



Brachial Plexus Injury

The brachial plexus (BRAY key el PLEK sis) is a group of nerves that starts in the spinal cord at the neck and controls the hand, wrist, elbow and shoulder. The nerves signal these parts of the body to move and to feel (Picture 1).

What causes brachial plexus injury

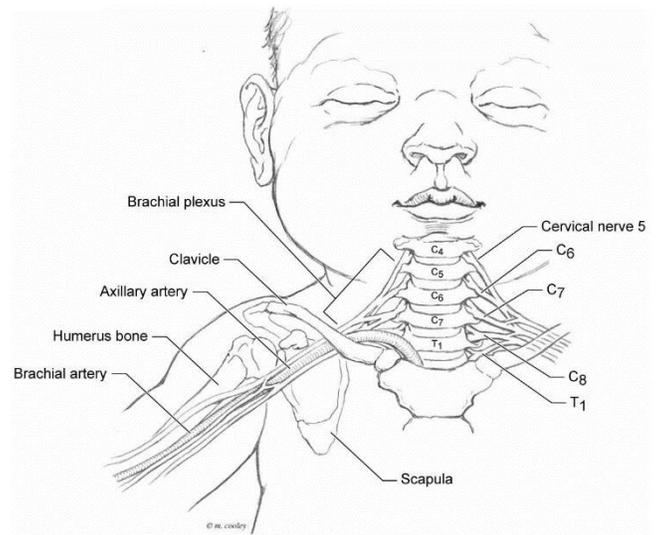
In most cases an injury happens to the baby during birth. It can happen for several reasons.

The main cause is the birth of a large baby through a small birth passage (Picture 2).

Also, if the baby has trouble breathing or is in a hard birth position, the doctor may have to use tools to help deliver the baby. In any of these cases, a brachial plexus injury may occur if the neck and shoulder of the baby is stretched in the delivery (shoulder dystocia – dis TO se ah).

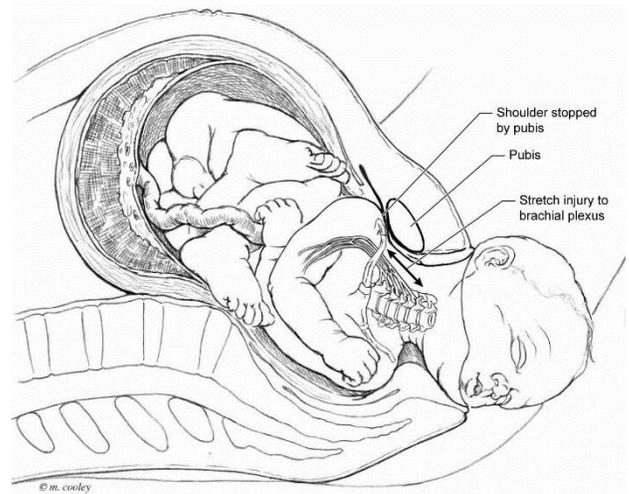
An injury to the brachial plexus causes problems with the messages the nerves send to the shoulder, arm or hand on that side of the body.

Car accidents, sports injuries or falls may cause brachial plexus injuries in an older child.



Picture 1 Brachial Plexus

Picture 2 Brachial plexus injury during birth



Symptoms

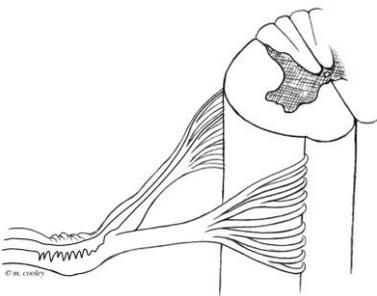
Your child may have all or only some of the following symptoms on the side of the injury:

- Limited or no movement in the shoulder, arm and hand
- Muscle weakness or a limp arm
- Loss of feeling in the shoulder, arm and hand
- Drooping eyelid
- Constricted (smaller) pupil in the eye
- A smaller and shorter arm

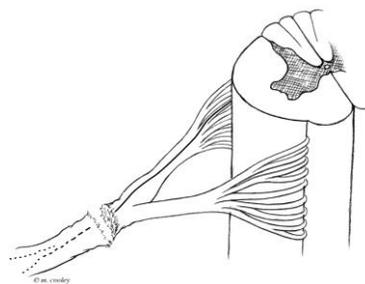
Types of nerve damage

There are several levels of nerve damage.

