

Brachial Plexus Injuries

If your newborn's arm is noticeably weak or completely paralyzed, your child may have a brachial plexus injury.

Brachial plexus injuries are injuries affecting the network of nerves that control the muscles of the shoulder, arm, elbow, wrist, hand and fingers. Brachial plexus injuries can result in full to partial paralysis of one or both (bilateral) arms. Stretching, tearing or other trauma can cause injury to the nerves of the brachial plexus. Brachial plexus injuries often occur during the birthing process when one or both sides of the neck are stretched during delivery, and can also occur as a result of automobile, motorcycle, or boating accidents; sports injuries ("burners" and "stingers"); animal bites, gunshot or puncture wound; as a result of specific medical treatments/procedures/surgeries; or due to viral causes.

Brachial plexus injuries sustained during the birthing process are known as Obstetrical Brachial Plexus Injuries (OBPI), and those caused by other types of trauma are known as Traumatic Brachial Plexus Injuries (TBPI). Both types are also sometimes referred to as Erb's Palsy, Klumpke's Palsy or Brachial Plexus Palsy.

The mildest form of brachial plexus injury occurs when the nerves have been stretched. When the nerves have been torn (ruptured) or pulled out of their spinal "socket" (avulsed), surgical intervention may be the only hope for regaining functional use of the arm.

The First Weeks of Life

During the first few weeks of life, handle your baby's neck and arm carefully. Be aware of the positioning of your baby's arm, especially when you lift or carry him/her. Family, friends and caretakers will need to be taught that pulling or lifting by the arm can cause further injury and pain.

Doctors and Therapists

One of the first steps you may wish to consider is making an appointment with a Pediatric Neurologist experienced with brachial plexus injuries to define the nature of your child's injuries and whether or not there are any other complications.

Take your infant to see a physical or occupational therapist to learn how to do "Range of Motion" (ROM) exercises that you can do with each diaper change to keep your child's joints from becoming stiff. A regular schedule of therapy may also begin at this time. Choose a therapist that understands brachial plexus injuries (or is willing to learn by networking with others) and has experience at making splints.

Research the resources for a pediatric brachial plexus injury specialist. These are doctors who specialize in the treatment and repair of these types of injuries in babies. Their expert assessment of your child will define whether or not the injury is temporary or permanent and severe.

Timeframe for Recovery

The nerves of the brachial plexus originate in the neck – in the cervical spine. They branch down the arm all the way to the fingertips. When a nerve is severely injured, it has to regrow from the neck down the arm. Regeneration of nerves happen at a slow rate of one inch or three centimeters per month. As they regenerate, movements of the muscles associated with that nerve will begin to appear. At first they will be very weak and the child will use gravity as a helper. As the muscles get fully innervated (connection from nerve to muscle established), they will gain strength and move without the assistance of gravity.

A real turning point in your child's prognosis will be the presence or absence of biceps function at three months of age. Brachial plexus specialists worldwide agree that if a child does not have bi-

ceps function by that time, surgical repair is discussed.

Time is of the Essence

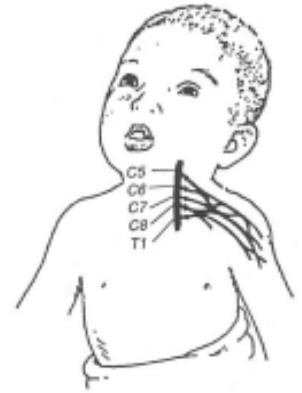
The timeframe for surgical repair is one of the most important factors impacting recovery. When a nerve is injured, it regresses back to its origin in the spinal column in the neck. Regeneration occurs at a slow rate of one inch (or 3 centimeters) per month and the nerves have to grow down the entire length of the arm. The problem experienced is that within 12 to 18 months of the injury, the muscles that have not already been innervated (connected to nerves) will have atrophied to the point where innervation is no longer possible. The smaller fine control muscles in the hand are in the most danger of being lost – because they are the furthest away from the origin of the nerves.

