

Myofascial Pain Secondary to Cannabinoid Hyperemesis Syndrome: A Case Study

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ABSTRACT Background: Marijuana - both medical and recreational- is often used to manage pain and nausea. However, there is emerging evidence that marijuana may have adverse effects on pain and nausea. It appears cannabis can not only suppress nausea in certain situations but also cause it in vulnerable patients. Cannabinoid hyperemesis syndrome (CHS) can cause chronic pain. **Objective:** This case report assesses the potential link between myofascial pain affecting the abdominal musculature and marijuana use. It also raises awareness about cannabinoid hyperemesis syndrome in patients with chronic pain who are not requesting opioid therapy. **Result:** We present the case of a 22-year-old male with acute on chronic abdominal pain and recurrent vomiting for over two years. He had multiple evaluations by various gastroenterologists and psychiatrists with no specific cause found for his symptoms. The patient had previously tried Zofran, hydroxyzine, and sertraline without benefit. He reported smoking marijuana daily to address the pain and nausea. The patient experienced > 50% relief of his chronic abdominal pain with a combination of trigger point injections and abstinence from marijuana. **Conclusion:** To our knowledge, this is the first case in the literature of marijuana discontinuation leading to a greater than 50% improvement in myofascial pain symptoms in the abdomen and pelvis. Cannabinoid hyperemesis syndrome is a potential cause of chronic pain in a minority of patients.

KEYWORDS Cannabinoid, Marijuana, Myofascial Pain, Trigger Points, Hyperemesis, Vomiting

Introduction

Marijuana- both medical and recreational- are often used to manage pain and nausea. Research suggests it is effective for refractory cancer-related pain and nausea[1]. Tetrahydrocannabinol (THC), which is the active substance in cannabis, may be efficacious for neuropathic pain in HIV[2]. Cannabis may also help control AIDS-related pain and nausea[3]. Furthermore, cannabis may have beneficial effects on spasticity in patients with multiple sclerosis who have not had pain relief from conventional

procedures and treatments[4].

The medical community initially studied marijuana's effects on the refractory pain associated with these conditions. In recent years, the scope of marijuana use has increased. Many advocate its use for a much larger array of chronic pain disorders, including myofascial pain syndromes and osteoarthritis[5]. Some advocate for its use over traditional opioid therapy, noting that it may be a safer and more effective alternative for treating chronic pain[6,7].

Contrary to popular belief, there is emerging evidence that marijuana may have adverse effects on pain and nausea. Activation of cannabinoid receptors inhibits GABAergic synaptic transmission in several central nervous system regions. The interneurons stop releasing the inhibitory neurotransmitters GABA and glycine[8]. Without these inhibitory signals, pain signalling to the brain intensifies[8]. This suggests cannabinoids can control the interneurons and potentially facilitate the transition of acute pain into chronic pain.

Cannabis can not only suppress nausea in certain situations but also cause it in vulnerable patients. THC activates cannabi-

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noid receptors in the enteric nervous system, which mediate nausea and vomiting⁹. Accumulation of THC in fatty tissues leads to enteric stimulation, which can also lead to nausea^[9].

Cannabinoid hyperemesis syndrome (CHS) is a disorder characterized by recurrent nausea, vomiting and abdominal pain. It is associated with chronic cannabis use. Cannabinoids activate the transient receptor potential vanilloid subtype 1 (TRPV1) receptor, which is involved in gastric motility. It is thought to be involved in the pathogenesis of CHS^[10]. The short-term treatment of CHS is supportive care. Long-term treatment is aimed at discontinuing cannabis use.

Objective

Chronic abdominal and pelvic pain can be caused by myofascial pain and trigger point formation in the rectus abdominis, the internal and external abdominal oblique muscles and the transverse abdominis. The myofascial pain may be secondary to gastrointestinal, genitourinary or gynecologic pathology. It is not typically associated with marijuana use. To our knowledge, this is the first case of cannabis-induced myofascial pain.

1. To assess the potential link between myofascial pain affecting the abdominal musculature and marijuana use.
2. To raise awareness about cannabinoid hyperemesis syndrome in patients with chronic pain who are not requesting opioid therapy. The presence of abdominal trigger points can be a result of underlying gastrointestinal conditions. The core muscles of the abdomen function to facilitate bowel movement, modulate intra-abdominal pressure and facilitate vomiting when appropriate. However, conditions that cause extensive contractions of these muscles can activate or reactivate abdominal trigger points.

Cannabis hyperemesis syndrome is an emerging clinical condition that typically occurs in middle-aged adults who have been using cannabis for years. The syndrome is characteristically divided into three phases: prodrome, recurrent vomiting, and recovery^[11]. The patients typically experience nausea and abdominal discomfort in the prodrome phase. This phase can last a few minutes to several hours.

The vomiting stage is marked by persistent nausea, vomiting, and retching. Patients are sometimes unable to retain food, drink, or medications. Patients typically visit hospitals and physicians multiple times during the vomiting phase. Finally, the recovery phase starts with the acceptance of cannabis cessation. Duration of the recovery phase varies among patients and strongly depends on adequate treatment. The symptoms can return if the patient begins using cannabis again.

