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Case Report

Chronic Non-Cancer Abdominal Wall Pain Amelioration via Phenol Neurolysis by Tranversus Abdominis Plane Approach: A Case Report

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ABSTRACT

Abdominal pain is common and has multiple etiologies. We present a case of chronic abdominal wall pain that was treated with phenol neurolysis via a tranversus abdominis plane (TAP). To date, only 4 case reports utilizing TAP neurolysis have been reported and all were performed in the context of malignancy-related pain. The TAP block has become an integral component of the regional anesthesiologist's perioperative anesthesia and analgesia arsenal. In summary, chemical denervation of the anterior abdominal wall is feasible and efficacious in palliating chronic non-cancer pain via a TAP block technique.

Key words: TAP, transversus abdominal plane, phenol, abdominal wall pain, neurolytic, non-cancer pain

Chronic abdominal wall pain is very common after thoracoabdominal surgery and is seen in idiopathic scenarios such as the anterior cutaneous nerve entrapment syndrome (ACNES). This is, to our knowledge, the first reported case of phenol tranversus abdominis plane (TAP) neurolysis for nonmalignant chronic abdominal wall pain. Only 4 TAP neurolysis reports exist in the literature at the time of this report submission (2 phenol and 2 alcohol), and all were performed in the context of malignancy-related pain.

Case Report

A 48-year-old man who consented to this report was referred to us by his surgeon for perioperative pain management. The patient had been suffering with severe bilateral lower quadrant abdominal wall pain for 3 years. In another state, the patient had initially undergone an elective ventral herniorrhaphy that was complicated by occult bowel perforation; he underwent emergent re-exploration and repair shortly thereafter. He subsequently underwent 2 revision herniorrhaphies with mesh (also in another state), and at the time of presentation, had a significant diastasis of 8 cm and relied upon constant abdominal binder use for comfort and structural support. The patient had had failed conservative pharmacotherapy, and had a revision abdominal wall repair with a rectus abdominus flap advancement planned. For numerous reasons, including obstructive sleep apnea with poor continuous positive airway pressure (CPAP) compliance, we deemed opioid therapy trial unfeasible and offered him interventional care.

Initially, a diagnostic and prognostic local anesthetic-only (0.5% bupivacaine with 1:200,000 epinephrine) bilateral sonographically-guided TAP block was performed, eschewing the use of corticosteroid as the patient had a planned abdominal wall reconstruction in the near future. We did not wish to compromise connective tissue integrity any more than the patient had already suffered. The patient experienced roughly 80% benefit for a few days before the recurrence of his typical preoperative

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pain. Given the severity of his pain and the attendant functional limitations, after discussing risks with the patient and clarifying approval from his surgeon, we proceeded with bilateral sonographically-guided TAP neurolysis using 20 mL of 3.33% phenol and 0.25% bupivacaine on each side, with injections at the T10 dermatomal level. He reported essentially complete relief of his long-standing lower abdominal wall pain; pain relief persisted ultimately for 8 months before recurrence (at a diminished level; he cited ongoing 60% improvement after that point). Two months after this lower abdominal TAP neurolysis, he underwent operative revision. The patient presented back to our clinic roughly one month after the operation complaining of abdominal pain again; however, upon history and examination, it was found that he was suffering from an unprecedented upper abdominal wall pain syndrome, with persistent lower abdominal wall anesthesia as noted above.

As such, a second bilateral sonographically-guided TAP neurolysis using 20 mL of 3.33% phenol and 0.25% bupivacaine on each side with injections at roughly the T8 dermatomal level was performed. At the 6-month follow up from this second TAP neurolysis, the patient continued to experience complete anesthesia of the upper abdominal wall (and ongoing 60% improvement from the initial lower wall neurolysis as discussed above). The patient remained opioid-free throughout this entire time period with the exception of a brief postoperative prescription for hydromorphone.

Discussion

The TAP block has become an integral component of the regional anesthesiologist's perioperative anesthesia and analgesia arsenal. Its use in chronic non-cancer pain management, however, is not yet well-established, with only a few case reports/series involving single-shot local anesthetic with or without corticosteroid (1-4), one case report of a 2-week continuous block with an indwelling catheter (5), and one involving neurostimulation (6).

At the time of this writing, only 4 TAP chemical neurolysis reports, comprising 2 individual case reports with phenol (7,8) and one case report and one case series with alcohol, (9,10) exist. All of these occurred in the setting of cancer pain; to date, chemical neurolysis has not been reported for chronic non-cancer pain.

The advantages of phenol neurolysis in the TAP setting include ease, relative safety and economy, and the opportunity to denervate a large area of the abdominal wall without the need for multiple interventions as would be required with thermal RFA, cryoneurolysis, or pulsed neuromodulation. There is substantially lower infection risk compared to continuous (catheter-mediated) blockade or implantation of neurostimulation lead(s). In addition, phenol ablation confers advantages over alcohol ablation in terms of significantly less procedural discomfort (phenol is anesthetic even at low concentrations, whereas alcohol is highly caustic) and furthermore seems to confer a lower incidence of postdenervation neuritis (11) and anesthesia dolorosa.

The disadvantage (shared with alcohol) lies in the relatively uncontrollable spread of the agent, which certainly confers far less precision than thermal or electrical mechanisms. In the case of intercostal neurolysis, this has in fact proved devastating on more than one occasion, with 3 cases of paraplegia reported after phenol neurolysis of the intercostal nerves (12-14). Such neuraxial spread should be impossible from the TAP approach; however, with lower segment TAP, ilioinguinal neurolysis with persistent genital hypoesthesia or anesthesia is possible and such risk needs to be carefully considered.

Historically, chemical (phenol or alcohol) neurolysis has been discouraged in the "routine care of patients with chronic noncancer pain" (15). As discussed above, we agree that the risk of uncontrolled spread to proximate unintended targets (e.g., motor nerves or the neuraxis) render its routine use untenable, and it should be reserved for severe and refractory pain that has failed more conservative approaches. However, given the recent increased interest in opioid-sparing modalities for chronic pain, and also in view of its widespread availability and affordability, we agree with Mayo Clinic practitioners that "while no consensus guidelines or indications exist, phenol neurolytic injections may be utilized for persistent and intractable pain conditions" (16). The literature is replete with successful non-cancer pain applica-

tions ranging from management of the painful blind eye to ganglion impar ablation for chronic perineal pain. We (HM) have used it safely and effectively to manage refractory shoulder pain (via suprascapular neuroablation) in terminal rheumatoid arthritis and postarthroplasty pain/dysfunction, persistent implantable pulse generator site pain, and superior cluneal neuralgia, among other conditions. As demonstrated by this case, chemical denervation of the anterior abdominal wall is feasible and efficacious in palliating chronic non-cancer pain, and we agree with Weksler et al (17) that this established modality is not obsolete and even confers advantages over alternatives in the right situation.

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