal splint placed from the elbow to the ground (see "Proximal Forelimb Fractures" on center pull-out chart). (Right) Radiograph showing successfully repaired fracture. A dynamic compression plate made of stainless-steel was contoured to fit the caudal aspect of the olecranon (elbow). One lag screw was used to secure the sagittal portion of the fracture, and eight 4.5-mm screws were used to secure the plate to the caudal aspect and to hook the plate over the top of the elbow.

The Kimzey Splint shown here may be an invaluable part of emergency splinting supplies every horse owner should have on hand. It is manufactured by Kimzey Welding Works, Woodland, CA, telephone (530)662-9331.

WHOAH, CEH IS ON LINE!



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