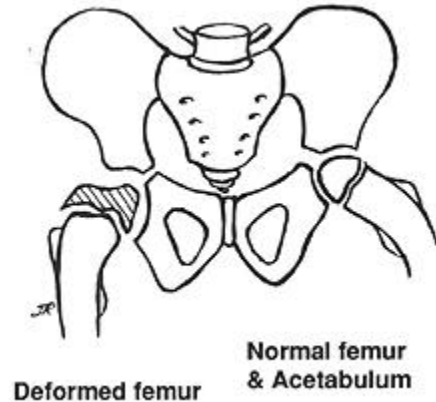


Legg Perthes Disease

What is Legg-Perthes Disease?

It is an abnormal condition in the head of the femur (the part of the thigh bone that fits into the hip socket). The problem starts when, for reasons unknown, the blood flow to the head of the femur is cut off. As a result, some of the bone tissue begins to die and the bone becomes soft and spongy. Sometimes small fractures develop. As the child moves and bears weight on the leg, the head of the bone flattens and loses its smooth, round shape to the point where it is no longer held in the hip socket (acetabulum).



Blood circulation normally returns to the head of the femur within a few months. What starts the flow is not known anymore than what stopped the flow. However, it takes many months, even years, for the dead tissue to be replaced with healthy bone tissue. This happens as part of the normal healing process. The treatment is geared to holding the head of the femur firmly in the hip joint. The hip socket acts as a mould to shape round head as it forms and hardens. The main aim of treatment is to minimize bone deformity while the healing is taking place. Significant deformity can cause severe difficulties in later life including arthritis.

How is it diagnosed?

The first signs are usually a limp, pain and some stiffness in the hip. Since these are signs of many different conditions the diagnosis is often not possible right away. Initial X-rays may not reveal the problem because the bone may not yet be showing characteristic changes. A bone scan can reveal whether the head of the femur is receiving a normal supply of blood. An early diagnosis can sometimes be made from the information on a scan.

Who Gets it and What Causes it?

Perthes disease occurs most commonly in children between 4 years and ten years. Four times as many boys get it as girls. In most cases the cause is unknown. In a few cases (20%) there is a familial tendency i.e. someone else in the family has had it. Most cases (80%) affect only 1 hip. The problem seems to appear more often in children whose birth weight was less than 5.5 lbs (especially boys). In 1989 there were 131 diagnosed cases of Legg Perthes in children under 19 in British Columbia (106 boys and 25 girls).

Case example as described by parents:

"Jeremy was a very active 6 year old. At soccer school he was the first 6 year old to win a silver medal. He was also involved in swimming and diving. When soccer was about mid-season, Jeremy started to limp. A week later he was still limping so we took him to the doctor. Thinking it was a pulled muscle the doctor told him to rest for a week, and to come back if there was no improvement. The next week he felt it was a deep pulled muscle and he was scheduled for physiotherapy. As a precautionary measure a blood sample was taken (to check for a viral infection).

After six weeks of physiotherapy and the limp getting worse we took him back to the doctor. X-rays were taken of the hip. An immediate appointment was set up with an Orthopaedic surgeon. The next day at the surgeon's office we were informed of the diagnosis and the treatment to follow. The day after, Jeremy was admitted into the hospital and treatment began."

How is it treated?

Step 1: Traction:

The muscles and ligaments which support the head of the femur are usually very tight by the time the diagnosis is made. This is because they repond to irritation and pain by tensing up. Because of this tightness it is not possible to position the bone correctly in the acetabulum. Also the tightness itself increases the child's pain. The first step in the treatment is to overcome the muscle tension. This is done by a procedure called traction.

Traction means applying weights on a pulley system to the limb so that the muscles gradually stretch and relax allowing the head of the femur to shift well back into the socket (acetabulum). We place foam strips around the child's legs. Special tape is applied and then the legs are wrapped with elastic bandages. Ropes and weights are attached to the tapes on the child's legs. We then position the child with legs apart and body flat on the bed. Both legs are placed in traction to provide balance, but, different weight loads may be attached. We sometimes need to put a restraining vest on the child which will prvent him from turning or sitting except at mealtimes.