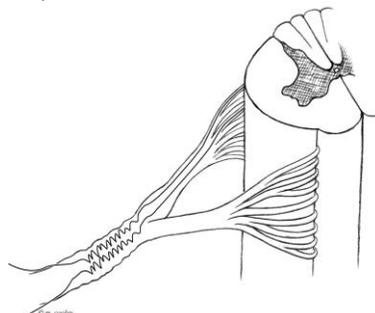
- **Stretch** (neuropraxia, ner-ro-PRAK-see-ah): The most common and mildest form of nerve injury. The nerve has been stretched and damaged but not torn. It generally heals on its own in four to six weeks. Children with this type of injury usually recover fully from the injury (Picture 3).
- **Tear** (rupture): The nerve is torn, but not where it attaches to the spinal cord. Children usually require surgery (Picture 4).
- **Scar** (Neuroma, ner O ma): A scar may form in a stretch or tear type of injury. Some healing of the nerve may happen without surgery (Picture 5). If healing does not happen, surgery may be required.
- **Avulsion** (ah-VUL-shun): The nerve root is torn from the spinal cord. Avulsion is the most serious nerve injury and early surgical treatment is necessary (Picture 6).



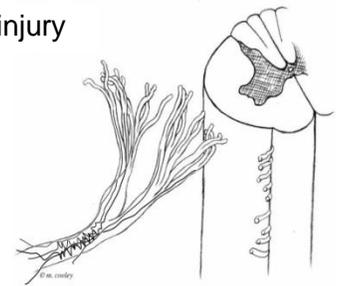
Picture 3 Stretch



Picture 4 Tear injury



Picture 5 Scar injury



Picture 6 Avulsion

Positioning your infant

- Do not be afraid to gently move your child's arm.
- Pick up your child by supporting him/her under the hips, behind the shoulder blades and under the head.
- When dressing him or her, place the affected arm into clothing first to avoid overstretching the arm.
- For sleeping, place your baby on the back and place a rolled towel or small blanket under the unaffected side.
- Hold your baby on both sides during feedings and throughout the day so the baby has practice turning his or her head toward both sides.
- Position your child to turn the head toward the affected arm. Place toys and mirrors on your child's affected side so the child will turn the head to look at them.
- Place your child on the tummy a few minutes every day to help the child get stronger (See HH-II-173, Tummy Time).

Treatment of brachial plexus injury

Your child's treatment will depend on the injury.

Over the first 3 months, our team will care for your child with special exercises through occupational and physical therapy and team check-ups to decide the best treatment plan. (See HH-II-186, *ROM exercises*).

If your child has a very mild injury, he or she may recover completely in the first 1 to 2 months. The child will have a normal arm and will not likely need any further treatment.

If your child has a moderate form of nerve injury (tear or scar), the child usually recovers some arm function with time and exercises. Therapy exercises to stretch the arm are very important so the muscles do not get stiff. At each visit, we will watch for specific improvements in your child's arm movement and make sure the arm is not getting stiff. If use of the arm does not get better with time and exercises, your child may need surgery. This will usually be done around 6 to 9 months of age.

If your child has a severe nerve injury, surgery will usually be needed around the age of 3 months. The surgery will give improved movement and feeling to the arm. However it usually takes 1 to 2 years to see the final results. Sometimes other treatments are needed to help your child get and keep full use of the arm. Those may include splints, casts or Botox injections.

If there are any problems or if you have any questions, please call the clinic at (614)-722-6449.