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“Duracell” - Hit by Car, Plated Femur Fracture



“Duracell”



Figure 1. Duracell, Preoperative



Figure 2. Duracell Preoperative (Ventre-dorsal)

"Duracell" was presented to us by a panicked mother. The seven-year-old female Sheltie had been accidentally run over by the owner's car. Our physical examination revealed very pale mucous membranes (suggesting shock and/or severe blood loss), a right femur fracture (upper right rear leg bone), and tremendous swelling and bruising of the inguinal area (area between the rear legs). Her temperature was low normal but she was breathing with some increased effort.

Treatment was begun IMMEDIATELY for shock. Radiographs were taken (Figs.1,2) that showed loss of abdominal detail (internal bleeding?) and the broken femur. The packed cell volume, or PCV, a measure of degree of blood loss, was 30%, slightly below normal. We also suspected that there was an extensive traumatic hernia of the lower abdominal wall. Extensive critical care was going to be required initially before any type of surgery could be initiated. Complete evaluation of the extent of the injuries would also be required.

Duracell was transferred to the Pet Emergency Center for continued monitoring and treatment. She received an initial blood transfusion that evening because of a continued decrease in her PCV. A positive contrast cystogram (whereby contrast is infused into the urinary bladder so the bladder will show up on a radiograph) was performed. It showed that the bladder was not contained within the abdominal wall, but was actually sitting just under the skin (Figs. 3,4). This confirmed a large hernia! She also developed bloody diarrhea. Two days later, and more stable, Duracell was transferred back to SCVH for surgery.



"Duracell" cont.



At surgery, the abdominal wall muscles were completely torn away from their attachments to the pelvis. The inguinal muscles helping to hold the right rear leg next to the body were also torn away from their attachments to the pelvis/abdomen. Fortunately the major blood vessels to the right rear leg were still intact. Reconstruction of the abdominal wall was accomplished by placing sutures in the various muscle bellies and attaching those sutures, passed through drill holes in the pubic bones of the pelvis, to the bony pelvis. Then the inguinal ring was reconstructed by re-attaching the muscles of the leg to the muscles of the abdomen. Next the fractured femur was reconstructed utilizing a plate, screws, and wire (Figs. 5,6). A Fentanyl transdermal ("through the skin") pain patch was used for pain management. Duracell was transferred to the Pet Emergency Center for overnight postoperative monitoring.

At the Pet Emergency Center, Duracell's PCV continued to fall. Other parameters, along with the persistent bloody diarrhea and jaundice, suggested that she was going into DIC (disseminated intravascular coagulopathy), a bleeding disorder whereby her clotting products and platelets in her system are rapidly abnormally used up and she can no longer clot or stop bleeding. DIC is often associated with severe diseases such as cancer, infection, and/or trauma (as in this case). The treatment is to prevent the abnormal use of the clotting proteins and provide additional

