

Chiropractic management of bilateral meralgia paresthetica: a case report

Christopher B. Roecker, DC, MS^{1,2}

Sachien R. Hewawasam, DC, MS³

Matthew R. Skalski, DC, DACBR⁴

Objective: The purpose of this report is to describe the course of chiropractic care for an adult male experiencing persistent anterolateral thigh pain due to bilateral meralgia paresthetica.

Clinical features: A 40-year-old male U.S. Veteran was referred to chiropractic care for a two-year history of bilateral anterolateral thigh pain and paresthesia that worsened with inguinal pressure and hip extension activities.

Intervention and outcomes: A total of six chiropractic visits, including a combination of telehealth and in-person appointments, took place over a period of 10

Prise en charge chiropratique de la meralgie paresthésique bilatérale : un rapport de cas

Objectif: Le but de ce rapport est de décrire l'évolution des soins chiropratiques pour un homme adulte souffrant d'une douleur persistante à la cuisse antérolatérale due à une meralgie paresthésique bilatérale.

Caractéristiques cliniques: Un vétérán américain de 40 ans a été recommandé à la chiropratique pour une histoire de deux ans de douleur et de paresthésie antérolatérale bilatérale à la cuisse qui s'aggravait avec la pression inguinale et les activités d'extension de la hanche.

Intervention et résultats: Un total de six visites chiropratiques, comprenant une combinaison de rendez-vous par télémédecine et en personne, ont eu

¹ VA Puget Sound Health Care System

² University of Western States, Affiliate Faculty

³ VA Western New York Healthcare System

⁴ Palmer College of Chiropractic, West Campus

Corresponding author:

Christopher Roecker, DC, MS

VA Puget Sound Health Care System, 220 Olympic Blvd, Everett, WA 98203

E-mail: chrisroecker@outlook.com

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The patient involved with this case report consented to publication and documentation of this consent was provided at the time of submission.

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weeks. Treatments included patient education, soft-tissue therapy, therapeutic exercise prescription, and spinal manipulation directed toward the lumbar spine. The patient's pain was reduced from a 6/10 rating to a 0/10, he was able to reengage in recreational activities without discomfort, and sustained improvement was reported.

Summary: In this case, a trial of chiropractic care was associated with a resolution of the patient's bilateral meralgia paresthetica symptoms.

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KEY WORDS: case report; meralgia paresthetica; chiropractic; telerehabilitation; manual therapies; therapy, manipulation

Introduction

Meralgia paresthetica is a peripheral neuropathy characterized by pain in the anterolateral thigh region.^{1,2} This condition is a mononeuropathy involving the lateral femoral cutaneous nerve (LFCN). The LFCN is a peripheral nerve originating from the L2 and L3 lumbar nerve roots that travels under the inguinal ligament, approximately 1-2 cm medial to the anterior superior iliac spine (ASIS), as it exits the pelvis to supply sensory innervation of the anterolateral thigh (Figure 1).³ Patients with meralgia paresthetica characteristically experience a superficial discomfort described as pain, numbness, burning, or stinging localized to the region supplied by the LFCN (Figure 2).¹ Meralgia paresthetica may develop at any age, but is most commonly diagnosed between the ages of 30 to 60^{4,5}, and there is no clear predilection for race or sex^{4,6}.

The etiology of meralgia paresthetica is widely variable, but it is most commonly reported to develop following irritation or entrapment of the LFCN. This condition is often described to be more common during pregnancy, among individuals with obesity, or following compression of the inguinal region from tight-fitting belts, clothing, or harnesses.^{7,8} Iatrogenic causes of meralgia paresthetica have also been reported as a complication following a variety of surgical procedures, such as: appendectomy⁹, hernia repair¹⁰, or posterior thoracolumbar spine surgery^{11,12}. Meralgia paresthetica has also been shown to be more likely in patients who have carpal tunnel syndrome

lieu sur une période de 10 semaines. Les traitements comprenaient l'éducation du patient, la thérapie des tissus mous, la prescription d'exercices thérapeutiques et la manipulation de la colonne vertébrale lombaire. La douleur du patient est passée de 6/10 à 0/10, il a pu reprendre ses activités récréatives sans gêne et une amélioration durable a été constatée.

