Surgeons Take a Closer Look at Drehmann Sign in Children with Slipped Capital Femoral Epiphysis

Slipped capital femoral epiphysis (SCFE) is a condition that affects the hip in teenagers between the ages of 12 and 16 most often. Cases have been reported as early as age nine years old. In this condition, the growth center of the hip (the capital femoral epiphysis) actually slips backwards on the top of the femur (the thighbone).

If untreated this can lead to serious problems in the hip joint later in life. Fortunately, the condition can be treated and the complications avoided or reduced if recognized early. Surgery is usually necessary to stabilize the hip and prevent the situation from getting worse.

The earlier the diagnosis is made, the more effective the treatment. Studies have shown that the more severe the slip, the more likely there will be problems later in life. In general, the most common problem later in life is the development of arthritis in the hip joint.

The type of arthritis that develops in the hip is osteoarthritis (also known as wear-and-tear arthritis). This complication can occur even after surgery so surgeons must keep a close eye on these children as they grow into adults. Further surgery may be needed to improve alignment and prevent osteoarthritis.

Children with SCFE often develop femoro-acetabular impingement or FAI. Impingement refers to some portion of the soft tissue around the hip socket getting pinched or compressed. Femoroacetabular tells us the impingement is occurring where the femur (thigh bone) meets the acetabulum (hip socket). There are several different types of impingement. They differ slightly depending on what gets pinched and where the impingement occurs.

Surgery to correct SCFE changes the shape, position, and angle of the proximal (upper end) femur. With minimal remodeling of the hip, there can be a larger angle called the alpha angle. And the larger the alpha-angle, the greater the chance of impingement occurring.

One way to monitor patients for impingement and the beginnings of osteoarthritis is by imaging studies such as X-rays and CT scans. But there's another way that doesn't involve the cost of imaging or exposure to X-rays. A clinical test can be done by an examiner looking for a positive Drehmann Sign. As you might guess, Drehmann sign was named after the physician who first described it back in 1903.

With the patient lying supine (on his or her back), the examiner bends the patient’s leg up toward the belly button. If the leg automatically rotates outward (external rotation) and moves away from the body (abduction), there is a positive Drehmann sign. These are the movements the body makes in order to avoid hip impingement.

In order to confirm the relationship between Drehmann sign and impingement, Japanese surgeons looked at X-rays of 92 hips with SCFE. They compared the number of patients who had femoroacetabular impingement as seen on X-rays with the number who also had a positive Drehmann's sign.

They found a direct relationship between a larger alpha-angle, Drehmann’s sign, and impingement. Patients with a positive Drehmann’s were also more likely to report hip pain and a limp when walking. Patients with a negative Drehmann’s sign never experienced either one of these symptoms. This is helpful information because femoroacetabular impingement of the hip can show up very well on X-rays. A positive Drehmann’s sign is direct confirmation of impingement.

On the basis of these findings, the authors make the following recommendation. Drehmann’s sign should be tested after surgery to correct slipped capital femoral epiphysis (SCFE). Even a mildly positive sign is an indication of hip impingement.
that should be treated. Eliminating impingement will help prevent the development of osteoarthritis later.