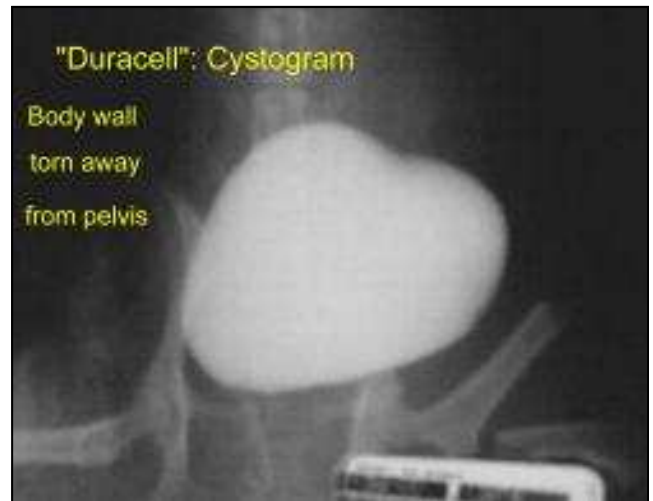


Figure 3. Cystogram #1

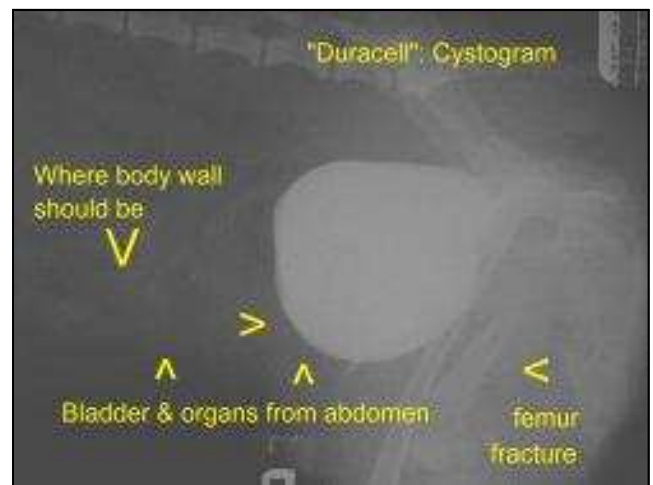


Figure 4. Cystogram #2

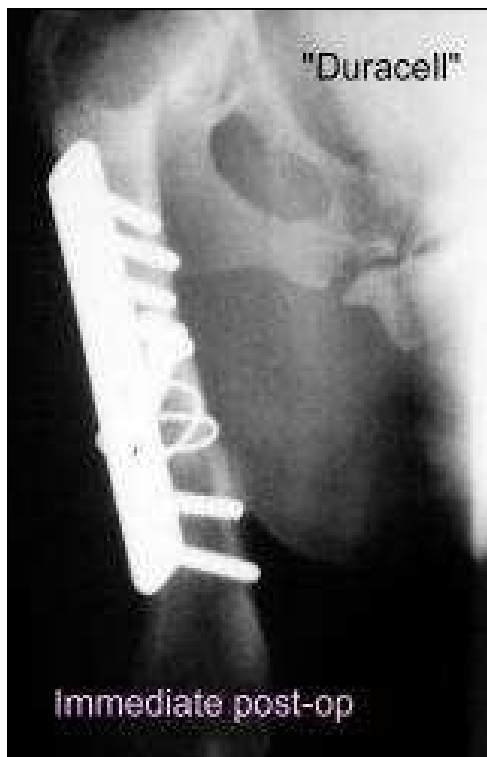


Figure 5. Reconstructed Body Wall

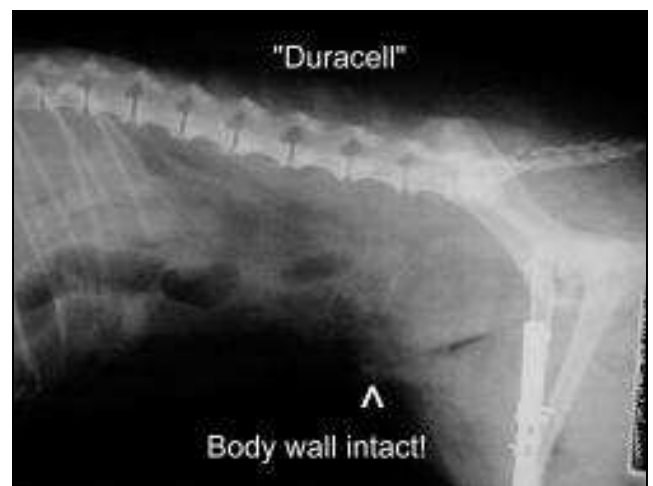


Figure 6. Repaired Femur



"Duracell" cont.



clotting products, via plasma transfusions, to allow normal clotting to occur. Infection prevention is also important. These things were done. All her other parameters were carefully monitored. Gradually her clotting time improved, her PCV stabilized (after an additional packed red blood cell transfusion), and she began to perk up over the next 48 hours. Duracell was again transferred back to SCVH for further evaluation and treatment.

She had a very swollen right rear leg, partly because she laid on it all the time and partly because of inefficient circulation in the leg. She was still having bloody diarrhea. Her PCV was almost back into the normal range. We treated the diarrhea with oral kapectate and applied hot compresses to the swollen leg to increase circulation and decrease swelling. Within another 24 hours, she was eating, the diarrhea was diminishing, she was urinating normally, she was trying to get up and move around, but the swelling in the right rear leg was still a concern.

With a great deal of Tender Loving Care by her mommy, Duracell continued to progress. She began running and playing, her fractured femur essentially healed (Fig.7). Seven weeks after the accident, her blood parameters all returned to normal. She still had some stiffness in the right rear leg due to some muscle limitations, but she returned (psychologically) back to her old lovable self. Physical therapy to increase her right leg range of motion in her hip and knee were recommended.



Figure 7. Healed Femur