

# Developmental Dysplasia of the Hip, (DDH) including Femoral and Pelvic Osteotomy

Leicester Children's Hospital

Information for Patients, Parents and Carers

DRAFT



University Hospitals of Leicester



NHS Trust

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## What is developmental dysplasia of the hip?

Developmental dysplasia of the hip (DDH) is a condition where the hip joint does not develop properly and is usually present at birth, which is why it has previously been referred to 'Congenital Dislocated Hip'. It was renamed Developmental Dysplasia of the hip (DDH) as there are varying degrees of abnormality and it is not always present at birth and can develop as the child grows.

The hip joint is a ball and socket joint which attaches the femur (thigh bone) to the pelvis. The head of the femur is shaped like a ball and sits in the acetabulum, a cup shaped socket in the pelvis. In DDH the acetabulum is under developed and too shallow allowing the head of the femur to become loose in the socket and may slip out of the joint (dislocate) making the joint unstable. One or both hips maybe affected in DDH.

DDH is more common in girls and first born children, it more commonly affects the left hip, and 1 or 2 in every 1,000 babies have DDH that requires treatment.

When the diagnosis and treatment is made early the outcome is very good and the child will develop normally and have a full range of movement. Untreated DDH may lead to problems later in life such as limping, hip pain and stiff painful joints (osteoarthritis).

## Causes of DDH

The cause of DDH is unclear however there are some risk factors:

**Family history:** If there is a parent, brother or sister with DDH then it is five times more likely than normal for a child to have DDH.

**Gender:** About 8 in 10 cases of DDH are female. This may be due to the presence of Relaxin, a hormone produced during pregnancy that relaxes ligaments and is likely to affect female babies more than males.

**Pregnancy conditions:** If there is only a small amount of fluid in the womb (uterus) this is called oligohydramnios. There is a risk of developing DDH because the baby is unable to move as much as normal in the uterus.

**Breech position:** If an unborn baby is in the breech position (bottom down position in the womb), this can put the legs in a position which increases the risk of DDH.

**First born baby:** About 6 in 10 cases of DDH occur in first born children. This may be because the womb is tighter and the baby has less room to move.

## Causes of DDH (continued)

**Other abnormalities:** If the baby has cerebral palsy, spinal cord problems or other nerve and muscle disorders, this increases the risk of developing DDH. DDH is also more common in premature babies or babies born weighing more than 5 kg.

**Culture:** DDH appears to be greater in certain cultures, some cultures swaddle their babies increasing the risk, whereas others who carry them on their backs maintaining the legs in an abducted position reduce the risk of developing DDH.

## Diagnosing developmental dysplasia of the hip

Part of the Newborn Physical Examination is to manipulate the hips gently to feel for any instability. The baby's legs are bent up and out like a book, whilst doing this the examiner is feeling for a click in the hip. If a click is present it can indicate a problem. Other symptoms are the thigh bone may look shorter on the affected side and there are unequal skin folds between the legs at the top of the thigh. This examination is repeated at 6-8 week old.

An Ultrasound scan of the hips is carried out to confirm diagnosis. A scan will also be performed if:

- There is a family history of hip problems.
- Babies born in breech position.
- Twins/multiple birth.
- Babies born before 37 weeks.
- Babies born with Talipes (Club foot/feet).

In older children who have started to walk, they may present with a limp, and/or walk on their toes.

# Treatment

## Pavlik Harness

The dislocated hip of the new born will often go back into the socket easily because the hormone Relaxin is still in the baby. They are then held in place by a Pavlik harness—this is a soft fabric harness that is used to hold the hips in the correct position allowing them to develop normally. It needs to be worn full-time for several weeks initially.

During this time, ultrasound scans are done to check that the hip is in the correct position. This harness keeps the legs bent and turned outwards but allows certain movements. It does not allow the baby to straighten their legs or turn them inwards.

The harness is adjusted as the child grows and as the hip stabilises. The amount of time in the harness will be reduced as the condition improves. Instructions on how to care for your baby in the harness will be provided when the harness is fitted.

## Treatment (continued)

### Surgery

#### Closed reduction and hip spica

This is usually done when the child is six months old or when treatment with the harness has been unsuccessful. It involves positioning the hips in the correct position whilst the baby is under a general anaesthetic and applying a hip spica to hold the corrected position.

A hip spica is a plaster cast applied around the hips and down the legs, usually to the ankle on the affected side and above the knee on the other side. This procedure does not involve an operation, (cutting the skin). The general anaesthetic is required so that the baby is fully relaxed and the Doctor can get the correct position of the hips and apply the spica without distressing the baby. The cast is worn for 12 weeks, a change at six weeks maybe required.

## Treatment (continued)

### Open Reduction

If treatment with the harness and closed reduction are unsuccessful or if the child is much older when DDH is diagnosed, then an operation will be required. The operation involves an incision in the groin, loosening the tendons around the hip joint and releasing anything that is preventing the hip joint from moving freely.

Once the bones and joint are in a good position, the joint is strengthened and the incision closed. A hip spica is then applied.

After six weeks, under general anaesthetic the hip is checked to ensure the hip stable and healing well and another spica applied for a further six weeks. Sometimes an osteotomy (bone surgery) is required to correct any bone deformities.

### Other types of surgery

If DDH has not been resolved by 12-8 months, more complicated surgery is required. This may involve Femoral and/or Pelvic osteotomy.



# Femoral and Pelvic Osteotomy

An osteotomy is a surgical procedure which means cutting the bone; it is performed to restore a more normal anatomical position of the bone and/or joint. Screws and plates are then used to hold the bone secure whilst it heals. Femoral Osteotomy means cutting the femur (thigh bone) and Pelvic Osteotomy means cutting the pelvis.

