

# HIP LUXATION: LOLA, A CASE STUDY

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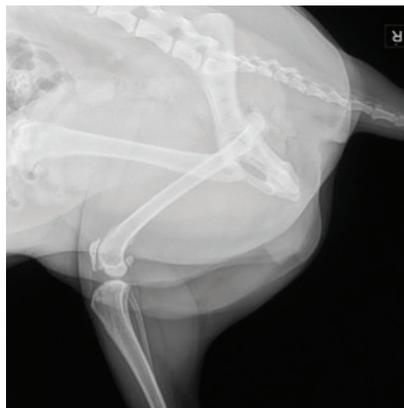
LOLA IS A 9 YEAR OLD FEMALE SPAYED SHIBA INU THAT WAS DIAGNOSED WITH A RIGHT COXOFEMORAL LUXATION BY HER PRIMARY CARE VETERINARIAN.

Lola was involved in a non vehicular trauma which caused the coxofemoral luxation. As with any trauma victim, Lola was evaluated for any additional injuries and none were identified. All abnormalities on physical exam were orthopedic in nature. Lola had an intermittent weight bearing to non weight bearing lameness of the right rear leg. The leg also demonstrated external rotation and adduction. Abduction and extension of the right coxofemoral joint were limited.

Lola had orthogonal radiographs of the pelvis performed by her primary care veterinarian. A right craniodorsal coxofemoral luxation was diagnosed. Craniodorsal luxation is the most common type of hip luxation (78% of dogs and 73% of cats). Caudodorsal and ventral luxations can be seen but are much less common.

Lola was referred for coxofemoral reduction (see images below)

When determining if coxofemoral reduction is possible/appropriate, it is first important to look for evidence of hip dysplasia or osteoarthritis (OA). If dysplasia, OA, or both exist, reduction is much less likely to be successful and procedures such as total hip replacement or femoral head and neck ostectomy may be more appropriate.



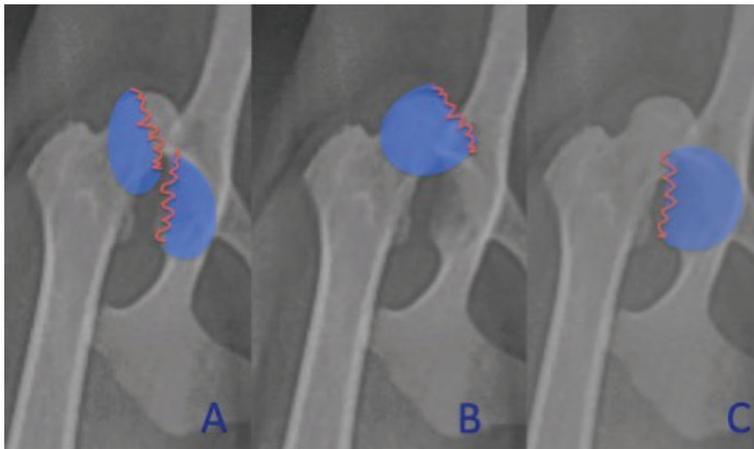
Take a look at the following examples (see images on the right).

If no dysplasia or OA exists, closed or open reduction are applicable techniques for treatment. Closed reduction should be attempted under general anesthesia with pain medication. If closed reduction is successful, an Ehmer sling can be placed for 7 to 10 days, followed by a few weeks of exercise restriction.

There are some additional factors that may affect the ability to successfully close reduce a hip. As discussed above, the presence of dysplasia or OA will affect the maintenance of a reduction (closed or open). Some other factors that can affect the success of a closed reduction include: level of anesthesia, duration of the luxation, and location of the joint capsule rupture. Closed reduction should be attempted within four to five days of the luxation to improve the chance of success. At 7 to 10 days, maceration of the joint capsule by crushing and movement of the femoral head decreases the chance of success with a closed reduction. At 14 to 21 days, fibrous scar tissue will form fixating the luxated femoral head in the luxated position.

#### JOINT CAPSULE RUPTURE:

The joint capsule can rupture in three potential areas. The capsule can rupture midway between the rim of the acetabulum and the femoral neck (type A rupture). The joint capsule can avulse from the dorsal acetabular rim (type B rupture). The joint capsule can avulse from the neck of the femur (type C rupture). Type A is most common and the type that is most likely to have a successful closed reduction. Type B leads to a very unstable reduction. Type C often causes a folding in of the joint capsule into the acetabulum causing a barrier of tissue between the femoral head and the acetabulum. Type B and C will often result in relaxation with minimal manipulation.



If closed reduction is unsuccessful, open reduction can be pursued. In Lola's case, closed reduction was possible. However, the hip reluxated with minimal manipulation, leading to a high suspicion of a type B or C joint capsule rupture.



