

# FEMORAL HEAD AND NECK OSTECTOMY FOR SURGICAL TREATMENT OF ACUTE CRANIODORSAL COXOFEMORAL LUXATION IN RABBITS

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## Abstract

Craniodorsal coxofemoral luxation is a common orthopedic condition causing lameness in rabbits, which may be caused through iatrogenic, congenital, or traumatic means. Current treatment methods for coxofemoral luxation in rabbit patients typically begins with conservative management in the form of restricted activity and often results in the need for an open surgical approach to the affected hip for a femoral head and neck ostectomy (FHNO). However, this technique has never been described for domestic rabbits. Because an FHNO is often performed successfully, it should be considered by veterinarians in rabbits diagnosed with a coxofemoral luxation that cannot be reduced. This article describes and illustrates the FHNO surgical procedure for the domestic rabbit. Copyright 2015 Elsevier Inc. All rights reserved.

**Key words:** rabbit; lagomorphs; FHNO; FHO; coxofemoral luxation

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**D**omestic rabbits commonly experience musculoskeletal disease, including coxofemoral luxation, owing to various underlying etiologic causes (e.g., iatrogenic, congenital, or trauma).<sup>1-5</sup> The hind limb musculature of rabbits will allow for successful treatment by closed reduction and strict rest for acute coxofermoral luxations.<sup>3</sup> However, if the closed reduction method fails or the femoral head is completely luxated from the acetabulum, open surgical intervention is warranted.<sup>1,5</sup>

Currently, there are no technique descriptions regarding open reduction for coxofemoral luxation in the rabbit. Although a femoral head and neck ostectomy (FHNO) is mentioned as a treatment option,<sup>1,5</sup> this procedure has not yet been described for rabbits. Other articles in the past have used rabbits as research models to investigate techniques recommended for humans (i.e., total hip replacements that were assessed in rabbits to evaluate fluid pressure causing bone resorption and subsequent prosthetic loosening).<sup>6</sup> The rabbit is a mammal known for its well-developed hind limb musculature. A clinical benefit to this anatomical trait is for stabilization of the coxofemoral joint, even if the underlying bone is

no longer used for support.<sup>3,7</sup> The musculoskeletal anatomy of the hip and leg of rabbits allows for this species to be excellent surgical candidates for FHNO procedures, as they theoretically may have a faster return to function. Conversely, rabbits have a very prominent lesser trochanter and a very short femoral neck, which varies from the dog and the cat.<sup>8</sup>

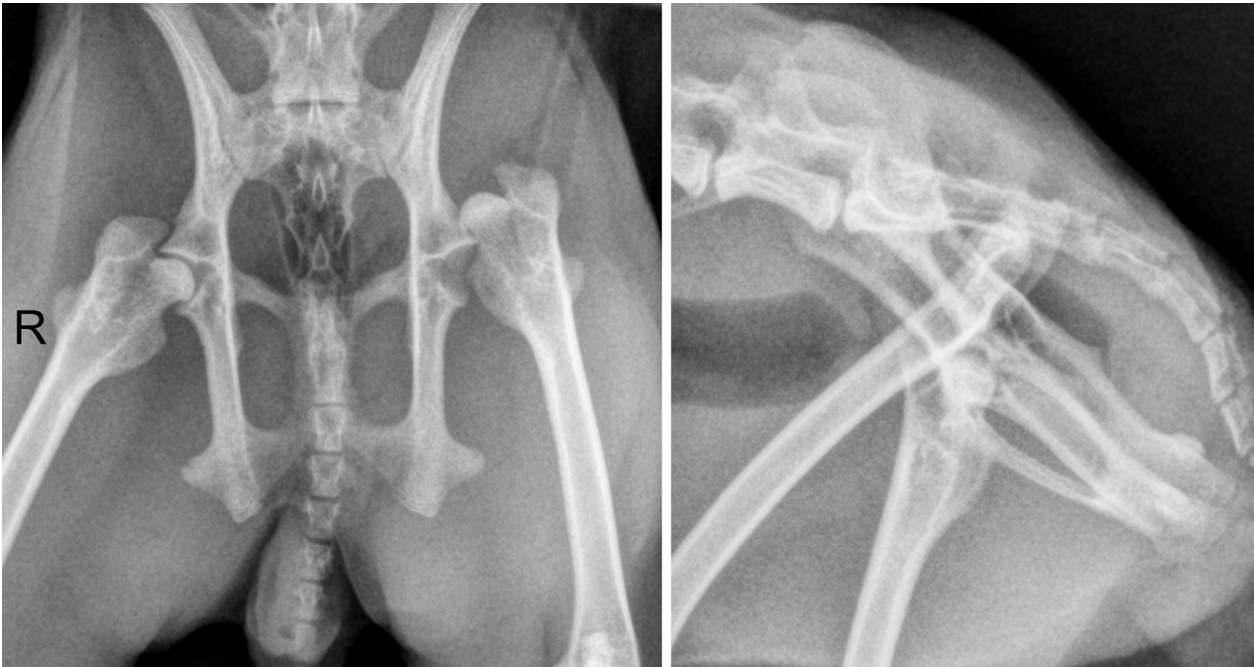
Several techniques for reduction of coxofemoral luxations have been reported, including closed reduction with or without an Ehmer sling, toggle pin, use of carts, and FHNO. Other domesticated species (e.g., dog and cat) commonly undergo the FHNO surgical procedure to create a pseudoarthrosis of the hip, which allows a return to

