

ANAESTHESIOLOGY

Waves of hope

The use of ultrasound-guided treatment has revolutionised chronic pain intervention and gained popularity over the years, as it does not expose the patient or the practitioner to harmful radiation.



Dr Wilson Tay
*Anaesthesiologist
& Pain Specialist*

During ultrasound scanning (or sonography), a transducer is used to send high-frequency sound waves, which are inaudible to the human ear, into the body. These waves bounce off organs, muscles and tissues, creating echoes that are collected by the transducer and converted into images on an ultrasound machine. Other than being a common device used by obstetrics and gynaecology doctors to monitor the growth and take pictures of unborn babies, ultrasound also serves other medical purposes.

Traditionally, ultrasound was mainly used for diagnostic purposes and to guide needle biopsy. Ultrasound allows its operator to capture real-time images of the structure and movement of the body's internal organs, ligaments, joints as well as blood flowing through blood vessels. This versatility allows the use of ultrasound to guide therapeutic procedures such as joint or ligament injections, biopsy of nodules, and insertion of intravascular monitoring lines.

Managing pain

Pain is the common denominator of many medical conditions, and it can adversely affect a person's quality of life. Apart from physical discomfort and disruption to daily activities such


as sleeping and eating, pain often leads to emotional distress. Above all, pain that is not well controlled can develop into chronic pain.

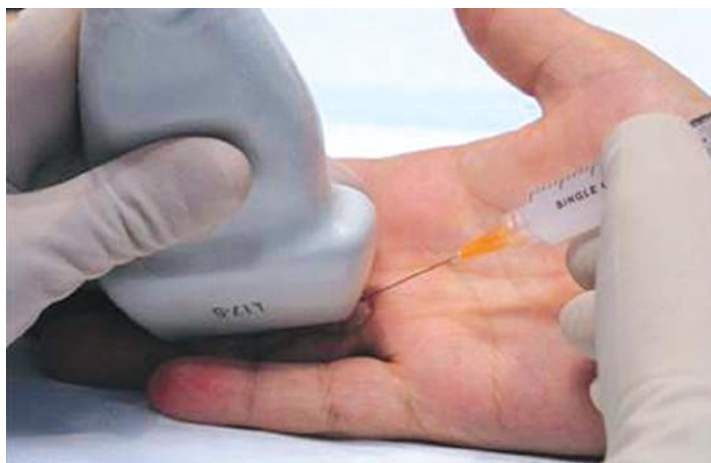
Compared to conventional landmark or palpation techniques for injection medications, ultrasound greatly improves the accuracy of these injections to target areas such as nerve, muscle, tendon and ligament. As these structures are radiolucent and not seen under fluoroscopy (X-rays), the use of traditional fluoroscopic-guided techniques to guide these injections has its limitations. Ultrasound guidance of infiltrations in the management of chronic pain allows the physician to make visual the advance of the needle and the diffusion of the analgesic agent in and around the pain-generating region. Besides precision, ultrasound-guided injections are also safer since important structures such as blood vessels can be identified and avoided to prevent intravascular puncture and other complications.

In recent years, there has been an increased use of ultrasound-guided injection techniques – such as stellate ganglion block, piriformis muscle injection, pudendal nerve block, intercostal nerve

block, facet joint injections and deep trigger point injections – to relieve chronic pain. The portability of the ultrasound machine also means that some of these procedures can be done at an outpatient clinic instead of a hospital, which brings cost savings without compromising the quality of treatment.

A patient of mine, who suffered from sciatica-like pain (pain radiating from the back, hip and down the leg caused by compression of a spinal nerve root in the lower back), showed no signs of lumbar nerve root impingement following a lumbar spine MRI (Magnetic Resonance Imaging) test. He was subsequently diagnosed with piriformis syndrome during clinical assessment – his tight piriformis muscle was irritating the sciatic nerve below it, causing the symptoms to mimic nerve root compression. After receiving an ultrasound-guided injection into his piriformis muscle trigger points and a few sessions of physiotherapy to stretch and condition his muscles, the patient's symptoms were completely resolved.

As ultrasound scanning does not use ionising radiation (as used in X-rays), it is a modality that prevents both the patient and the one carrying out the procedure from being exposed to radiation. However, ultrasound is not suitable for certain chronic pain interventions such as intradiscal procedures. With the numerous research journals that acknowledge the efficacy of ultrasound-guided procedures as well as strong recommendations from both doctors and treated patients, the use of ultrasound to guide chronic pain injections could become a common practice in the near future. 



Apicare Pain Specialist Pte Ltd

1 Farrer Park Station Road
#14-09/10 Farrer Park
Medical Centre Connexion
Singapore 217562
Tel: 6513 3383
www.drtywilson.com