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PULSED MODE RADIOFREQUENCY LESIONING OF THE SUPRASCAPULAR NERVE FOR CHRONIC SHOULDER PAIN: A CASE REPORT

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Suprascapular nerve blockade plays an important role in managing post-operative and chronic shoulder pain [1,2,3]. Specifically, the afferent sensory input from the glenohumeral joint and periarticular tissues is blocked. Reduction in pain helps facilitate physical therapy and functional restoration. Unfortunately, pain relief is short lived. More permanent procedures, such as neurolysis or neurectomy are contraindicated, since the suprascapular nerve provides efferent innervation to the supraspinatus and infraspinatus muscles. Pulsed radiofrequency lesioning is a novel, non-ablative technique that has been developed to target neural structures through the generation of an electrical field[4]. The mechanism has yet to be elucidated. One theory suggests a neuromodulatory effect via changing gene expression in pain processing neurons[5]. Anecdotal reports support its utility in long term pain control[4].

A 49-year old right handed man was involved in a rollover motor vehicle collision with ejection, two year prior to presentation. He sustained multiple injuries including right glenoid, humeral, and clavicular fractures. Despite numerous reconstructive shoulder surgeries, he developed severe glenohumeral arthritis and adhesive capsulitis. Despite physical therapy and oral analgesics, his pain averaged 6-7 on the NRS-11 scale. More importantly, he had very limited use of his arm. Intra-articular joint injections provided temporary relief. A stellate ganglion block did not relieve any component of his pain. A suprascapular nerve block, with 10 milliliter of a 1:1 mixture of 0.2% ropivacaine, 2% lidocaine, and 4mg of dexamethasone, was performed under fluoroscopic guidance. He received greater than 50% pain relief with improvement in shoulder function for 3 days, after which his symptoms recurred. Pulsed-mode radiofrequency lesioning of the suprascapular nerve was subsequently performed. He was placed prone. The C-arm was obliqued about 16 degrees to the right and angled cephalo-caudad about 18 degrees (Figure 1). The suprascapular notch was easily identified superior to the scapular spine, medial to the coracoid process, and lateral to the rib margins. After sterile preparation, a skin wheal with 1.5% lidocaine was raised overlying the notch. A 16 gauge angiocath was advanced in a gun-barrel fashion towards the notch. Then a 20 gauge curved blunt RFK™ radiofrequency needle was advanced towards the notch. Sensory stimulation at 50 Hz, 0.2 millisecond pulse width was performed up to 0.3V with reproducible paresthesias in the shoulder joint. Motor stimulation at 2 Hz, 0.2 millisecond pulse width was performed up to 0.4V with reproducible contractions of the infraspinatus and supraspinatus. Hence, pulsed mode RF lesioning was carried out at 42 degrees C, 2 Hz, 20 msec pulse width for three cycles of 120 seconds. A local anesthetic and steroid mixture, identical to the block, was instilled at the end of the procedure. The patient had improvement in pain, active and passive shoulder range of motion, and function comparable to his block, except that this improvement was sustained for 8 weeks. The pulsed RF lesioning was repeated only once more.

Pulsed radiofrequency lesioning of the suprascapular nerve is a novel, non-ablative technique which may benefit patients with chronic shoulder pain and disability.

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Image 40a