*This is a young dog with coxofemoral subluxation and the beginning of OA changes in the dorsal acetabular rim.*



*This is a middle aged dog with poor coverage of the femoral head by the acetabulum (look at non luxated hip, coverage should be 50% or greater) and more significant changes associated with OA (acetabular rim changes, thickening of the femoral neck, and the beginning of changes in the femoral head)*



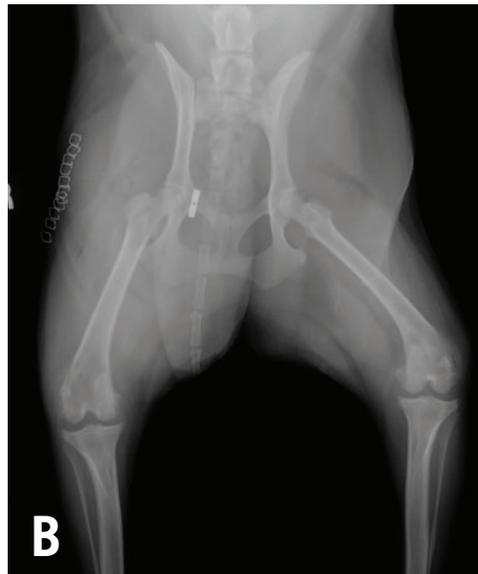
*This is a middle aged dog with a chronic luxation. You can easily see the filling in of the acetabulum with bone as well as the bony periosteal reaction present on the ilium from the femur's chronic rubbing on the pelvis.*

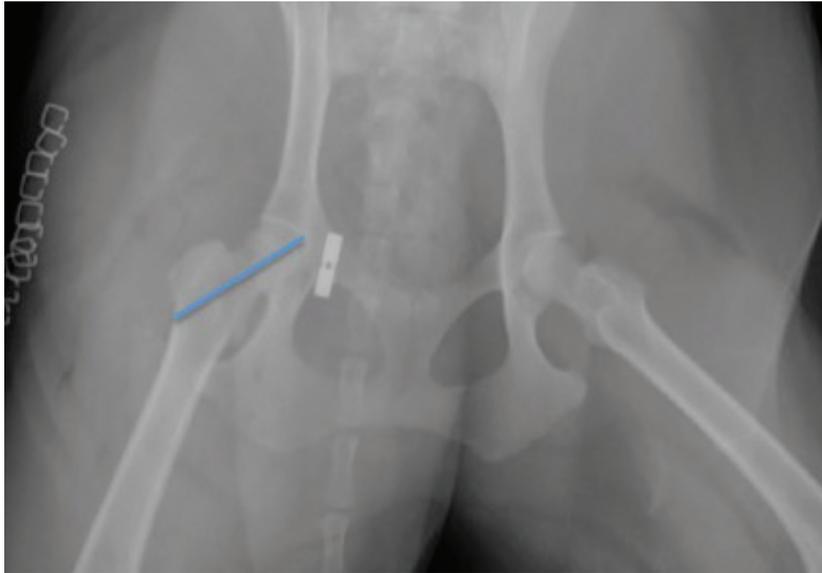
## TREATMENT

There are many potential ways to perform an open reduction. A common repair technique, and a technique now available at VCA Hollywood Animal Hospital, is a toggle pin fixation. This is a procedure in which a tunnel is drilled through the femur, from the level of the third trochanter (below the greater trochanter) to the fovea capitus (attachment of the round ligament of the head of the femur). A hole is then drilled in the center of the acetabular wall. A toggle rod with attached suture is then placed through the hole in the acetabulum and then “toggled” to turn on its access, keeping it from backing out of the hole. The suture is then placed through the pre-drilled tunnel in the femur and secured on the lateral side of the femur at the level of the third trochanter. This will hold the hip in place until the supporting structures heal.

The toggle rod fixation is an effective means of open reduction of a coxofemoral luxation, if utilized on the correct cases. If used in the appropriate case and performed within a week of the original luxation, this technique has a less than 10% failure rate. This repair leaves most dogs with the ability to bear weight on the leg within days of the procedure and carries a good functional outcome with a high owner satisfaction.

Lola’s radiographs after her toggle rod procedure are below (A). The suture is not radiopaque. However, if you look closely, you can see the tunnel that has been placed through the femur in which the suture lies. In the second ventrodorsal view (B) a line has been superimposed over the tunnel in the femur.





Lola did very well and was fully weight bearing on the leg at the time of suture removal and has continued to do well.

I hope you have enjoyed reviewing this case presentation. If you have any questions about this surgical topic or any other, feel free to contact me at;

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