NEUROPATHIC PAIN THERAPY
(Neural Prolotherapy)
REGIONAL ANATOMY
UPPER EXTREMITIES
MASTER CLASS 2013
Dr John Lyftogt MD
Haymaker and Woodall
peripheral regional sensocrine distribution
Figure 2.1 An illustration of the peripheral sensory nerve territories of the human body. 

*Left panel, anterior body:* A – greater auricular nerve; B – anterior cutaneous nerve of neck; C – supraclavicular nerves; D – medial cutaneous nerve of arm and intercostobrachial nerve; E – medial cutaneous nerve of the forearm; F – radial nerve; G – median nerve; H – ulnar nerve; I – iliohypogastric nerve; J – genital branch of genitofemoral nerve; K – scrotal branch of perineal nerve; L – obturator nerve; M – lateral cutaneous nerve of calf; N – superficial peroneal nerve; O – sural nerve; P – medial and lateral plantar nerves; Q – deep peroneal nerve; R – sapenous nerve; S – intermediate and medial cutaneous nerves of the thigh; T – lateral cutaneous nerve of the thigh; U – dorsal nerve of penis; V – femoral branch of genitofemoral nerve; W – ilioinguinal nerve; X – lateral cutaneous nerve of forearm; Y – lateral cutaneous nerve of arm; Z – axillary nerve. 

*Right panel, posterior body:* A – greater and lesser occipital nerves; B – anterior cutaneous nerve of neck; C – axillary nerve; D – medial cutaneous nerve of arm and intercostobrachial nerve; E – lateral cutaneous nerve of forearm; F – medial cutaneous nerve of forearm; G – posterior cutaneous nerve of forearm; H – radial nerve; I – median nerves; J – ulnar nerve; K – inferior medial clunical nerve; L – obturator nerve; M – medial cutaneous nerve of thigh; N – lateral cutaneous nerve of calf; O – sural nerve; P – calcaneal branches of sural and tibial nerves; Q – superficial peroneal nerve; R – saphenous nerve; S – posterior cutaneous nerve of thigh; T – lateral cutaneous nerve of thigh; U – inferior lateral cutaneous nerve; V – iliohypogastric nerve; W – lower lateral cutaneous nerve of arm; X – posterior cutaneous nerve of arm; Y – supraclavicular nerves; Z – greater auricular nerve. (Illustration by Scott Rogers, based on previous illustrations by Haymaker and Woodall [254].)
Encyclopedia Anatomica 1771
Sensocrine nerve anatomy
BRACHIAL PLEXUS

Note the medial brachial and antebrachial branches.
SUPRACLAVICULAR FOSSA
Proposed mechanism of ‘whiplash injury’
Neuropraxia/intussusception injury of the supraclavicular nerves
L Supraclavicular Nerves CCI’s
POSTERIOR SUPRACLAVICULAR NERVE
POSTERIOR SUPRACLAVICULAR NERVE
INTERMEDIATE SUPRACLAVICULAR NERVE
Encyclopedia Anatomica 1771
Sensocrine nerve anatomy
MEDIAL SUPRACLAVICULAR NERVE

“Tietze syndrome” and “Costo-chondritis”
“FROZEN SHOULD”
Suprascapular Nerve Impingement

The suprascapular nerve is derived from the upper trunk of the brachial plexus from the roots of C5 and C6.

The nerve supplies the supraspinatus muscle and provides articular branches to the glenohumeral and acromioclavicular joints.

It supplies sensory and sympathetic fibers to two-thirds of the shoulder capsule.

Usually there are no sensory fibers to the skin. The nerve then winds around the base of the scapular spine to supply the infraspinatus muscle.

In about 50% of people there is another connective tissue band creating a second fibro-osseous opening for the nerve to traverse.
"FROZEN SHOULDER"

Suprascapular Nerve Impingement

The suprascapular nerve is derived from the upper trunk of the brachial plexus from the roots of C5 and C6.

Right Supra-scapular Nerve Impingement (C5,6)

This illustration features a posterior view of the deep muscles of the shoulder. The course of the supra scapular nerve is shown.

