

Guyon's Syndrome

Introduction Guyon's canal syndrome is a common nerve compression affecting the ulnar nerve as it passes through a tunnel in the wrist called Guyon's canal. This problem is similar to carpal tunnel syndrome, but involves a completely different nerve! Sometimes both conditions can be causing a problem in the same hand.

Anatomy The ulnar nerve actually starts at the side of the neck, where the individual nerve roots exit the spine through small openings between the vertebra called foramen. The nerve roots then join together to form three main nerves that travel down the arm to the hand. The ulnar nerve is one of those nerves. After leaving the side of the neck, the ulnar nerve then travels through the arm pit, down the arm to the hand and fingers. As it crosses the wrist, the ulnar nerve and artery run through the tunnel known as Guyon's canal.



This tunnel is formed by two bones, the pisiform and hamate - and the ligament that connects them. After passing through the canal, the ulnar nerve branches out to supply feeling to the little finger and half the ring finger. Branches of this nerve also supply the small muscles of the hand. This syndrome is much less common than carpal tunnel syndrome (CTS), but may be present along with CTS. The ulnar nerve supplies sensation to the little finger and half of the ring finger, and if these fingers are involved in any

symptoms of numbness, compression of the ulnar nerve in Guyon's canal may be present. It is critical that the area of compression be localized to either the wrist (Guyon's canal), or the elbow (cubital tunnel), by physical examination and electrical studies prior to deciding on a treatment plan.

Causes

Overuse of the wrist, especially in tasks bending the wrist down (flexing) and out, or put constant pressure on the palm may cause Guyon's canal syndrome. Arthritis that involves the wrist bones and joints may eventually result in compression of the ulnar nerve and the symptoms of Guyon's canal. In some (fairly rare) cases, the ulnar artery that runs right beside the nerve may be damaged and clot off. This can result in symptoms arising from the nerve that are just like Guyon's canal syndrome. This probably occurs due to irritation on the ulnar nerve.

Another uncommon cause of ulnar nerve compression at the wrist may be the symptoms may be caused by a fracture of one of the small bones of the wrist. One of the bones (the hamate bone) that actually forms one side of Guyon's canal has a small spur that sticks out for attachment of several ligaments in the wrist. This spur is called the hook of the hamate bone. This small spur can be broken off. These fractures sometimes occur in golfer's from hitting the ground instead of the golf ball, or in baseball player's while batting. If the spur begins to rub on the nerve, It may cause the symptoms of ulnar nerve compression.

Symptoms

Usually, no matter what the cause of the compression on the ulnar nerve, the symptoms are the same. The symptoms begin with a feeling of pins and needles in the ring and little finger, starting in

the early morning before waking. This progresses to a burning pain of the wrist and hand, followed by decreased sensation and eventually clumsiness in the hand. Remember that the ulnar nerve also supplies many of the small (intrinsic) muscles of the hand. The clumsiness occurs because of weakness in these muscles. The weakness can show up as the inability to spread the fingers, and may include a weak pinch in the thumb.

Diagnosis

The diagnosis of Guyon's canal syndrome begins with a careful history and physical examination by your doctor. Compression can occur at several areas along the ulnar nerve, and your doctor will want to find exactly where the nerve is being affected. If it is unclear on the physical examination where the point of compression is, electrical studies may be ordered to try and find the area of compression. The Nerve Conduction Test(NCV) measures how fast nerve impulses travel along the nerve and may be ordered to pin point your problem. Special tests may be required to study the nerve. The NCV is sometimes combined with an electromyogram (EMG). The EMG is done by testing the muscles of the forearm that the ulnar nerve controls. Special instruments can be used to determine if the muscles are working properly or not. If the muscles are not working properly, then the nerve may not be working well. (This is similar to checking to see if the wiring on a lamp is faulty by plugging in a new light bulb. If you know that the bulb is good and it doesn't work, then something must be wrong with the wiring!)

Treatment

Take frequent breaks or limit the amount of time you are performing tasks that require flexing and turning out the wrist, or place constant pressure on the palm. A wrist splint may be worn at night to decrease the pins and needles sensation. Keyboard operators may find that a wrist rest decreases the symptoms.

Anti-inflammatory medications(such as ibuprofen or aspirin) may be suggested by your doctor. If simple measures fail to control your symptoms surgery may be needed to relieve pressure on the ulnar nerve. Surgery involves making a small incision along the course of the ulnar nerve in the skin of the palm. The ligament that forms the roof of Guyon's canal is then cut to relieve the pressure on the nerve. This results in the tight ligament springing open a bit. Once the ligament is cut the nerve is usually free of pressure. The nerve is then freed of all other soft tissue which may be causing pressure and irritation. The skin is then sutured and allowed to heal. The ligament that makes up the roof of the canal will eventually heal back, but the canal will be larger than before,

because it will heal back in the more open position. Scar tissue will simply fill the gap where the ligament was cut.

This surgery can usually be done as an outpatient. The surgery can be done using a general anesthetic (where you are put to sleep) or some type of regional anesthetic. A regional anesthetic is a type of anesthesia where the nerves going to only a portion of the body are blocked. Injection of medications similar to novocaine are used to block the nerves for several hours. This type of anesthesia could be an axillary block (where the arm is asleep) or a wrist block (where only the hand is asleep). The surgery can also be performed by simply injecting novocaine around the area of the incision.