

# Legg-Calve Perthes Disease with Acetabular Dysplasia in a Division II Women's Soccer Player

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## Abstract

The prevalence of Legg-Calve Perthes disease (LCPD) is very rare and fairly new to the literature occurring in approximately 4 out of 100,000 children. LCPD is a hip disorder that involves avascular necrosis of the proximal femoral head and is usually more common in boys than girls. This hip condition typically occurs in children between the ages of four and eight years of age, but can occur up to twelve years old. A child's mobility and activity level can be adversely affected and is self-limiting, where some activities may need to be modified to ensure no excessive forces are placed on the femoral head. Due to the etiology not being completely understood and small frequency of LCPD cases, there are still many controversies regarding the management and treatment of this disease. With advancements in the evidence and trials, in relation to the most effective surgical technique and treatment of LCPD, there is still a much need for future research studies as well as innovative research on current studies to produce more accurate data for an evolving disease that was introduced more than one hundred years ago to the world literature.

## Introduction

In this case report, the athlete reported to the athletic training room complaining of sharp pain near right proximal hip flexor region. Athlete didn't recall a specific mechanism of injury. Immediate care was administered.

## Purpose

One important domain of athletic training is evaluation of injuries. The case demonstrates the importance of listening to the athlete's present and past history. Furthermore, monitoring an athlete's signs and symptoms throughout the injury process could prevent the progression of a past condition.

## Background

- 21-year old female
- NCAA Division II women's soccer player
- Previous medical history of chronic pelvic instability, Legg-Calve Perthes Disease (LCPD), and chronic exertional compartment syndrome bilaterally

## Differential Diagnosis

- Generalized hip inflammation
- Hip contusion
- Hip flexor strain
- Labral tear
- Femoroacetabular impingement (FAI)
- Progressed Legg-Calve Perthes Disease (LCPD)

## Clinical Evaluation

- Right hip protrusion at proximal anterior hip region
- Point tender over soft tissue mass
- Full AROM/strength with hip flex., ext., ABD/ADD
- Decreased ROM with IR and ER
- Neurological exam: reflexes 2/4 bilaterally
- Sensation grossly intact bilaterally

## Treatment

Athlete began conservative treatment with NSAIDs, rest, soft tissue therapy, and stretching. Right hip protrusion exacerbated. An MRI arthrogram was ordered and revealed late abnormalities of LCPD, flattening of superior weight bearing surface of femoral head with a shortened femoral neck, coxa magna deformity, globular thickening of the acetabular labrum, and chondral thinning along the acetabular margin anterosuperiorly. The athlete agreed to undergo a combined right hip surgical dislocation with acetabular rim trim, acetabular labral repair, femoral head and neck junction osteoplasty, relative neck lengthening, trochanteric advancement, and right hip periacetabular osteotomy.

## Before Surgery



## After Surgery



## Implications

LCPD is not a common disorder found in college athletes. Literature highlighting treatment is limited. Although LCPD is not a frequent cause of sports-related injuries, its treatment is often difficult due to the controversies surrounding non-operative treatment versus surgical implications, particularly depending on the age of onset and amount of femoral head involvement. A study conducted in 2012 compared the results of conservative and surgical treatment in children between the ages of six and eight years old at the onset of the disease. The results indicated that patients younger than six usually have a good prognosis since they have more time for remodeling (Citlax et. al, 2012). There is very limited research on the long-term outcomes and efficacy of this combined surgical treatment of hip dislocation and periacetabular osteotomy (PAO) with respect to returning athletes back to sport. A study in 2015 utilized eleven patients with severe head asphericities resulting from LCPD by undergoing a PAO. Results illustrated improved femoral head sphericity from 72% to 86% and no hip developed avascular necrosis of the femoral head (Siebenrock et. al, 2015). Research among the general population indicated excellent short-term outcomes while maintaining high activity levels and this combined surgical technique improved radiographic indices of acetabular dysplasia.

## Conclusion

This case emphasized the diagnosis of LCPD at the young age of five years old and the development of symptoms later on at the age of twenty-one, treatment of an athlete suffering from this disorder and successful rehabilitation to return to play in soccer and activities of daily living. This case further emphasized the high success of a combined surgical hip dislocation and periacetabular osteotomy in an elite athlete after years of failed conservative treatment efforts. This single case review rebuts any evidence applied to the general population suggesting that there are poor results in surgical treatments in children over the age of eight years old due to skeletal maturity. This case further emphasizes the convolutions of treating athletes with LCPD and the complications that may arise due to postponed interventions.

## References

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