Pectoral nerve block: A novel modality for managing chronic chest wall pain

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Case Report

Pectoral Nerve Block: A Novel Modality for Managing Chronic Chest Wall Pain

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Abstract

A 54-year-old male presented with chronic left-sided chest wall pain. Diagnosed as myofascial pain after ruling out other causes, he had little or no relief with the conventional treatment consisting of oral nonsteroidal anti-inflammatory drugs and muscle relaxants. An ultrasound-guided pectoral nerve block (PECSB) supplemented with intramuscular stimulation (IMS) was performed, with IMS being repeated after a week. Near total pain relief was achieved, which was sustained for up to 90 days, the period for which the patient has been followed up. We conclude that PECSBs are safe, easy to perform and effective for chronic chest wall pain.

Keywords: Chest wall pain, interventional pain management, intramuscular stimulation, pectoral nerve block

Introduction

Pectoral nerve block (PECSB) is an interfascial plane block where local anesthetic is deposited into the plane between the pectoralis major muscle and the pectoralis minor muscle (PECS-I block) and above the serratus anterior muscle at the level of the third rib (PECS-II block); blocking the pectoral; intercostobrachial; intercostals III, IV, V, and VI; and long thoracic nerves.[1,2] Moreover, PECSB is less invasive, safe, and easy to perform. PECSB is now gaining popularity for pain relief during and after breast cancer surgery;[3] however, the technique remains largely unexplored for other types of chronic pain. Chronic pain in addition to the somatic component develops a neuropathic component which translates into a neuromyopathy.[4] This can be effectively managed by intramuscular stimulation (IMS)/dry needling.

Case Report

A 54-year-old male, a surgeon by profession, presented with left-sided chest wall pain for 2 years. It first started as a dull ache (visual analog scale [VAS] 3–4) just above the left nipple. It was continuous, aggravated on exertion, and relieved on rest. Being left-sided chest pain, he underwent a thorough cardiac evaluation which was grossly normal. Opinion was also taken from a gastroenterologist, but there was no abnormality detected. After this exhaustive workup, he was labeled as a patient of nonspecific myofascial pain syndrome (MPS), for which he began receiving the conventional treatment in the form of nonsteroidal anti-inflammatory drugs and muscle relaxants. Initially, he got relief on taking medication; however, as time passed, the pain began to increase in intensity (VAS 8/10) and it extended to the chest wall on the left with referred pain to axilla. The character of pain also changed from dull aching to severe aching and burning pain. Treatment for neuropathic pain in the form of pregabalin was started unfortunately with no relief. Physical examination revealed a muscularly developed and otherwise healthy male in no apparent distress. Examination revealed no bruising, swelling, or deformities. Cervical, thoracic, and bilateral upper extremity active range of motion was within normal limits. Power in the upper extremities was 5/5 and equal bilaterally, with minor anterior chest wall discomfort reported during resisted left shoulder flexion, abduction, and internal rotation. Left-sided pectoralis major tightness was observed. Pain was reproduced with palpation over the anterior aspect (in line of nipple) over the 2nd to 4th ribs, with obvious

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trigger points (TrPs) in the pectoralis major. We decided to go ahead with an ultrasound-guided PECSB (PECS I and II) and supplement it with IMS. After explaining the procedure to the patient and obtaining a written informed consent, he was positioned supine with arm abducted to 90°. Under ultrasound guidance, the pectoralis major and minor muscles, the serratus anterior muscle, and the third and fourth ribs were visualized [Figure 1]. After infiltrating the skin with 2% lignocaine with adrenaline, a 25 G spinal needle was inserted in plane, to reach between the pectoralis minor and the serratus anterior muscle. Four milliliters of 2% lignocaine along with 10 mg triamcinolone acetate was injected under vision after negative aspiration (PECS II block). After this, the needle was withdrawn up to the space between pectoralis major and minor muscles at the level of the 3rd rib and another 4 ml of 2% lignocaine along with 10 mg triamcinolone was injected. The pleural space was identified to be at a distance of 3 cm from the chest wall. IMS was safely done on the pectoralis muscles with 32G 1 inch needles. The patient experienced immediate relief of about 70% after the procedure. This was followed up, after 1 week with a second session of IMS, which led to near total pain relief. Physiotherapy sessions were advised for rehabilitation and strengthening. It has been roughly 90 days since the procedure and the patient is on fortnightly follow-up over phone. The patient reports to have near total pain relief.

Discussion

Chest pain needs to be thoroughly evaluated for nonmusculoskeletal causes, especially for those like ischemic heart disease that may be life-threatening and require urgent intervention.[5] However, once these have been ruled out, diagnosis of MPS can be made on a thorough history and clinical examination. MPS, defined as a group of clinical symptoms affecting muscles and their connective tissue attachments, with characteristic pain, muscle stiffness, fatigue, and TrPs, is a very common but is an under-reported and under-treated cause of chronic pain. Although not catastrophic, it can be quite disabling for the sufferer. Chronic pain leads to neuronal hypersensitivity and development of a neuropathic component of the pain.

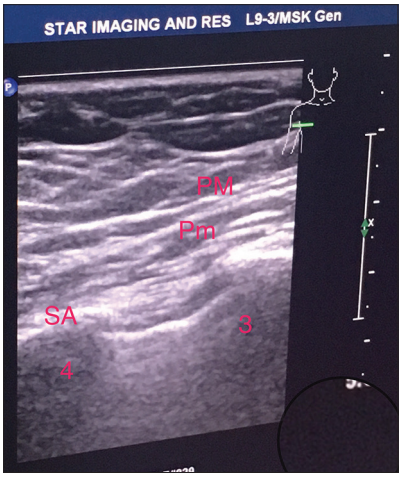

Figure 1: Sonoanatomy for pectoral nerve block. PM: Pectoralis major, Pm: Pectoralis minor, SA: Serratus anterior, 3: 3rd Rib, 4: 4th Rib

PECSB, used more commonly for relief of pain during and after breast cancer surgery, was used effectively for myofascial pain. Relevant anatomy for PECSB includes the pectoral nerves, which are the major nerves arising from the brachial plexus innervating the pectoral muscles. The lateral pectoral nerve most commonly arises from C5, C6, and C7, runs between the pectoralis major and minor muscles, and innervates the pectoralis major. The medial pectoral nerve arises from C8 and T1 and runs under the pectoralis minor muscle. The long thoracic nerve or serratus anterior nerve arises from C5 to C7 entering the axilla behind the rest of the brachial plexus and rests on the serratus anterior muscle. Advantages of PECSB are that they are simple, easy to administer, have quick onset, are specific (devoid of action on sympathetic fibers) and relatively safe.

IMS done for the TrPs was instrumental in relieving the longstanding muscle spasm. Ultrasound guidance to know depth of the pleura made the technique absolutely safe.

Conclusion

Nerve blocks offer a versatile tool to the pain specialist and can be used routinely for the management of intractable pain. A thorough knowledge of the anatomy supplemented with imaging makes the use of these blocks easy, effective, and safe. PECSB although not routinely used for chronic noncancer pain can be considered more often for chest wall pain. Supplementation of PECS with IMS produces synergistic effects.

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Conflicts of interest

There are no conflicts of interest.

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