It looks strange to see a child "strung up" with lines and weight and pulleys. Actually, it does not hurt the child. It is very frustrating for a normally active child to be restrained flat on the back. Most children are upset, uncomfortable and cranky for the first few days until they become accustomed to it. Try to support and comfort your child anyway you know how: provide sympathy and cuddles and as many activities as possible. You might try a tape recorder and headphones and tape some of your child's favourite stories. There is a tape available in the Family Resource Library called "In the Hospital" by Peter Alsop which children enjoy. The Child Life Specialists in the hospital will help you with play activities.

Here are some suggestions from Jeremy's parents:

Board and Card games There series of Books called "Where's Waldo?". (We spent many happy hours looking for Waldo). A portable electronic keyboard - with headphones!

Caring for a child in Traction

Your child will be in traction from 10-14 days.

Maintaining Traction

Do not remove any part of the traction unless you have specific instructions. Do not change your child's position unless you have discussed it with the nurse first.

Check that:

- weights are hanging free (if they are resting on something e.g. the floor, they are not providing any pull);
- ropes are in the pulleys;
- bandages are in place.

Skin Care

Skin care is important to prevent sores caused by pressure on parts of the body from lying in the same position for long periods of time.

During the day, you, or the nurse, must check the child's skin every 3-4 hours for redness, rashes or rough patches. Check particularly the back, buttocks, shoulders and heels. Wipe these areas with a damp cloth and dry well. If you notice any redness, rub the area with a very little lotion. Your child can lift himself while you do this.

Check the blood circulation to the child's feet at least twice a day. They should be normal pink colour and warm to the touch. If you notice swelling, or they feel cold or look bluish -- particularly under the toe nails -- tell the nurse.

General Hygiene

Brush your child's hair 2 or 3 times each day to prevent tangles. Your child should have a sponge bath each day.

Nutrition

Your child may lose her appetite for the first few days in traction. Check whether it is possible to have her sit up for meals, as this will make eating easier. Encourage your child to drink lots of fluid -- help her raise her head (unless it isn't permitted).

Constipation can be a problem for a child in traction because the inactivity causes a sluggish bowel. As well, some children find it hard to get used to a bed pan. Offer your child dried fruits rather than candy as a treat. Suggest orange and prune juice as a drink. Make sure that high fibre foods like bran cereals and muffins are selected from the menu.

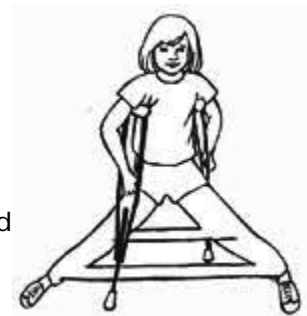
Step 2: Treatment:

Casting to hold the bones securely in position.

After the period in traction, an X-ray is taken to ensure that the head of the femur is now positioned well in the hip socket. If this is the case, the cast is applied. If the muscles are still too tight to allow the correct placement, a small incision is made into the muscle in the groin. This releases the tightness of the muscle and allows the surgeon to swivel the bone outwards and shift it so that it is contained in the hip socket. If the muscle must be lengthened, it is done under an anesthetic. There is a video: "All About Your Operation", available in the Family Resource Library. It will help to reassure your child.

The casting procedure is not painful. If an anesthetic is not required, the cast is applied in the casting room of the clinic.

The doctor pulls long soft stockings onto the legs to protect the skin. He wraps soft bandages around these to "cushion" the cast. The cast is made by wrapping bandages soaked in fibreglass (much lighter than plaster) around the legs from mid thigh to ankle. As they dry these bandages harden into a cast. Two wooden bars, measured to provide just the right amount of stretch to the thighs, are placed at the knee and ankle.



