Cannabinoids for treatment of postoperative neuropathic pain: a case report

Canabinoides para tratamento de dor neuropática pós-operatória: relato de caso

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Abstract

Postoperative neuropathic pain (NP) is an important clinic condition with recurring pain and that may be a result of transection, contusion, nerve inflammation or stretching. Studies with cannabis have been conducted involving patients with refractory epilepsy, multiple sclerosis, Parkinson's disease, sleep disorders, and chronic pain. Cannabinoids have anti-inflammatory and analgesic properties. This paper reports a case of a 65-year- old male with postoperative NP, with lumbar scoliosis and spondiloarthrosis, and lumbar disc herniation. The use of cannabinoids associated with analgesics in our patient decreased postoperative NP intensity with an acceptable side effect profile.

Keywords: Cannabis; Cannabinoids; Pain.

Resumo

Dor neuropática (DN) pós-operatória é condição clínica relevante, com dor persistente, que pode ser resultado de transecção, contusão, alongamento ou inflamação do nervo. Várias pesquisas com Cannabis têm sido realizadas em pacientes com epilepsia refratária, esclerose múltipla, doença de Parkinson, distúrbios do sono e dor crônica. Canabinoides apresentam propriedades anti-inflamatórias e analgésicas. Este caso envolve paciente do sexo masculino de 65 anos, com dor neuropática pós-operatória, destacando-se escoliose e espondiloartrose lombar e hérnia de disco. Uso de canabinoides associados com analgésicos em nosso paciente reduziu intensidade da DN pós-operatória com perfil de efeitos adversos aceitável.

Palavras-chave: Cannabis; Canabinoides; Dor.

Introduction

Neuropathic pain (NP) is characterized by generally intense, chronic pain that limits daily life activities and significantly reduces quality of life[1,2]. It results from dysfunction or injury to the somatosensory nervous system[3]. It is estimated that 1 in 5 chronic pain cases are due to NP, affecting between 6.9% and 10% of the population[4]. Postoperative NP is a clinically significant condition involving persistent pain, which can result from nerve transection, contusion, stretching, or inflammation, it usually lasts from 3 to 6 months after surgery[5]. This type of pain is the second most frequent

Study performed at the no Departamento de Anestesiologia, Faculdade de Medicina de São José do Rio Preto (FAMERP), São José do Rio Preto, SP, Brazil
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cause of NP, with its prevalence varying considerably depending on the type of surgery and assessment methods[6].

Treating patients with chronic pain remains a therapeutic challenge, generally involving analgesics and physical therapy with variable responses[7]. Cannabinoids enter this context because they act across all pain pathways, targeting areas responsible for pain transmission, modulation, and perception[8]. Cannabidiol (CBD) is a cannabinoid with notable analgesic, anti-inflammatory, and anxiolytic effects, making it potentially useful for chronic pain management. It is relatively safe and associated with few adverse effects[9-12].

The aim of this case report is to present the use of cannabinoids as a therapeutic option for treating postoperative neuropathic pain.

Case Report

A 65-year-old white male patient, a retired police officer with diabetes and hypertension, also presented with scoliosis, lumbar spondyloarthrosis, and herniated discs (T12-L1, L4-L5) (Figure 1). He reported persistent lumbar pain (L4-L5) for 11 months following a hemilaminectomy (Figure 2). His ongoing medications included olmesartan medoxomil 40 mg + amlodipine besylate 5 mg, dapagliflozin 10 mg, metformin 500 mg, gliclazide 60 mg, analgesics (tramadol hydrochloride 50 mg, dipyrone 1 g, viminol hydroxibenzoate 70 mg), and physical and hydrotherapy sessions.

Cannabinoid therapy began with cannabigerol (CBG) 30 mg every 12 hours, later increased to 80 mg every 12 hours after 50 days. In combination with a 10 mg buprenorphine patch and pregabalin (150 mg in the morning and 75 mg at night), the patient reported a reduction in pain intensity from 10 to 6 on the visual analog scale (VAS) from 1 to 10.

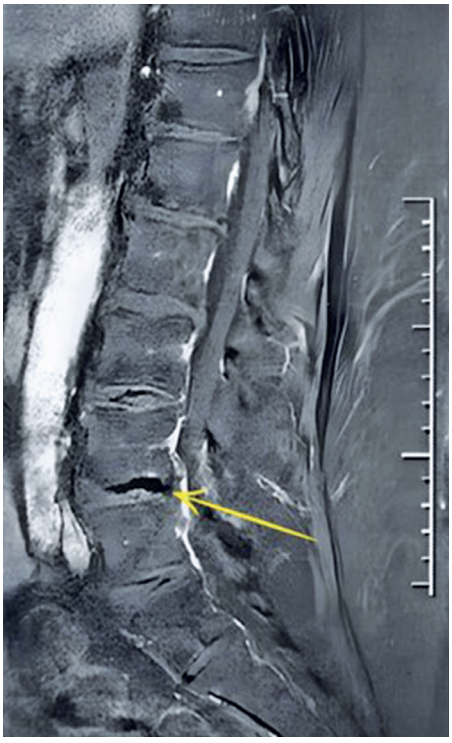

Figure 1. Lumbar spine magnetic resonance imaging (MRI) prior to surgical procedure, showing reduced vertebral canal width at L4-L5, with a right centrolateral disc herniation and downward migration at L4-L5.