It is therefore very important to contact a pediatric brachial plexus injury specialist as early as possible so that appointments can be scheduled. Wait lists are common in the larger clinics.

The neurosurgical techniques most often used to repair a severe injury are: exploration of the brachial plexus nerves, testing the nerves to see if the brain is receiving messages from them (EMG), removal of the scar tissue that has formed around the nerve (neuroma), and if necessary, nerve grafting. This first surgery, or "primary surgery," is usually done between the ages of 6 weeks and 12 months depending upon the protocol of the clinic you choose and the severity of the injury.

Handling Medical Costs

Contact your health insurance company to see if



Nerves of the brachial plexus

they have a program for children with special needs. Your state may have programs that will give your child access to free or low cost in-home therapies. In some states it is called Early Intervention (EI) for ages 0-three. Medicaid programs may be an option for free or low-cost secondary insurance.

Your health insurance may cover travel to out-of-state clinics. If not, free or discounted medical airfare is available from many airlines. (*See the 2nd website listed in this brochure.*)

Emotional Support

Emotions can be strong during the first few years of your child's life following a brachial plexus injury. The best support can come from a counselor who is experienced in the issues of having a child with special needs, and from other families experiencing similar challenges. A local support group can be very helpful for the entire family. In addition, there are some very good Internet sites to visit and gain support and information from. Anger, sadness and grief are normal and important feelings, and there are resources and support available to help you and your family move through these emotions.

Internet Resources

www.ubpn.org

The website of the United Brachial Plexus Network, Inc. is the largest brachial plexus website to be found and contains a wealth of information, a listing of brachial plexus specialists and clinics, and message boards where parents and individuals affected by brachial plexus injuries meet daily to discuss and share. UBPN is a leader in brachial plexus injury awareness with their Annual International Brachial Plexus Injury Awareness Week. Informational materials are available for those without Internet support. Call toll-free at 1-866-877-7004.

www.injurednewborn.com

The website of the Families for the Prevention of OBPI started as a parent's journal of their daughter's surgeries. It has grown into a prevention site with a solid resource page that also has links to family websites. Pages include information on splinting,

electrical stimulation, nationwide gatherings, a section on two types of surgeries with full-color pictures, how to get free medical airfare, discounted hotels and a lot of information about the nation's largest brachial plexus clinic, Texas Children's Hospital.

www.erbsplace.org

This is a fine brachial plexus site belonging to the National Brachial Plexus/Erb's Palsy Association, Inc. that has a tremendous amount of resource links, a chat room, an email list-serve to get updates on new links, a parent-to-parent matching service, and a children's ambassador program.

Glossary of Terms

Atrophy: A wasting away, in the size of a cell, tissue, organ or part.

Brachial Plexus: A network of lower cervical and upper dorsal spinal nerves supplying the arm, forearm and hand.

Electromyography (EMG): A test in which a small needle is inserted, to record electrical activity of the muscles.

Horner's Syndrome: A nerve condition which involves a drooping eyelid (ptosis), constricted pupil, enophthalmos (sunken eyeball) and lack of sweating on one side of the face.

Multidisciplinary Team: A team of medical professionals that work together to support the patient; a multidisciplinary team for brachial plexus specialization would include a pediatric neurologist, rehabilitation physician, and specialized and experienced surgeons.

Neurologist: A physician who diagnoses and treats disorders of the nervous system.

Occupational Therapist: A health care professional who provides services designed to restore self-care, work, and leisure skills to patients who have specific performance incapacities or deficits that reduce their abilities to cope with the tasks of everyday living.

Physical Therapist: A rehabilitation professional who promotes optimal health and functional independence through the application of scientific principles to prevent, identify, assess, correct, or alleviate acute or chronic movement dysfunction, physical disability, or pain.

Torticollis: A contracted state of the cervical muscles, producing twisting of the neck and an unnatural position of the head.

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A 501(c)3 Non-Profit Organization
with International Interests

The United Brachial Plexus Network strives to inform, support and unite families and those concerned with brachial plexus injuries worldwide

Information for Parents of a Newborn with a Weak or Paralyzed Arm

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