They are casted into position to make a rigid A shaped frame for the legs. This type of cast is called a Petrie Cast. The first cast is removed after 2-3 months. A 2nd, 3rd and even possibly a 4th change of cast may be applied if the healing is not complete. Some children need to be in a cast for 9 months.

Jeremy's Case History Continued

In the hospital, a bone scan was done to determine the severity and he was placed in traction. He spend 16 days with legs spread and 5 lbs. weights on each leg. He was allowed 4 x 20 minute breaks a day out of traction. It was a difficult way to spend a Spring break.

A cast was applied in the cast room. Jeremy chose the colours of the fibre-glass cast. The next day, after mastering the art of using crutches with his legs held 36 inches apart, he was discharged. We realized his underwear and pants would not fit over the cast. The staff lent us a pair of snap-on underwear. At home, pants were unhemmed at the side seams and velcro sewn in. A wheelchair was provided by the Red Cross. We had to struggle to rearrange our usual schedules so that Jeremy could be driven to and from school.

The cast was removed after 6 1/2 weeks. Nine days later he was re-assessed and we were informed that he would have to go back in the traction, have physiotherapy and have the cast applied again. This was the end of the Grade 1 year for Jeremy.

Caring for a child in a Cast

Most children are discharged the day after their cast is put on. See instructions for Caring for a Child in A Cast at home.

As normal as possible

Legg-Perthes will require treatment over a long period. The adjustment may be difficult for the child and the whole family. Siblings can become resentful about the extra time and attention given to the child in the cast. With so many normal activities denied, the child in the cast is often frustrated and cranky. Parents too may feel worn down and unsure of how to respond.

Children are reassured by regular routines, healthy limits and reasonable expectations. Like all children, your child is learning to control emotions and behaviour and testing his own independence. Life in the cast is an extra challenge. You will want to help you child more than necessary or give in to demands that you would otherwise resist. This kind of pity is not good for the child. Of course you must assist when necessary and be sympathetic to the frustrations. You will have to learn, just as you always have, when a cry for help is real and when it is unnecessarily demanding; as well as, what you can realistically expect at this time. As your child learns to cope she will grow in confidence and competence from the experience.

Here are some suggestions from Jeremy's parents

Prepare some clothes while your child is still in hospital. Move your child's bed and belongings onto the main floor because stairs may be too difficult to manage. Measure the main doorways and the span of your child's legs so that you know which doorways will present a problem. If your child has been walking or riding to school you will need to make arrangements from transport. Check with the school board in your district. They may offer a taxi service for children unable to get to and from school on their own. Handydart Custom Transit Service provides transport, at a very modest fee, for people unable to use the public transport. If you think you may use this service call the number for your area listed in the telephone book and find out how to register your child. Note: you need to book this service 3 days in advance on each occasion when you may need it. You can get a temporary handicapped parking sticker for your car through SPARC tel. 736-4367. If you call they will send you an application form which must be signed by your doctor. If your child has spent much of his or her time in physical activities you will need to find new recreational activities. Look into the offerings of the community centre. This could be the time to develop craft talents. You may want to think about music lessons or something of that nature.

Follow up

The orthopaedic surgeon will want to see your child frequently. Please call the clinic for an appointment.

Removing the Cast

The cast will stay on for 2-3 months. It will be removed in the hospital clinic with a specially designed vibrating saw that avoids cutting the skin. Before it is removed, an X-Ray is taken to assess the position of the bones.

Once the cast is off, the skin may be dry and flaky -- use a little skin lotion and add bath oil to the bath. Sitting in a bath of warm water also relieves the stiffness of the limbs.

The legs may look thinner but in a few months, with exercise, the leg muscles will regain their strength and tone.

At first your child may seem fearful of walking freely. The legs may feel stiff or weak. Be encouraging and gradually he will gain confidence and return to all his normal activities. Discuss with your doctor what, if any, sort of activities may not be appropriate at first. In a few cases, the orthopaedic surgeon may refer the child for physiotherapy.