

Case 081805-04: 15 Year Old Thoroughbred Broodmare Bilateral Front Fetlock Osteoarthritis

On August 1, 2005, a 15 year-old Thoroughbred mare presented for bilateral front limb lameness. Her owners noted that the mare ambulated very little and had progressively lost weight despite the adequate nutrition she had been provided. Previous pain management had included phenylbutazone (2.0 grams BID) followed by naproxen. In addition to causing gastric discomfort, the non-steroidal therapy had proven substandard in managing the mare's discomfort. As she was a valuable broodmare, her owners were concerned about her ability to carry a foal through an entire gestational period.

Physical examination of the mare found her to be moderately underweight, lame at the walk (4/5), with effusion of both front fetlock joints. Diagnostic perineural and intra-articular anesthesia isolated the lameness to the fetlock in both front limbs. Radiographic examination revealed chronic fragmentation of the dorso-proximal aspect of the right and left proximal phalanges, along with moderate degenerative joint disease of the right and left metacarpophalangeal joints (Figs 1, 2).

On August 17, 2005, a 16.5 gram sample of subcutaneous adipose was recovered from the area lateral to the tail head and submitted for stem cell recovery. By 48 hours later, 3.0 million cells were delivered to each of the mare's fetlock joints by intra-articular injection. The patient was maintained on oral non-steroidal anti-inflammatory medications for 48 hours with daily bandage changes. The mare was discharged to her owners with instructions for a return to normal activity and housing.



**Figure 1 : Right Front Fetlock
Lateral View August 1, 2005**



**Figure 2 : Left Front Fetlock
Lateral View, August 1, 2005**

Subsequent evaluation at 30 days following stem cell injection found the mare to be increasingly comfortable, only 2/5 lame at the trot with an estimated weight gain of 150 pounds. No additional pain medications had been administered following the initial 48 hours.

On evaluation 3.5 months following regenerative cell therapy, the attending veterinarian determined that the mare was sound at the walk and only 1/5 lame in the right front limb at the trot. Despite profound increase in comfort and soundness, evidence of radiographic change was not evident.

Traumatic injuries and degenerative changes to the musculoskeletal system not only have the potential to end a performance horse's career, they also can limit the equally important functional capacity of a broodmare's career. Physiologically, pain has been demonstrated to induce elevated circulating levels of Prostaglandin F₂α. Elevated levels of PGF₂α have been implicated in incomplete corpus luteum function, early embryonic death, and pregnancy loss. The persistent pain of chronic injuries can have a dramatic influence on the reproductive capacity of a broodmare. Adipose derived stem cell therapy has been demonstrated as a valid therapeutic option for the treatment of chronic degenerative joint disease.



Figure 3 : November 24, 2005

As of November 2005, this mare was sound without the use of non-steroidal anti-inflammatory medication (Fig 3). She was started under light synchronization protocols in preparation for breeding in 2006.