FLAGHOUSE® Forum

Pediatric Hip Dysplasia and Positioning

Hip dysplasia is a delicate condition. Parents must be fluid in their expectations and remember that the earlier DDH is treated the better.

BY HOPE ARVANITIS

Developmental dysplasia of the hip (DDH) is a congenital or acquired deformation of the hip joint affecting thousands of children each year. The International Hip Dysplasia Institute states that one out of every 20 full-term babies has some type of hip instability, and two of every 1,000 will require treatment. The condition typically occurs after birth and may worsen as a child begins to walk and becomes increasingly active. DDH ranges from mild instability to complete dislocation.

The treatment for hip dysplasia has remained essentially the same for decades, unlike that of most conditions. With the exception of newborn screening, treatment of DDH around the world is fairly consistent. Globally, the pediatric community is tight knit, and global consensus is sought when developing treatment algorithms.

Although the cause is unknown, DDH has been linked to traditional infant swaddling techniques and the use of overly restrictive baby seats. The location of the problem can be the ball or socket of the hip joint, or both. Because DDH can occur in one or both hips, it can cause a discrepancy in leg length, difficulty walking and decreased mobility. Additionally, DDH is hard to detect because hip dysplasia is known as a silent condition that does not cause pain in babies or prevent them from learning to walk at a normal age.

DDH in young children is seen in two patient subtypes: neurologically normal and neurologically impaired. "For an otherwise healthy child with hip dysplasia, the interruption of their quality of life is largely dependent on the age of diagnosis," said Dr. Lawrence Stankovits, an orthopedic surgeon in Shrewsbury, NJ. "Successfully treated infants generally go on to have normal childhoods without activity restrictions. The older child usually must undergo a number of procedures to minimize the risk of arthritic changes early in adult life."

Children with neurological impairments may develop hip dysplasia as a secondary, rather than a primary problem. This is because children with abnormal muscle tone often have imbalanced forces pulling on the hip joint that can cause the joint to become unstable. Children with spasticity in the lower extremity muscles often move more frequently in patterns of adduction and internal rotation. Prolonged scissoring or turned-in position of the legs may permit the head of the femur to slide backward over the posterior edge of the hip socket. Monitoring range of motion and providing an appropriate seating support system that encourages a neutral hip position can help prevent the development of hip problems in children with neuromotor problems.

"In neurologically impaired children with conditions such as cerebral palsy and spinal bifida, muscular imbalance gradually leads to deformity and instability of the hip joint," Dr. Stankovits said. "Often the diagnosis is not made until preschool years, when decreased hip motion or limb length inequality is identified. Treatment is guided by a combination of age and the severity of

PHOTO COURTESY TARA AND MARTY MURPY

Morgan with Dad and Mom, Marty and Tara Murphy

the improper development of the hip."

Forked River, NJ residents Tara and Marty Murphy learned of daughter Morgan's hip dysplasia when she was a week old. Morgan was born 10 weeks prematurely. It was the neonatal unit nurses who first suspected that her hips were too high. They alerted Dr. Stankovits, the on-call pediatric orthopedic specialist; over time he successfully performed Morgan's four corrective surgeries to both hips.

Today Morgan is an active child who enjoys playing with the family pets and taking karate classes. "She's a normal three-year-old despite the fact that she's had to learn several times how to walk," Marty Murphy said. "Today I see how much Morgan has overcome. Families have to remember that they are not alone. They will get through this. You just stick together and make sure you support each other and not take your frustrations out on each other in the rough times."

"The impact of hearing your child will require so much surgery was initially very stressful," said Morgan's mother, Tara, "but we pushed ahead, kept our perspective and moved forward. We also networked with other parents who were going through the same thing. We helped each other during the really trying times. We shared information and tips, and even our frustrations."

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Work with the Medical Professionals

The Murphys suggest that parents who suspect their child may have a hip problem listen to and work with their doctors. "Don't waste time," Marty said. "In reality, had we done nothing, Morgan would have required double hip replacement by age 30. I put myself in those shoes. That's when my wife and I decided to do what it took to prevent that. We wasted no time in working with our doctor to correct the problem. Talk to your doctor because he or she knows what's best."

Doctors treat DDH by moving a baby's upper thighbone into the hip socket to keep it in place while the hip joint grows. Treatment varies depending on the severity of the condition and how early it is detected. For infants less than six months of age, treatment can be as simple as a Hip Abductor Brace to influence the natural growth process so that a more stable hip joint can develop. Also widely used is the Pavlik harness, which holds the hips in proper position. Children over the age of six months commonly require the hip to be placed in the socket in the operating room, often combined with lengthening of the inner thigh tendons. If successful, this remodeling surgery allows the bones to look completely normal in time. After

surgery a Spica Cast is used to keep the hips aligned in the proper position while the tissue around the hip joint heals. The Spica Cast is typically changed every six weeks for duration of three to six months. After the cast is removed, children are fitted with a Hip Abductor Brace in order to further promote proper development of the socket and let their bodies get used to life without the cast.

Typically, surgery is followed up with physical therapy to promote proper functioning of the hip joint. Physical therapists (PTs) play a vital role in supporting the management of the musculoskeletal problems that are associated with hip dysplasia. The role of the physical therapist will vary depending on the context of the practice setting and the type of problems a child is having as a result of the hip dysplasia.

