

Ultrasound Guided Transversus Abdominis Plane Block for Anterior Cutaneous Nerve Entrapment Syndrome

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Anterior cutaneous nerve entrapment syndrome (ACNES) is one the most common cause of chronic abdominal wall pain. The syndrome is mostly misdiagnosed, treated wrongly and inadequately. If diagnosed correctly by history, examination and a positive carnett test, the suffering of the patient can be relieved by addressing the cause i.e. local anaesthetic with steroid injection at the entrapment site. Conventionally, the injection is done by landmark technique. In this report, we have described 2 patients who were diagnosed with ACNES who were offered ultrasound guided transverses abdominis plane (TAP) injection who got significant pain relief for a long duration of time. (Korean J Pain 2015; 28: 284-286)

Key Words: Abdominal pain; Abdominal muscle; Anatomic landmarks; Chronic pain; Diagnosis; Entrapment neuropathy; Nerve block; Ultrasonography.

Chronic abdominal wall pain (CAWP) is one of the most distressing and common causes of the chronic abdominal pain (CAP). CAWP refers to pain originating from the abdominal wall, is often misdiagnosed as intra-abdominal origin, often resulting in inappropriate investigations, unsatisfactory treatment and considerable cost. Approximately 10%–20% of CAP originates from the abdominal wall itself [1]. The most important cause of CAWP is entrapment of cutaneous nerves at the lateral border of the rectus abdominis muscle known as anterior cutaneous nerve entrapment syndrome (ACNES) [2]. The anterior abdominal wall is innervated by lower thoracic nerve (T7 to T12), which travel in the plane between internal oblique and transversus abdominis muscle and finally enter at 90° angle in the fibrous opening at the lateral border of rectus

sheath. It has been postulated that nerve compression with resulting ischemia, explained by the nerve's course through the muscle results in abdominal wall pain [2]. Application of ultrasound as an imaging modality in interventional pain management is increasing rapidly [3]. We report two patients with CAWP responding to ultrasound guided TAP block.

CASE REPORT

1. Case 1

A 24-year-old lady was referred to our pain clinic with complaint of abdominal pain for last 3 months. She had her second cesarean section 4 months ago and her pain started one month after the surgery. The pain was located

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around 5–7 cm inferior and lateral to umbilicus on the right side and was well localized in a circumferential manner without any radiation. She described her pain as dull aching, stabbing and burning in nature and was severe while getting up from bed, climbing stairs and bending forward. The patient rated her pain as 7/10 on visual analog scale (VAS) during above mentioned activities. She had pin-point tenderness just at the lateral border of rectus abdominis with allodynia and hyperalgesia. She had been evaluated by her gynecologist earlier and found no abnormality on ultrasound abdomen. Before coming to us she had used non-steroidal anti-inflammatory drugs, muscle relaxants, tramadol, gabapentin without any relief. After ruling out intra-abdominal pathology by the evaluation of a laparoscopic surgeon, we suspected ACNES as there was pin-point tenderness around lateral border of rectus and a positive carnett test (tensing the abdominal muscles by elevating the head and shoulder in prone position lead to increase in pain). We offered her diagnostic block to which she agreed. After consent and under strict asepsis, we used high frequency linear probe (6–13 MHz, M-Turbo, Sonosite, Bothell, WA, USA) to give rectus sheath block. But she didn't allow us to put the probe for rectus sheath block as she had tremendous tenderness. So we decided for a TAP block. Probe was placed lateral to rectus sheath where all three layers of abdominal muscles were clearly seen. A combination of methyl prednisolone 20 mg and 6 ml of 0.375% ropivacaine was injected between the fascial layer of internal oblique and transversus abdominis using a 22 gauge echogenic needle (SonoTAP, Pajunk, Geisingen, Germany) utilizing in-plane approach. Patient reported total pain relief 20 minutes after the injection. Patient reported same pain five hours later but she started getting relief 3–4 days later possibly because of the depo-steroid. Twelve months after the injection she continues to experience almost complete pain relief and is back to normal life.

2. Case 2

The second lady was of 30-years and came to us with 7 months history of chronic abdominal pain similar to the previous lady i.e. pain after 1 month of the second cesarean section. She had pinpoint tenderness at two places viz. at the lateral border of rectus sheath Corresponding to T11 and T12 dermatome. Her typical pain pattern and positive carnett test was suggestive of ACNES. She initially responded to gabapentin and tramadol but the pain relief

didn't last long and was keen for the injection. We performed TAP block lateral to the rectus sheath after which she had very good pain relief (80%). On follow up, after one month, she complained of pain at the lower part closer to surgical scar but there was no pain at the previous painful area. This time we repeated a similar TAP block with probe position little down to the previous block location. She had complete relief and without any further injection 6 months down the line till the writing of this report.

DISCUSSION

The purpose of above communication is to have high index of suspicion for ACNES as the cause of abdominal wall pain and application of ultrasound guided TAP block for the treatment of this pain. History, proper physical examination and a positive Carnett test in the absence of any other intra-abdominal pathology should raise the suspicion of ACNES [1,2]. Complete pain relief to a diagnostic nerve block with local anaesthetic usually establishes the diagnosis. In literature, there is description of blind, trigger point injections at neural foraminal level where the nerve enters the rectus abdominis muscle. Though blind injections dominated for a long time, there is a recent report on ultrasound guided rectus sheath block for the same diagnosis [4]. As our patient did not allow us for a rectus sheath block because of severe tenderness, we tried TAP block and it was totally successful. We did not go for the classic description of the TAP block, in stead injected the anaesthetic in the transversus abdominis plane closer to the rectus muscle, so that the drug is deposited very near to the entrapped site. Despite the increasing use of TAP block for perioperative analgesia for hysterectomy, cesarean section, laparoscopic surgeries, there is very sparse literature on chronic pain application. Its use has been reported in abdominal wall cancer pain [5]. Both of our patients responded to single injections, except the second patient requiring second injection for the lowermost tender point.

Our report illustrates a novel use of TAP block in CAWP. TAP block under ultrasound guidance may offer a diagnostic possibility for patients with CAWP to confirm ACNES. This approach may serve as an alternative, safe, effective and reliable method to blind injection or in patients with severe pain and tenderness for probe placement

at rectus sheath area. Further studies in terms of randomized trial are required to confirm this finding.

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