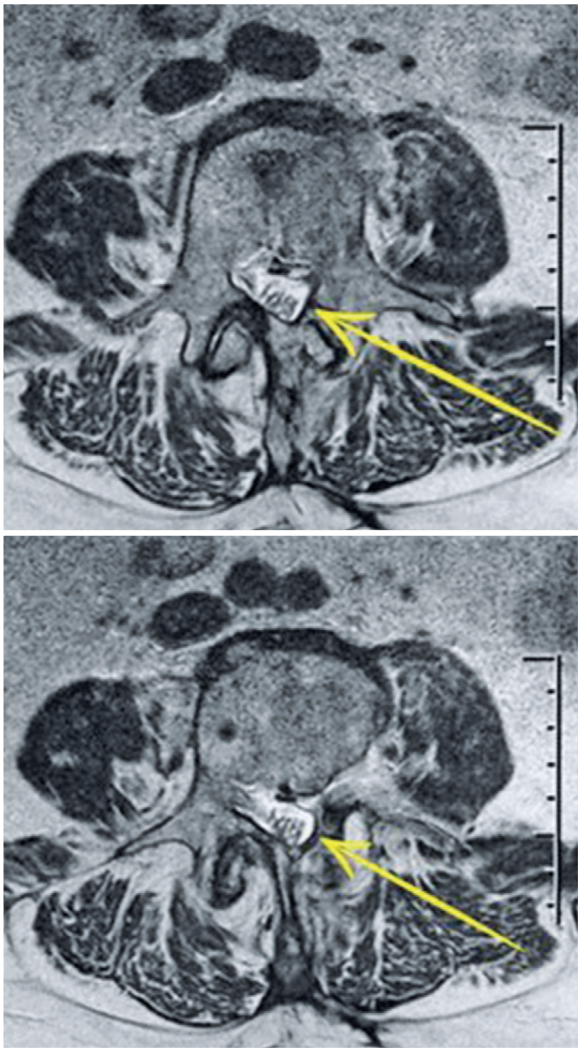

Figure 2. Lumbar spine magnetic resonance imaging (MRI) six months after hemilaminectomy, showing fibrotic-scar tissue changes with edema foci in the paravertebral and spinal erector muscle bellies.

During the 120 days of treatment, full-spectrum CBD 6000 mg (200 mg/mL of CBD and 10 mg/mL tetrahydrocannabinol (THC), i.e., 1%) was added, prescribed as 75 mg in the morning and 60 mg at night. CBG was maintained only at night at a dose of 75 mg.

After 150 days, the patient experienced a fall due to incorrect use of a quad cane, resulting in a right arm fracture. He was treated with buprenorphine 20 mg (1 patch every 7 days). During 210 days, the dose was adjusted to 75 mg of CBG in the morning, and 60 mg of full-spectrum CBD (1% THC) after lunch and again after dinner. By 240 days, the patient began using a walker and was able to take short walks. Currently, he is taking CBG (75 mg at night), full-spectrum CBD (75 mg in the morning), and CBD with 2.5% THC (3.12 mg every 8 hours). The patient reported further clinical improvement, with pain intensity decreasing from 6 to 4 on the VAS. This reduction allowed him to take short walks and slightly longer ones to attend hydrotherapy sessions twice a week using a walker.

Discussion

Postoperative NP has a substantial personal and economic impact, affecting over 30% of people worldwide[13]. According to the Centers for Disease Control and Prevention (CDC), approximately 20.4% of adults in the U.S. had chronic pain in 2019[14].

The current standard treatment for these patients involves opioid analgesics, which can cause adverse effects such as severe constipation, nausea, drowsiness, respiratory depression, and opioid dependence[15]. In this case, the patient was using an opioid. As for cannabinoid-related side effects, the patient reported dry mouth and mild abdominal pain at the beginning of treatment.

First-line treatment for NP is pharmacological, and alternatives such as gabapentinoids and antidepressants have been proposed[16]. In recent years, international guidelines have also included topical treatments such as 5% lidocaine patches or 8% capsaicin[15-17].

Several studies have investigated the use of cannabis as a therapeutic option in chronic pain cases. In the U.S., Canada, and the Netherlands, chronic pain is the most frequently cited reason for the use of medical cannabis[18].

CBD-based therapeutic approaches should be guided by improvements in pain control and quality of life. In this case, the reduction in pain intensity contributed to the patient's improved quality of life, enabling him to engage in hydrotherapy. This outcome suggests that the therapeutic strategy was appropriate.

It is important to emphasize that to establish evidence of the efficacy of cannabinoids in patients with postoperative NP, randomized, double-blind, placebo-controlled clinical trials must be conducted, incorporating different dosages and treatment durations to assess efficacy, safety, and tolerability.

Considerations

The use of cannabinoids in this patient led to a reduction in the intensity of postoperative NP, with an acceptable side-effect profile. Based on this result and considering the growing body of scientific evidence supporting the efficacy of cannabinoids in the treatment of chronic pain due to various conditions, it is worth highlighting that this therapeutic option may be beneficial when conventional pharmacological treatment yields unsatisfactory results. More clinical research is needed on the use of cannabinoids in patients with postoperative neuropathic pain.

Authors' Contribution: VCT: Conceived and planned the activities that led to the study, wrote the paper, approved the final version.

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