## Femoral Osteotomy

Femoral osteotomy involves cutting the femur at the top end and repositioning the head of the femur (ball) into the acetabulum (socket), plates and screws are then used to secure the bone and allow the bone to heal. This surgery is performed to correct dislocated hips and to correct the angulation of the joint in order to achieve correct alignment of the leg, i.e. knee and foot pointing forwards, this is called a De-rotational femoral osteotomy.

Babies, toddlers and small children under four or five years of age are put into hip spicas following surgery; older/bigger children may be put into Broomstick plasters. These are cylindrical casts on each leg with a stick attached between the legs to keep them apart (abducted). If casts are not used the legs should be kept in an abducted position using pillows, cushions or a wedge shaped foam to maintain the correct position.

# Femoral and Pelvic Osteotomy (continued)

## Pelvic Osteotomy

Sometimes the head of the femur is unable to sit in the socket securely because the socket has not developed properly and is too shallow. A pelvic osteotomy is then needed to create a deeper and better shaped socket and there are several different types of Pelvic Osteotomies:

- Pemberton Osteotomy
- Chiari Osteotomy
- Salter Osteotomy
- Dega Osteotomy
- Ganz Periacetabular Osteotomy

All the procedures create a better shaped cup/socket and are sometimes performed together with a femoral osteotomy.

# Pre and Post Operative care

## Pre-Operative

You and your child will attend a pre-assessment clinic where you will have a consultation with the surgeon who will explain the operation and post-operative care. You will also be asked to sign a consent form. Your child will need to have a blood test, will be weighed and if possible heighted. If necessary you will also see an anaesthetist. Fasting instructions will be given and a nursing assessment done. It is also an opportunity for you and your child to ask questions about the operation and their admission to hospital. You will also be seen or contacted by the Occupational Therapist to discuss managing mobility at home after the operation.

## Post-operative care

After the operation your child will return to the ward and be closely monitored by your nurse. Pain will be assessed and analgesia given as prescribed. Pain relief will be discussed with you by the anaesthetist prior to the operation. Usually an epidural is used for pain relief. This is usually required for 48 hours and is used in conjunction with other analgesia to keep your child comfortable and pain free. There will also be an intravenous infusion in place to provide fluids until they are eating and drinking normally.

The Occupational Therapist will see you and your child prior to discharge to advise you on how to move/lift your child. They will assess your car seat and buggy to ensure the child fits securely in the seat and is safe whilst in the seat.

Your child will be discharged from hospital three to four days after the operation.

## Post Operative Hip Spica care (continued)

If your child has a hip spica, they will need to be nursed in the bed supported by pillows to lift the heels off the bed. The nurses will check that circulation and sensation (neurovascular) to the toes/foot is not compromised. The spica will be checked for dents or cracks.

The skin at the edges of the spica will be checked to ensure it is not becoming sore from rubbing or tightness. The cast can be trimmed back if it is too tight and causing problems, padding will be applied to the edges. You will be shown how to change your baby's nappy.

When you go home you will need to check the spica for:

- Cracks
- Dents
- Wet areas
- Areas that may be developing sores
- Replace padding

Prior to applying the spica the skin will be assessed and any vulnerable areas and bony prominences will be protected with extra padding to prevent sores from developing under the cast.

Whilst every precaution is taken to prevent sores from developing under the cast unfortunately sores can occur. If you suspect a sore is present or developing please contact the hospital immediately on the numbers you have been given. Signs that a sore is developing or has developed are pain over a particular site, bleeding or a wet area developing on the cast; you may notice an offensive smell from the cast.

## **Post Operative Hip Spica care (continued)**

If a sore has developed your child will be reviewed by the surgeon and appropriate action will be taken. To help prevent sores the cast must be kept dry, however this can be quite difficult at times and accidents happen. If the cast does become wet or very soiled arrangements will be made to change it.

## Follow up

Follow up will be at two weeks for a spica check and wound check.

There will usually be a change of spica at six to eight weeks under general anaesthetic, skin and wound check will also take place at this change.

At 12 weeks, an Out-patients appointment will be arranged to remove the spica, to have an x-ray and to see the consultant.

### Contact Numbers

Ward 19:

Tel: 0116 258 5244

Julie Keeley (secretary):

Tel: 0116 258 5756

Children's Out Patients:

Tel: 0126 258 5147

If you have any questions, write them down here to remind you what to ask when you speak to your child's consultant/nurse.

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## Today's research is tomorrow's care

We all benefit from research. Leicester's Hospitals is a research active Trust so you may find that research is happening when you visit the hospital or your clinic.

If you are interested in finding out how you can become involved in a clinical trial or to find out more about taking part in research, please speak to your clinician or GP.

**If you would like this information in another language or format, please contact the service equality manager on 0116 250 2959**

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আপনি যদি এই লিফলেটের অনুবাদ - লিখিত বা অডিও টেপ'এ চান, তাহলে অনুগ্রহ করে সার্ভিস ইকুয়ালিটি ম্যানেজার ডেভ বেকার'এর সাথে 0116 250 2959 নাম্বারে যোগাযোগ করুন।

如果您想用另一种语言或格式来显示本资讯，请致电 0116 250 2959 联系“服务平等化经理” (Service Equality Manager)。

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Ak by ste chceli dostať túto informáciu v inom jazyku, alebo formáte, kontaktujte prosím manažéra rovnosti služieb na tel. číslo 0116 250 2959.

Haddaad rabto warqadan oo turjuman oo ku duuban cajalad ama qoraal ah fadlan la xirii, Maamulaha Adeegga Sinaanta 0116 250 2959.