Brachial Plexus Injury in Infants

What is the brachial plexus?

The brachial plexus is a group of nerves that begins in the neck and gives feeling and movement to the shoulder, arm, forearm, and hand. Signs of damage in this area include: a limp arm or an arm with no muscle control in the shoulder, arm, or hand. Infants may also lack feeling in their hand and arm. These kinds of injuries in infants are not painful.

What is a brachial plexus injury?

Brachial plexus injuries are caused when these nerves are stretched during the birth of a child. Damage to the nerves occurs in 0.38 to 3.6 per 1000 live births. Eight to twenty-three percent of these infants have nerve damage on both sides of the body. Ninety-three percent of these infants get much of their function back by three months of age when treated with therapy or when they are just watched. This is a good sign that these infants will do well in the future. These children likely will not need surgery.

How are brachial plexus injuries treated?

A small number of infants with this type of problem will need surgery; Therapy before and after surgery will improve long term results.
How do you measure the extent of a brachial plexus injury?

The tests listed below may be done before, during, or after surgery to show the extent of the child’s nerve damage.

**EMG (electromyography)** measures how the nerve and muscle work together.

**SSEPs (somatosensory evoked potentials)** measures how the nerve communicates between the spinal cord and brain.

**NAPs (nerve action potentials)** tests for nerve conduction across the injured site.

**Myelogram CT (myelogram computer tomography)** measures spinal cord and nerve root damage by taking x-rays after a dye is injected into the spinal cord.

**MRI (magnetic resonance imaging)** provides a detailed picture of the spinal cord and nerve roots.

What type of brachial plexus injury can occur?

A stretch injury may cause three types of damage. Your child may have one type or a combined injury.

**Avulsion**
The nerve root separates from the spinal cord. This problem will not repair itself without surgery.

**Neuroma-in-continuity with good conduction**
This is from damage to the nerve, but a message still travels through it. The nerve will grow back over time.
**Neuroma-in-continuity without conduction**
There is damage to the nerve, and messages are not able to travel through it. The nerve will need to be repaired with surgery.

In most cases, it is only during surgery that we can tell if a message is able to travel through damaged nerves or not.

**Types of Repair**

*External Neurolysis*
the surgeon removes the scar tissue around the nerve.

*Nerve Grafting*
The damaged part of the nerve is removed or bypassed and replaced with a nerve graft. A nerve graft is taken from the leg, arm, or neck at the time of surgery.
Neurotization
A nerve from another place in the body, such as the diaphragm, the neck, or the chest wall, is used to repair the damaged nerve.

Before Surgery
You will be taught how to prepare your child for surgery at a clinic visit.

After Surgery
After surgery, your child will stay in the hospital a few days. The surgical arm will be fastened to the chest with an ace wrap or sling for a couple of weeks so that it cannot be moved. Therapy will begin in 2 weeks and will last for many months.

The nerve recovery takes many months or up to a year. The nerve grows back about one inch per month.
When to Call Your Surgeon(s) or Nurse Practitioner

Call us if your child has any of these signs or symptoms.
- Redness, pain, swelling, or drainage at the incision site
- Fever greater than 100.5°F
- Change in color, temperature, or feeling in the arm or hand

Please call your surgeon(s) or nurse practitioner with any questions or concerns.

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