Encourage Activities and Independence

In general, PTs focus on improving the strength of the abdominal and back muscles to support postural control, improve balance responses and reinforce optimal trunk alignment. "Because the angle of weight bearing forces can have positive or negative effects on the development of the hip joint in the young child, it's important to help the child strengthen all of the muscles that control hip movement patterns, especially when walking," said Catherine R. Smith, P.T., Ph.D, D.P.T., P.C.S., an Associate Professor of Physical Therapy at the University of Tennessee at Chattanooga. "Maintaining adequate flexibility in the pelvic girdle muscles is another important focus of management to keep the head of the femur well stabilized in the hip socket. The alignment of the knees and feet is carefully monitored so that any leg length differences can be addressed early."

Many physical therapists encourage participation in functional activities that support careful stretching exercises and controlled movements as they're important for children with DDH. "In general, it's better to steer away from activities that apply sudden ballistic forces in rotational directions to the hip," Smith said. "Instead, it's better to direct children toward low-impact activities reinforcing balance and core stability. Karate, tai chi, swimming and cycling are great examples of sports to encourage; football, soccer and rugby are examples of sports to be avoided. By far the most rewarding aspect of working with these children is improving their ability to engage in age-appropriate activities and reduce the restrictions that would hinder their participation in fun social events."

Parents are taught how to engage the child in play activities that strengthen the hip muscles while avoiding positions that might increase hip joint instability. Every effort is made to include practical home program activities that can easily be included in the family's typical daily routine to increase the likelihood that the exercises will be executed on a regular basis.

It is important to treat DDH early in order to prevent long-lasting hip problems. "Infants successfully treated generally go on to have normal childhoods without activity restrictions," said Dr. Stankovits. "In older children, often prolonged casting after surgery is necessary, which may make the preschool and older child feel isolated from school, activities and peers. There are children treated at a young age who have persistent components of hip dysplasia that do not become symptomatic until adolescence. Surgery in this subset is often extensive and interferes with socializing and activities."

Top left: Portable Hip Spica Chair; *above:* Multi Adjustable Hip Spica Chair

Due to the shape of the cast, seating and positioning can be an inconvenience. Children wearing a cast cannot sit normally. Fortunately, G & S Smirthwaite designed chairs specifically for children in a Spica Cast. For children eight months to three years old the Portable Hip Spica chair is a lightweight solution. "The chair is low to the ground and helps the child to feel safe," said Gina Lui Joslin, an Occupational Therapist and Clinical Advisor for the manufacturer. "It is also an ideal height for watching TV, interacting with siblings and peers and even the family pet. It was designed to dismantle easily and flat pack if necessary to fit into a car, ideal if families need to take the chair with them on holiday."

The Multi-Adjustable Hip Spica chair is ideal for children from 18 months to young adults. Available in three different sizes, the chair is designed for children using leg abduction splints. The easy

PHOTO COURTESY TARA AND MARTY MURPY

Morgan Murphy wearing her hip spica cast

to use knobs allow one to adjust the seat height, depth, angle and tilt, as well as the height of the back and arm rests.

These seating options allow children to be more involved in a comfortable way. Parents and caregivers can be relieved in knowing that the child is safe and secure in a proper position. Positioning is an important aspect in the life of any child. The correct chair can facilitate physiological functions and promote independence. It is essential that consistent postural management is delivered to children with physical disabilities. Supported posture limits long-term health risks.

"If it weren't for the cast and brace, Morgan's hips would have popped back out of place and the surgeries would have been done for nothing," said Marty. "The cast prevented the movement of her hips and the brace prevented the joint and muscles from dislodging post-surgery when her body was in the final stages of healing."

Parents can take advantage of accessing helpful support materials that are readily available. There are many online resources that provide carefully screened information to help with the day-to-day management of challenges that may be associated with DDH. One such resource is The International Hip Dysplasia Institute's website (www.hipdysplasia.org), which offers information regarding causes, symptoms and treatment of DDH.

"Another great example is the practical tips on how to take care of a child in a Spica Cast to prevent skin breakdown and avoid soiling the cast during diaper changes," Smith said. "It is important for parents to become well-informed participants in the management process, and there are lots of helpful educational resources available to aid them. Preventing a problem is always easier than curing one. Helping to prevent an unstable hip from becoming fully dislocated or preventing secondary hip problems from developing in children with abnormal muscle tone will go a long way to improving the quality of life for everyone involved."

The vast majority of children treated for hip dysplasia have corrections that allow their bones to grow normally enabling them to walk, play, mature and lead active lives. Diagnosing and treating your child's DDH in infancy greatly increases the likelihood of a successful outcome. If your child is diagnosed with hip dysplasia, find a medical professional who has experience with diagnosis and treatment of DDH. Generally, this is a pediatric orthopedic surgeon.

"I advise parents to understand that hip dysplasia is a delicate condition," said Dr. Stankovits. "Every case has unique characteristics. Parents must be fluid in their expectations and ready to accept more extensive treatment. Even in the best of hands, there are children who will develop complications such as avascular necrosis, where the treatment causes a disruption to the hips' vital blood supply. That's why it's so vitally important to remember that the earlier DDH is treated the better."•

Things to be thankful for:

Hip dysplasia (DDH) isn't usually painful for babies and young children even when the hip is unstable or dislocated.

It's likely that your child's hip dysplasia has been discovered in time to do something about it.

Hip dysplasia is a pretty common condition with various degrees of involvement so most doctors are familiar with the problem.

Hip dysplasia is usually an isolated problem so there's not much worry that something else might be wrong with your child.

SOURCE: THE INTERNATIONAL HIP DYSPLASIA INSTITUTE

ABOUT THE AUTHOR:

Hope Arvanitis is a journalist living at the Jersey shore.

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