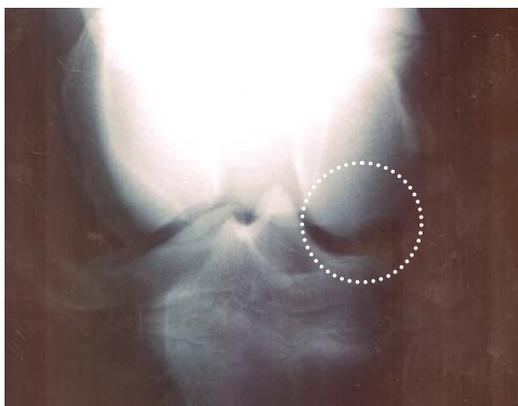
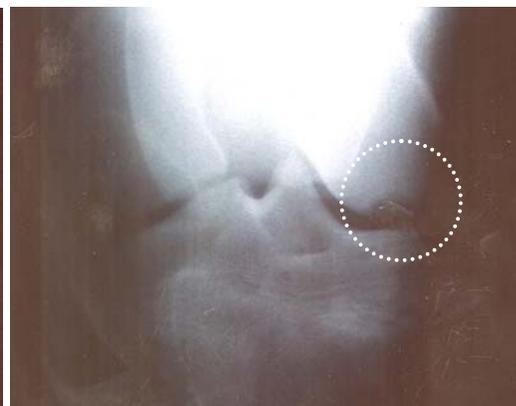


Case 070104-01: 18 Month Old Reining Horse Intra-Lesion Injection of Sub-Chondral Bone Cyst Concurrent with Arthroscopic Surgery

On June 30, 2004, an 18 month-old Quarter Horse presented for pre-training screening films. This decision was made based on the gelding's familial history: Two full brothers both had subchondral bone cysts of the stifle joints. Lameness examination found this horse to be sound at a walk, trot, and following upper limb flexion. Despite a normal physical exam, radiographs of the right hind stifle joint revealed abnormal flattening of the cartilage surface and the presence of a moderate sub-chondral bone cyst within the medial femoral condyle (Fig 1). Because of familial history and radiographic findings, surgery and concurrent direct intra-cystic injection of adipose derived regenerative cells was the elected therapy. On June 30, 2004, 17.6 grams of subcutaneous adipose tissue were harvested from the gluteal region lateral to the tail head and submitted for stem cell recovery.



**Figure 1 : Radiograph Right Stifle
June 30, 2004**



**Figure 2 : Radiograph Right Stifle
December 16, 2004**

On July 2, 2004 exploratory arthroscopic surgery of the right medial femoro-patellar joint identified moderate damage to the surface cartilage. After debridement of necrotic tissue, the joint was lavaged and then decompressed. Immediately prior to scope removal 7.1 million adipose-derived regenerative cells were injected into the cystic remnant and the surgical ports were closed by standard technique. The patient was discharged with instructions to restrict activity to stall rest only for the initial 30 days following surgery. This was to be followed by 5-10 minute hand walking sessions for 30 days and then gradual increases in exercise were permitted over the next 4 months.

Physical examination on December 16, 2004 found the horse to be sound at the walk, trot, and following upper limb flexion. Radiographic evaluation revealed a 50% reduction in size of the sub-chondral bone cyst (Fig 2).



**Figure 3 : Radiograph Right Stifle
March, 2005**

Based on clinical improvement, the owners elected to pursue a second arthroscopic guided regenerative cell injection of the affected joint. Adipose tissue was recovered in the identical prior fashion as on July 2004 and 5.5 million cells were returned for surgical delivery on December 22. Arthroscopic evaluation of the medial femoro-patellar joint revealed greatly improved visual characteristics of the cartilage surface where the previous lesion was located. As gross compromise to the cartilage surface could not be visualized, the second application of adipose derived stem cells was administered via intra-articular deposition only. The patient was discharged with instructions to gradually resume the original rehabilitation program.

Over the next 3 months, the patient was exercised daily. This gelding progressed quickly from rehabilitation status into a conditioning program and formally started training in March 2005. Radiographic evaluation revealed upwards of 75% resolution of the subchondral defect (Fig 3) and physical examination revealed the horse to be sound. The horse has maintained soundness for over 8 months.