

**Queen Mother Travel Award 2007**  
**Externship at Rood and Riddle Equine Hospital, Lexington**  
**Kentucky**

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**Background**

I attended Rood and Riddle Equine Hospital for 3 weeks from July 2<sup>nd</sup> –July 20<sup>th</sup> 2007. Previous to this externship my experience of equine surgery has been very limited as the majority of my placements have been at first opinion practices without surgery facilities. I was therefore keen to observe and learn more about anaesthesia techniques and surgical procedures. I chose Rood and Riddle as it has a high surgery caseload as well as number of excellent board certified surgeons who carry out cutting edge surgical procedures. I am also keen to complete an internship upon graduation and felt this placement provided a good opportunity to see first hand what is involved.



**The hospital**

The Rood and Riddle surgery service has four fully equipped theatre suites, two of which are used for clean procedures, one that is used exclusively for colic surgery and one that is used for other “dirty “ procedures such as lacerations and septic joints. Within the surgery block there are also two treatment rooms one of which has stocks and is used for laser endoscopy and surgical reproductive repairs, two radiology suites, two anaesthesia prep areas and five recovery boxes. The hospital also has a lameness service, an internal medicine service, an ambulatory service and a reproductive centre. There are separate ICU and neonatology units. The diagnostics unit includes an MRI scanner, nuclear scintigraphy and a high speed treadmill. I divided my time between the surgery and lameness services with a few days on the ambulatory service. This allowed me to work with a range of clinicians and to see both orthopaedic and soft tissue surgical cases. The hospital employs 11 hospital interns who rotate through anaesthesia, internal medicine and surgery where they are assigned to individual surgeons for two week periods.

My daily routine involved assisting the intern for the surgeon to whom I was assigned with bandage changes and treatments, including catheterising surgery patients for that day prior to hospital rounds at 7.30am with the surgeon to discuss progress for each of his cases. First surgeries and case workups including Lameness and treadmill began at 8.30am and continued until all cases were completed, usually between 6 and 7pm.

Generally as one surgery was completed the next was being induced and prepped by the anaesthesia interns and technicians with 2 surgeons operating at any one time. After surgery the surgical suites were cleaned by technicians, interns and externs. After hours emergencies began at 6pm and included surgical colics, tendon lacerations, wound stitchups and fractures.

### **Observations on visit**

The majority of horses seen at Rood and Riddle are Thoroughbreds and during my stay these were primarily foals and yearlings. Although it was not the main racing season many of the bone scan for lameness cases were in racehorses. There is also a large Saddlebred population and I saw a number of Tennessee walking horses with hind limb, predominantly suspensory ligament lameness problems.

The main yearling sales in Lexington are in September and farms were therefore prepping their yearlings and mares and foals many of whom sell for over \$1,000,000. These animals have survey radiographs to identify potential problems several months before the sales. To this end much of the orthopaedic work I saw involved arthroscopy to remove chip fractures and procedures for the correction of carpal valgus and fetlock varus to ensure sales radiographs are free of abnormalities. Chip fractures are diagnosed on the basis of radiographs with horses often showing no or minimal lameness with or without joint effusion. The most common site for chip fractures is the dorsal process of the proximal phalanx, 50% of these cases will be bilateral in the forelimbs. Chips are removed via arthroscopy and non-viable articular cartilage which appears roughened with yellowed sub-chondral bone and is removed at the same time. Removal of this cartilage decreases inflammatory mediators, relieves pain and allows the joint to settle.

Fetlock varus is primarily identified in foals and managed at Rood and Riddle via a combination of corrective shoeing and placement of a single transphyseal screw through the distal physis of metacarpal III on the lateral side of the affected limb. This inhibits growth of the bone on the lateral side allowing medial side to catch up. The screws remain in place until the limb appears straight and can be removed using local anaesthetic on the farm. Lateral extension shoes made from EquiloX and fibreglass were applied by the podiatry service at time of screw placement in the more severe cases. Many of the cases are relatively minor and are identified by farm managers or carried out based on prior knowledge of certain breeding lines. My initial response to observing the above procedures was that they were primarily being carried out for cosmetic reasons, which in my opinion raises some ethical concerns. Currently only joint and abdominal surgery have to be declared at the sales although this will be changing next year which may have an impact on use of surgery to tidy up radiographs. On questioning these practices it was explained to me that varus fetlock deformity requires early detection and treatment due to early closure of the growth plates of the fetlock, also even a minor degree of varus and valgus alter the biomechanics and direction of forces as the hoof hits the ground. This stress can have a significant effect upon soundness during intensive training leading to joint degeneration and tendon and ligament damage.