Methods

This is the case of a 22-year-old male who presented with acute on chronic abdominal pain and recurrent vomiting for over two years. He would vomit between one and seven times per day. The patient could not recall any obvious precipitant to the onset of vomiting. The abdominal pain developed soon afterwards, and the patient associated it with the strong muscle contractions that occurred during his vomiting episodes. When he was vomiting, he experienced intense acute pain. Afterwards, he would have aching pain and a lingering soreness.

The patient reported a consistent dull pain throughout his abdomen. He had noticed muscle knots that formed around the

umbilicus. The left side was worse. The pain was not associated with swallowing difficulties, acid brash, chest pain, blood in the vomitus, diarrhoea, constipation, blood in the stools, or fevers or chills. The patient had not experienced changes in urinary frequency or appearance. He did not have dysuria or foul-smelling urine. He had never had any sexually transmitted diseases. He had no known prostate or testicular disorders.

Diagnostically, the patient had a CT scan of the abdomen/pelvis, which was unremarkable. He also had an endoscopy that was non-specific. He had multiple evaluations by various gastroenterologists and psychiatrists with no specific cause found to his vomiting or abdominal pain.

Therapeutically, the patient found hot showers helpful in relieving his pain. Zofran would provide temporary relief. He tried hydroxyzine and sertraline, but they were not helpful. He also reported smoking marijuana daily to address the pain and nausea.

Functionally, the patient would exercise daily.

On physical exam, the patient was normocephalic, anicteric with extraocular movements intact, and moist mucous membranes. There was no visible guarding. There was tenderness to palpation in all four quadrants but no rebound tenderness. There was straightening of the lumbar lordosis and decreased pelvic sinusoidal motion. The patient had a diffuse erythematous rash with open blisters on his abdomen. When questioned, he reported that the shower scalded him. His extremities were warm and well-perfused without cyanosis, clubbing, or oedema. No sensory abnormalities were identified. Trigger points were identified in the rectus abdominis, transverse muscles and internal and external abdominal oblique muscles.

Results

The patient was asked to follow-up with both Gastroenterology and Psychiatry for continued monitoring.

We discussed treatment options for managing his pain in the short-term vs the long-term. The patient had come to Pain Management to have the abdominal pain and trigger points addressed. Therefore, the risks, benefits and alternatives to trigger point injections in the rectus abdominis, internal and external oblique muscles, and transversus abdominis were discussed. The patient elected to proceed.

The medication was injected into six trigger points along with the most painful areas using a 25G 1-inch needle. The area over the burn was avoided. The patient tolerated the procedure well with no apparent complications. The patient reported that the trigger point injections completely relieved his pain in the short-term. The patient did not have any adverse effects from the procedure. He returned three times over six months to repeat the trigger point injections.

On the second visit, the patient's use of marijuana was explored further. It was clear his use of marijuana was ineffective in managing his pain and nausea. Upon further questioning, it seemed that marijuana might have incited his recurrent episodes of vomiting. The patient was advised to avoid marijuana use and to observe any resultant changes in the frequency of vomiting.

Over time, it became apparent that the vomiting, which had caused the trigger points to form, was secondary to marijuana use. The patient was unable to discontinue marijuana use independently. He was referred to a multidisciplinary Addiction Disorders clinic at a university hospital. We worked with his addiction specialist, psychiatrist, and gastroenterologist to safely and effectively manage the patient's symptoms.

The patient experienced >50% relief of his chronic abdominal pain with a combination of trigger point injections and abstinence from marijuana. However, he had several relapses in marijuana use during treatment.

Conclusions

1. To our knowledge, this is the first case in the literature of marijuana discontinuation, leading to a greater than 50% improvement in myofascial pain symptoms in the abdomen and pelvis.
2. Pain physicians treating patients with unexplained nausea and vomiting as well as abdominal myofascial pain should consider further assessing these patients for recreational drug use. Cannabinoid hyperemesis syndrome is a potential cause of chronic pain in a minority of patients.

Although many advocates suggest cannabis could be effective for relieving non-malignant chronic pain syndromes such as myofascial pain syndrome, there are some reports that pain may be increased with the use of this drug.

Endocannabinoids are endogenous lipid mediators that activate the same receptors as marijuana. Similar to THC, Endocannabinoids interact with two main G-protein-coupled cannabinoid receptors, the CB1 (cannabinoid receptor 1) and CB2 (cannabinoid receptor 2). These receptors are typically found in the central and peripheral nervous system as well as on cells of the immune system, but recent studies gave evidence for the presence of cannabinoid receptors in myofascial tissues[12]. This research suggests that the endocannabinoid system might be related to the formation of myofascial trigger points.

Moreover, repeated muscle contraction and overuse can cause trigger points to form. They are discrete, focal hyperirritable spots located in a palpable, taut band of muscle fibres. Overworked or strained muscles may lead to the development of stress on muscle fibres and the formation of trigger points[13].

Trigger points are painful on compression and can produce referred pain, tenderness, motor dysfunction, and autonomic phenomena[14]. If there are trigger points present in the abdominal muscles, the pain can spread around the abdomen and pelvis as well as to the low back and mid-back region.

Daily forceful vomiting can cause trigger points to form in the abdomen and pelvis. Cannabis hyperemesis syndrome can cause multiple episodes of vomiting per day. Therefore, there may be a link between the two conditions. Patients with myofascial pain syndrome and cannabis hyperemesis syndrome may present in the pain management office setting.

Competing Interests

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