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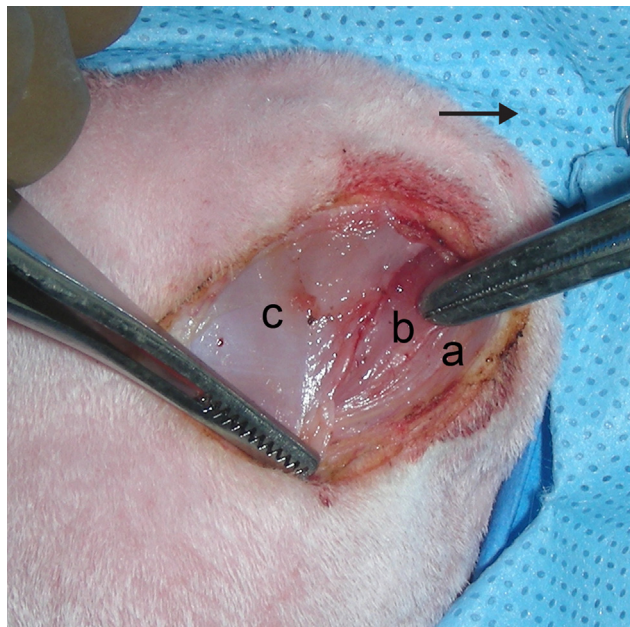
**FIGURE 1.** Preoperative radiographs revealing left craniodorsal coxofemoral luxation.

function of the affected leg without the use of prosthetic implants. The purpose of this article is to provide a detailed description of the FHNO in the domestic rabbit, with close attention paid to unique anatomical differences relative to other small animals.

6. The wide superficial gluteal muscle is separated from the deep leaf of the tensor fascia using sharp dissection (Fig. 3).
7. Finally, the middle gluteal muscle is reflected caudodorsally for a complete view of the left hip joint (Fig. 4).

### STEP-BY-STEP PROCEDURE

1. Before the surgery, confirmation of luxation of the coxofemoral joint and the absence of associated fractures should be made via radiographs (Fig. 1) and palpation.
2. The patient is placed in lateral recumbency with the affected hip facing up, and the affected pelvic limb is aseptically prepared for surgery using a hanging limb position.
3. A craniolateral approach to the coxofemoral joint is made with an approximately 5-cm linear skin incision beginning 1 cm dorsal to the coxofemoral joint and extending down the cranial margin of the femur.
4. The cranial crural abductor muscle is identified and caudally reflected.
5. An incision is made through the aponeurosis between the caudal aspect of the tensor fasciae lata and cranial aspect of the vertebral head of biceps femoris (Fig. 2).



**FIGURE 2.** Arrow points dorsally. Skin incised, cranial crural abductor muscle (a) reflected caudally. Forceps on right touching biceps femoris (b) with tensor fasciae lata (c) to the left after incision through aponeurosis.

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