I was able to observe several colic surgeries, again something I have never seen before. I found it was a good opportunity to put the theory into practice with regards to anatomy of the alimentary tract and to the physiological principles involved in colic anaesthesia. My understanding of some of the major physiological problems involved in colic has been much improved by seeing them in practice and assisting with corrective measures. Problems include the maintenance of adequate blood pressure as fluid is sequestered

into the gut and systemic perfusion is decreased in addition to the decrease in blood pressure when torsions are corrected. These problems are overcome using a variety of techniques including addition of colloids or hypertonic saline to maintain blood volume and aid perfusion. The addition of lignocaine to fluids is effective at lowering the dose of gaseous anaesthesia which also assists with blood pressure required as well as providing additional analgesia.

I was also lucky enough to watch 4 “basket surgeries” to correct cervical vertebral malformation in yearlings with ataxia caused by a dynamic compressive lesion. This surgery is carried out in only a handful of centres in the USA. It involves myelograms prior to surgery followed by surgical removal of the ventral spine using intra-operative radiographs to ensure correct positioning. A metal basket is placed equally into the space between 2 vertebrae to facilitate interbody fusion. The bone marrow is harvested from the removed bone and placed into the basket, thus acting as a bone graft. The success of the surgeries I saw was variable with one horse being subsequently unable to stand without a hoist whilst others showed a dramatic reduction in neurological signs.

## **Conclusions**

I feel that I was able to absorb a large amount of information during my stay at Rood and Riddle. Not just first hand knowledge of many surgical procedures but an understanding of the logistics and teamwork required to ensure such a large operation runs smoothly. I was privileged to see some of the best surgeons in their fields in action and to be able to discuss cases and procedures with them, which also stimulated me to read up on procedures and papers relating to them. I enjoyed the busy hospital atmosphere and this in combination with talking to the current interns has confirmed that this is the path that I aim to follow upon graduating. I also appreciated the opportunity to spend time with the other externs who were Australian, German and American and to discover how the curriculum, practical requirements and job opportunities varied. I would like to thank the trustees for giving me the opportunity to visit and learn so much from a world renowned equine centre. Subsequent to this visit I intend to apply for the Rood and Riddle hospital internship.

## **Sample Case notes**

### **Case 1; Signalment**

- “Pink Shoes ‘07” 4mth old bay colt.
- Presented for progressively worsening bilateral hind limb lameness over 3-4 weeks. Non-weight-bearing on right hind. Referring vet had already radiographed feet, fetlocks and hocks.

### **Clinical exam;**

- The foal was found to have a dull demeanour and spent prolonged periods recumbent.
- T 102.7 ,HR ,RR 32, Gut sounds normal
- .No palpable joint effusion, crepitus or marked pain in either hind limb on examination.
- No other abnormalities on physical examination.

### **Diagnostics**

- Haematology was carried out and returned a white blood cell count of 18,000...
- The foal was given 1ml Xylazine as a pre-med and anaesthetised using a Triple Drip combination-GGK, Ketamine and Xylazine to enable Anterior-Posterior, oblique and lateral coxofemoral joint radiographs to be taken. The radiographs indicated lytic bone lesions within the right acetabulum.
- Synoviocentesis of the right coxofemoral joint was performed to differentiate between joint sepsis and osteomyelitis under anaesthesia. The cell count on this sample was 3000 which is within normal range.

### **Treatment**

- The diagnostic tests supported a diagnosis of osteomyelitis of the right hip joint. The joint was infused with 2ml of amikacin. It was placed on IV systemic antibiotics (Cystapen and Gentamycin) and gastric protectants. The prognosis for this case is poor.