Slipped capital femoral epiphysis (SCFE) is an unusual disorder of the adolescent hip. It is not rare. For reasons that are not well understood, the ball at the upper end of the femur (thigh bone) slips off in a backward direction. This is due to weakness of the growth plate. Most often, it develops during periods of accelerated growth, shortly after the onset of puberty.

The patient’s left hip (arrow) shows that a slight shift of the head of the femur occurred through the growth plate. (Courtesy of John Killian, MD, Birmingham, AL)

The condition is diagnosed based on a careful history, physical examination, observation of the gait/walking pattern, and X-rays of the hip. The X-rays help confirm the diagnosis by demonstrating that the upper end of the thigh bone does not line up with the portion called the femoral neck.

Risk Factors
The cause of SCFE is unknown. It occurs two to three times more often in males than females. A large number of patients are overweight for their height. In most cases, slipping of the epiphysis is a slow and gradual process. However, it may occur suddenly and be associated with a minor fall or trauma.

Symptomatic SCFE, treated early and well, allows for good long-term hip function.

Symptoms
The typical patient has a history of several weeks or months of hip or knee pain and an intermittent limp. The appearance of the adolescent is characteristic. He or she walks with a limp. In certain severe cases, the adolescent will be unable to bear any weight on the affected leg. The affected leg is usually turned outward in comparison to the normal leg. The affected leg may also appear to be shorter.

Diagnosis
The physical examination will show that the hip does not have full and normal range of motion. There is often a loss of complete hip flexion and ability to fully rotate the hip inward. Because of inflammation in the hip, there is often pain at the extremes of motion and involuntary muscle guarding and spasm.

Treatment
The goal of treatment, which requires surgery, is to prevent any additional slipping of the femoral head until the growth plate closes. If the head is allowed to slip farther, hip motion could be limited. Premature osteoarthritis could develop. Treatment should be immediate. In most cases, treatment begins within 24 to 48 hours.

Early diagnosis of SCFE provides the best chance to achieve the treatment goal of stabilizing the hip. Fixing the femoral head with pins or screws has been the treatment of choice for decades.

Depending on the severity of the child’s condition, the surgeon will recommend one of three surgical options.
A screw is inserted to prevent any further slip of the femoral head through the growth plate. (Courtesy of John Killian, MD, Birmingham, AL)

Complications

There are several potential complications associated with a slipped capital femoral epiphysis. The most common are avascular necrosis (AVN) of the femoral head and chondrolysis.

Avascular necrosis means that the blood supply to the femoral head has been permanently altered by the femoral head slipping. There is no way to identify children at risk for avascular necrosis or to prevent this complication. Evidence of avascular necrosis may not be seen on X-rays for as long as 6 to 24 months following surgery.

Chondrolysis, or loss of articular cartilage of the hip joint, is a major complication of SCFE. It may cause the hip to stiffen with a permanent loss of motion, flexion contracture, and pain. The loss of motion may be a result of an inflammation in the hip joint. This is still not fully understood by surgeons. Aggressive physical therapy and anti-inflammatory medications may be prescribed for this rare complication. There may be some return of motion.

Care After Surgery

Most likely, the child will be admitted to the hospital by a pediatric orthopaedist. Surgery is usually performed within 24 to 48 hours. After surgery, the child will be on crutches for weeks to months. A physical therapist will demonstrate how to use crutches. The doctor will give you specific instruction about your child's weight-bearing status and activity restrictions. Follow the instructions closely.

It is important that your child be followed closely for 18 to 24 months after surgery. After the immediate postoperative period, X-rays every 3 to 4 months are needed to ensure that the abnormal growth plate has fused.

Your child may be restricted from certain sports and activities during this time of recuperation. This helps to minimize the chance of further complications. The fusion must be mature enough to prevent further slippage. Then, vigorous physical activities can begin.

Reviewed by members of POSNA (Pediatric Orthopaedic Society of North America)

The Pediatric Orthopaedic Society of North America (POSNA) is a group of board eligible/board certified orthopaedic surgeons who have specialized training in the care of children’s musculoskeletal health. One of our goals is to continue to be the authoritative source for patients and families on children’s orthopaedic conditions. Our Public Education and Media Relations Committee works with the AAOS to develop, review, and update the pediatric topics within OrthoInfo, so we ensure that patients, families and other healthcare professionals have the latest information and practice guidelines at the click of a link.

AAOS does not endorse any treatments, procedures, products, or physicians referenced herein. This information is provided as an educational service and is not intended to serve as medical advice. Anyone seeking specific orthopaedic advice or assistance should consult his or her orthopaedic surgeon, or locate one in your area through the AAOS “Find an Orthopaedist” program on this website.