A rotator cuff tendon and ‘cyst’ has trapped the supra-scapular nerve.
RADIAL NERVE
“Tennis elbow”
Radial nerve CCIs
Spalteholz
Radial nerve
CCI in
Lateral
intermuscular septum
Musculocutaneous nerve

CCIs
Posterior shoulder with posterior-superior brachial nerve and costo-brachial nerves
Netter: Posterior shoulder
Cutaneous Innervation of Upper Limb

Anterior view

- Supraclavicular nerves
- Axillary nerve
  - Superior lateral brachial cutaneous n.
- Radial nerve
  - Inferior lateral brachial cutaneous n.
- Lateral antebrachial cutaneous nerve
  - (termination of musculo-cutaneous n.)
- Radial nerve
  - Superficial branch
- Ulnar nerve
  - Palmar branch
  - Palmar digital branches
  - Dorsal branch and dorsal digital branches
  - Proper palmar digital branches
- Median nerve
  - Palmar branch and palmar digital branches

Posterior view

- Supraclavicular nerves
- Axillary nerve
  - Superior lateral brachial cutaneous n.
- Radial nerve
  - Posterior brachial cutaneous n.
- Radial nerve
  - Inferior lateral brachial cutaneous n.
- Lateral antebrachial cutaneous nerve
  - (termination of musculo-cutaneous n.)
- Radial nerve
  - Superficial branch and dorsal digital branches
- Ulnar nerve
  - Proper palmar digital branches
- Median nerve
  - Proper palmar digital branches

Note: division between ulnar and radial innervation on dorsum of hand is variable; it often aligns with middle of digit III instead of digit IV, as shown.
Posterior shoulder

Fig. 2.10  Muscles of the posterior wall of the left axilla, from the front. The long head of triceps passes behind teres major, making adjacent to the humerus a quadrangular space (for the axillary nerve) and a triangular space (for the radial nerve). Compare with Figure 2.16.
Nerves of the arm
Medial brachial and antebrachial nerves

“Golfers elbow” or “Throwers elbow”
LEFT MEDIAL BRACHIAL AND ANTEBRACHIAL NERVES AND CCIs
Medial elbow with Bicipital Aponeurosis with risk of CECS
Left Lateral elbow (tennis elbow)

Anconeus and posterior antebrachial nerves arise from the Radial nerve and the lateral antebrachial nerve arises from the Musculocutaneous nerve
US/CD COMMON EXTENSOR TENDON
BEFORE AND AFTER SEVEN NEURAL PROLOTHERAPY TREATMENTS
21/11/2008                               21/01/2009

US/DOPPLER IMAGING OF NEURO-ANGIOGENESIS
Radial, Median and Ulnar palmar nerves of the left wrist
“Carpal tunnel syndrome”, “OA base thumb”
“De Quervain syndrome”

Musculocutaneous and Radial cutaneous branches
Hi John,
I treated a 75yo patient recently who presented with 2-month history of post-herpetic neuralgia. He was treated with Gabapentin but there was still pain, itchiness and alldynia over Rt anterior neck and upper chest wall. I did neuroprolo at Rt posterior and medial scapular nerves for him. After 2 treatment, pain/itchiness/alldynia were all gone.
Cheers,
Brian Tsang
Well John, it is now one month since the workshop (Brisbane) and I must say that it has been a very different month to the one before it! Many thanks, once again for a wonderful workshop. My increased use and understanding of Neural Prolotherapy has taken my practice to a whole new level. I have been trying to utilise the technique in most consultations with the finding that the Mannitol seems to reduce symptoms by approx. 25% per week (some by 50-70%). My overall success rate in achieving significant reduction in symptoms is 80-90% in a group of approx. 35 patients. This is all without side-effects (except minor post-injection soreness and bruising – and a callous on my right 3rd finger from doing so many injections!). I had a skin flare in one patient, but I realised I had injected her with 10% Mannitol by mistake. There have been no post-treatment pain flare-ups. Compare that to trigger point injections, which cause 2-3 days of soreness, deep bruising etc. I have only done a handful of deep tpi’s this month – I am concerned I’ll lose my touch! Most of the deep tpi’s have been performed using M5W and have been performed if the apparent pain due to that trigger point does not resolve with several NPT Rx’s – especially in shoulder region.