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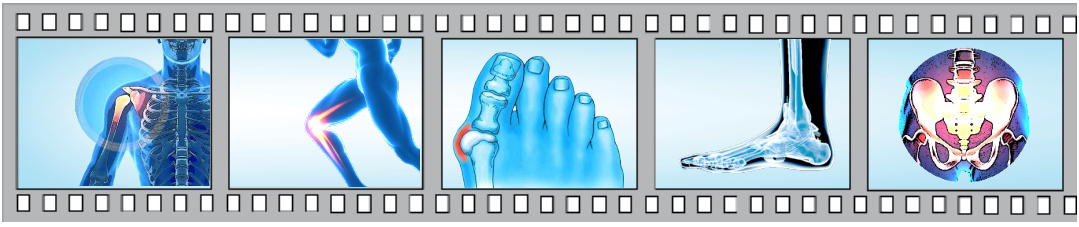
Interventional Pain Management



Pain is a multidimensional experience. Chronic pain differs from acute pain in that it lasts for more than 3-6 months, and there may not be obvious tissue injury leading to the pain. The pathway leading from stimulus to perception may be sensitised [1]. There is often associated depression. Management of chronic pain therefore requires a holistic multi-disciplinary approach [2]. In addition to pharmacological treatment, psychosocial support, physiotherapy and operative treatment, interventional techniques may benefit some patients by defining the pain generator and offers prolonged relief.

Interventional Pain Procedures

Commonly performed interventional procedures for pain of spinal origin include trigger point injections, facet blocks, sacroiliac joint blocks, epidural steroids and epidural lysis. Blocks with local anaesthetics identify the source of pain when pain level is reduced significantly after the block. Local administration of steroids decreases inflammation. Denervation by a radiofrequency current can bring prolonged relief by interrupting the sensory pathway. A very small group of selected patients benefits from spinal cord stimulation or insertion of an intra-thecal drug delivery system. Diagnostic blocks with a local anaesthetic help to ascertain the source of pain.

Back & Neck Pain

Facet joints are small synovial joint connecting the posterior aspects of the vertebrae. Inflammation of these joints or abnormal stress on them can lead to facet joint pain. There are back or neck pain with radiation, but no radicular symptoms. Pain typically worsens on extension. Facet pain syndrome often co-exists with disc pathologies [3]. These joints are supplied by medial branches of adjacent spinal segments. Diagnostic blocks are performed by injection of the joints or the medial branches under fluoroscopy. Joint injections can be supplemented by local steroids. Longer term effect is achieved by radiofrequency lesioning of the medial branches [4,5] (Fig.1).

Fig. 1a Radiofrequency denervation of C2/C3 facet joint

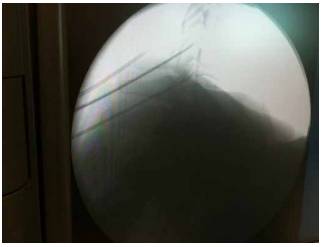


Fig. 1b Radiofrequency ablation of lower cervical medical branches

Sacro-Iliac Joint Pain

Sacroiliac joint pain presents with back pain, usually to the side of lesion, with radiation to the groin or the knee. Bilateral joint involvement may present as central back pain. Interventional treatment approach is similar to facet joint pain [6,7]. More recently developed Cooled Radiofrequency technique produces more consistent lesions for the multiple sacral nerves [8].

Sciatica

Radiculopathy presents with back or neck pain with radiation. Lesions in the lumbar levels produce the familiar 'sciatica' symptoms, whereas cervical lesions cause pain radiating to the shoulder or upper limb. Radicular pain may be caused by pressure or irritation of the nerve roots by degenerated intervertebral discs. Nerve impingement may also be caused by spinal stenosis, spondylolisthesis or failed back surgery syndrome. Injection of steroids into the epidural space may help these patients. The approaches may be translaminar, transforaminal or caudal [9,10] (Fig. 2). If multiple levels involvement is suspected or for resistant cases, a specially designed Racz catheter can be introduced from the sacral hiatus to define the levels of nerve impingement on epidurogram [11]. Hydrodissection is performed and steroid is deposited [12] (Fig. 3).

Fig. 2 Epidural lysis of adhesions

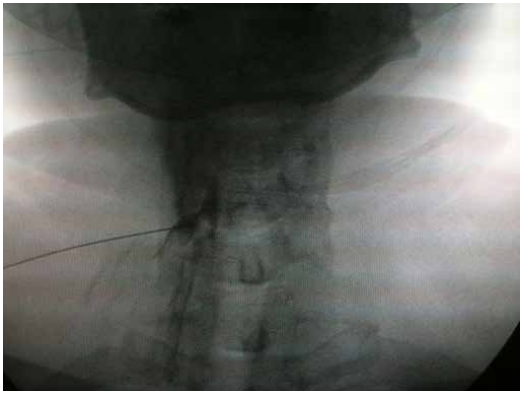


Fig. 3 Cervical transforaminal epidural steroid injection

Spinal Cord Stimulation

Melzack and Wall proposed the gate-control theory in 1965 [13]. The concept of stimulation of large afferent fibres to close the 'gate' for pain perception lead to the development of spinal cord stimulation. Shealy published the application of 'dorsal column stimulation' in 1967 [14]. Over the years spinal cord stimulation has developed into a percutaneous technique where a lead with multiple contact points is inserted into the epidural space and is connected to an implanted pulse generator. Programmable electric current stimulates the spinal cord, leading to pain relief. This is particularly useful for very carefully selected patients who suffer from failed back surgery syndrome [15] or arachnoiditi. (Fig.3)

Intrathecal Drug Delivery Systems

Implantable intrathecal drug delivery systems are available for delivery of medications such as opioids or baclofen into the subarachnoid space directly. This may be of use for some very selected patients [16].

Reference

For the references of this article, please refer to the full version on our website: www.asiamedicalspecialists.hk.

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