Thoracic Outlet Syndrome (TOS), Winged Scapula, Brachial Plexus Compression

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DELLON INSTITUTES FOR PERIPHERAL NERVE SURGERY®

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YOUR COMPLAINTS ARE

Aching or pain in the shoulder.

Numbness and tingling in any or all fingers.

Doing any work with the hand over the head makes your symptoms worse.

Gradual loss of strength in the hand/arm.

Coldness in the hand or fingers.

Headaches, cheek or facial pain, TMJ pain may be present.

Your hand may swell.

WHAT CAUSES YOUR COMPLAINTS?

Five nerve roots from your cervical (neck) spine criss-cross and rejoin again to form a switch-yard of nerves called the *Brachial Plexus* in the side of your neck.

The brachial plexus enters the arm by crossing through neck muscles that can become a source of compression.

Raising the arm above the head further stretches these nerves, decreasing their blood flow, and causing symptoms.

Some people are born with an extra cervical rib in the middle of the brachial plexus.

TREATMENT WITHOUT SURGERY

Alter your activities so you do not put your hands overhead, and have better posture when typing (computer).

Strengthen your shoulder girdle muscles (trapezium, rhomboid, serratus anterior).

Stretch your tight neck muscle (anterior scalene).

Be sure there are no other problems present on your chest x-ray that could cause pressure on your brachial plexus (tumor).

Be sure you do not have a cervical disc problem.

WHEN SHOULD I HAVE BRACHIAL PLEXUS SURGERY?

When six months of guided physical therapy have not helped.

When vascular surgery testing demonstrates compression of the subclavian artery or vein, which also goes through this region, and can cause hand swelling or coldness.

When your symptoms persist despite surgical decompression of any coexisting carpal or cubital tunnel syndrome. (Please see the *Carpal Tunnel* and *Cubital Tunnel* brochures for more information.)

WHAT IS THE SURGERY LIKE?

The surgery takes two hours.

The surgery requires a one night stay in the hospital to observe for problems with breathing or bleeding.

General anesthesia is used.

A two inch incision is made in the neck, above the collar bone.

All structures that compress the brachial plexus are removed, which always includes the anterior scalene muscle. In the Dellon-approach, a first rib is not usually removed.

If there is an extra rib (cervical rib), then it is removed.

If there is scarring, then microsurgery can be done to remove this. This is usually required for the supras-capular nerve to the shoulder.

If there is winging of the scapula, then special attention is paid to a neurolysis of the long thoracic nerve.

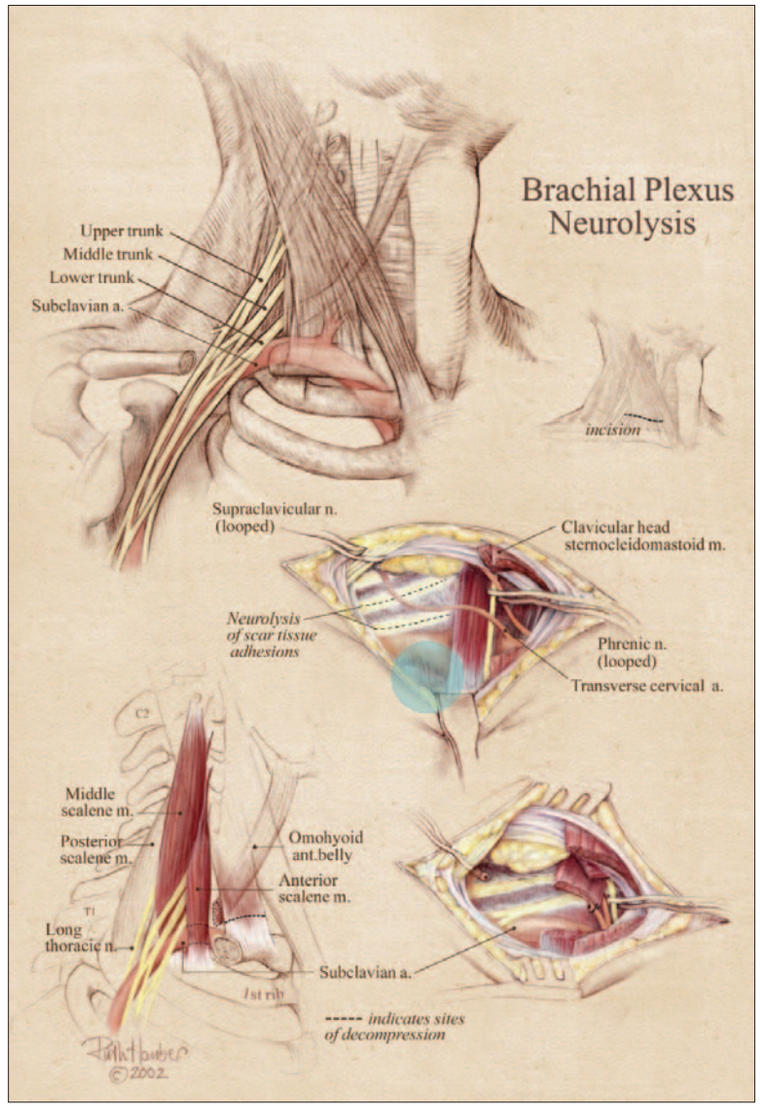
A drain is put in your incision, and removed the next day.

You have immediate use of your hand and arm.

Headaches and facial pain are often relieved the 1st week.

There may be residual numbness in your hand for three months.

WHAT DOES THE NERVE LOOK LIKE?



In the brachial plexus, the five nerve roots from the neck separate into the main nerves for the entire shoulder, arm, and hand. The nerves cross through muscles and go across the ribs and under the collar bone. The main artery and vein to the arm also travel part of this path with the nerves.

TOP RIGHT
The incision for this surgery is shown.

BLUE DISK
The anterior scalene muscle is removed to relieve pressure on the nerves of the brachial plexus and on the subclavian artery and vein. The subclavian artery and vein are pictured bottom right.

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WHAT ARE THE RISKS OF SURGER?

The published outcomes of the Dellon-approach to the treatment of brachial plexus compression in the thoracic inlet (thoracic outlet syndrome) offer the best success for relief of your symptoms. There are risks associated with every surgical procedure, such as the risk of anesthesia, bleeding and infection. Complications unique to decompression of the brachial plexus are:

Transient loss of phrenic nerve function (difficulty breathing can occur, especially in smokers).

Bleeding from the major blood vessels to the arm/hand.

The lung can collapse (pneumothorax), requiring a chest tube to evacuate air, and reinflate the lung.

There can be direct injury to branches of the brachial plexus.

There may be remaining numbness in your fingers.

WHO SHOULD DO THIS SURGERY?

Surgeons from the *Dellon Institutes for Peripheral Nerve Surgery*® have the most advanced training and experience doing this surgery, which offers you the best chance for success.

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