Entrapment neuropathies are common clinical entities

- Among the most prevalent are median nerve entrapment at the wrist and ulnar nerve entrapment at the elbow.

- "Other nerve entrapments and their presenting syndromes pose more difficult diagnostic challenges and may often be confused with more common clinical conditions."
  

- The presence of a fascia could explain the suprascapular nerve entrapment.

- In pathologic and post-trauma conditions, the fascia can be retracted or thickened and the suprascapular nerve may be entrapped along its course in the supraspinatus fossa, between the suprascapular notch and the spinoglenoid notch."


Fibrous bands structures

- "We suggest that certain fibrous and muscular structures could also be an anatomical basis for supraclavicular nerve entrapment syndrome."

Fibrous tunnel within the medial intermuscular septum

“...the ulnar nerve (UN) passes through a fibrous tunnel within the medial intermuscular septum into the posterior compartment of the upper arm in more complicated patterns than those described in anatomy textbooks. Given that these unreported patterns might be related to the idiopathic (UN) entrapment at the midarm”


Primary ulnar entrapment neuropathy in the midarm

“Stimulation of the ulnar nerve showed a motor conduction block at a distance of 7.5-10 cm proximal to the medial epicondyle, where the nerve was compressed by the medial intermuscular septum.”


Thickening of brachial fascia

“The authors report two anatomic cases of median nerve entrapment, which can be one of the causes of carpal tunnel syndrome. The first case was the thickening of brachial fascia that resembles the Struther’s ligament. The second case was the thickening of the bicipital aponeurosis.”


Mechanical compression where the nerve pierces the fascia

“Superficial peroneal nerve syndrome is an entrapment neuropathy that results from mechanical compression of the nerve at or near the point where the nerve pierces the fascia to travel within the subcutaneous tissue.”

Superficial peroneal nerve

Deep fascia entrapment

Around the nerve there are always fat and loose connective tissue.

Layers

physiology

- *longitudinal movement of nerve*

Loose connective tissue: GAG, adipose tissue, hyaluronic acid

The larger nerve fibres are often surrounded by different layers of loose connective tissue that preserves the nerve from traction to which the fascia is subjected.
“Fibrosis and adhesions, impairing intrafascicular gliding. This loss of intrafascicular gliding creates an internal stretch lesion.”


Increase of the viscosity of the loose connective tissue

All the nerves for the skin have to cross the superficial fascia. Could damage of the superficial fascia explain some alterations of the cutaneous sensibility?

Superficial peroneal nerve

Femoral-cutaneous nerve

Superficial fascia and nerves
Diagnosis

"In vivo studies using diagnostic ultrasound (DUS) demonstrate that this type of imaging is a valid tool for use in measuring longitudinal and transverse movement of nerve tissue."


Surgical decompression superficial peroneal nerve

- Before
- After

THERAPY

- Surgical
  - Surgical decompression by splitting the fascia
- Conservative
  - Soft tissue mobilization
Physical Medicine and Rehabilitation

“This is potentially a first-time report describing physical therapy management of entrapment mechanical interface with pain modalities, soft tissue mobilization, and neural mobilization. Reduction of pain was noted in this patient (VAS score of 0 cm by the sixth session) with complete pain resolution maintained at a six-month follow-up.”


Fascial Manipulation®

A randomized controlled trial was performed to compare the effectiveness of Fascial Manipulation® (FM) and Low-Level Laser Therapy (LLLT) for CTS. The group that received FM showed a significant reduction in subjective pain perception and an increased function assessed by BCTQ at the end of the treatment and follow-up. The group that received LLLT showed an improvement in the BCTQ at the end of the treatment but the improvement level was not sustained at the three month follow-up. FM is a valid alternative treatment for CTS.


We believe that this will be the begin of many future articles!

Thank you