Résumé: Dans ce cas, un essai de soins chiropratiques a été associé à une résolution des symptômes de la méralgie paresthésique bilatérale du patient.

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MOTS CLÉS : rapport de cas méralgie paresthésique; chiropratique; téléadaptation; thérapies manuelles; thérapie, manipulation

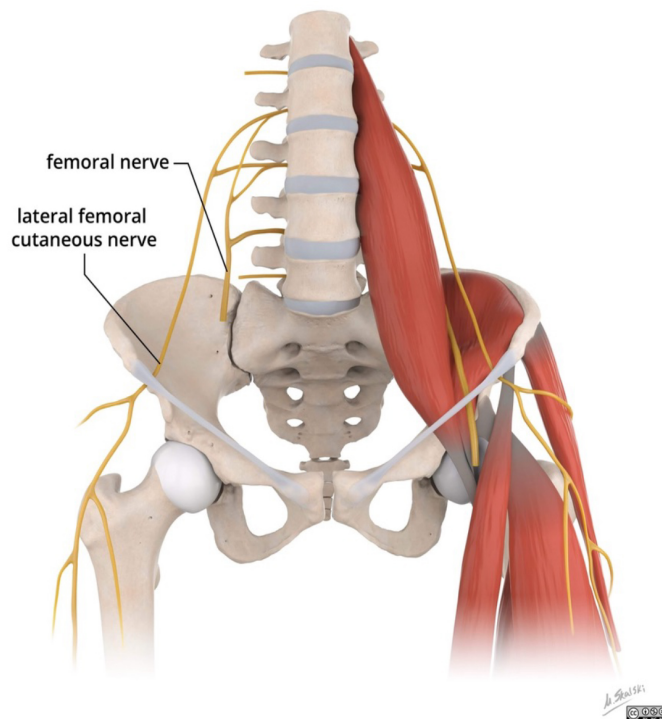


Figure 1.

Course of the lateral femoral cutaneous nerve

and diabetes mellitus,^{4,8} which is suggestive of a systemic susceptibility to neuropathic pain as a contributing factor to the development of this condition.



Figure 2.

Sensory distribution of the lateral femoral cutaneous nerve

While a variety of treatments are reported to help patients recover from meralgia paresthetica, there is an absence of controlled trials investigating this topic.¹³ Recommendations often begin with reassuring patients that most cases spontaneously resolve^{13,14}, along with identifying and removing any cause of compression near the inguinal region, which may occur with tight clothing or ill-fitting belts or harnesses⁶. Conservative forms of treatment are also recommended as part of the initial management strategy for meralgia paresthetica, but little exists describing details involved with these conservative treatment approaches.^{1,13} The purpose of this report is to describe the course of chiropractic care for an adult male experiencing persistent anterolateral thigh pain due to bilateral meralgia paresthetica.

Case presentation

A 40-year-old Caucasian male U.S. Veteran sought care with his primary care provider (PCP). During this en-

counter he reported bilateral “sensitivity and tenderness” on both of his anterolateral thigh regions, which had persisted for the proceeding two years and was becoming “very bothersome.” He explained that his discomfort initially began without any associated injury or trauma and had remained unchanged after attempting to manage the condition with over-the-counter acetaminophen and a trial of physical therapy over the proceeding four months. Additional diagnoses associated with this primary care visit were irritable bowel syndrome and psychological stress. The PCP’s assessment involved a “suspected lateral femoral cutaneous nerve syndrome or possible lumbar nerve root disorder” and treatment included wearing loose-fitting clothing, continued aerobic exercise, and attempting another form of conservative care. The Veteran expressed a desire to try chiropractic care for his condition and a referral to the VA’s chiropractic clinic was placed.

The chiropractic consultation was performed three days after the PCP referral and this appointment was scheduled as a virtual video telehealth visit, per the Veteran’s preference. During this consultation, the patient explained how he requested chiropractic care to address his bilateral thigh pain and numbness, but also explained having a four-to-six-month history of “mild lower back stiffness.” A thorough health history was performed during the consultation, and he described the character of his bilateral thigh pain as a “constant numbness and tingling” (i.e., paresthesia) on the left anterolateral thigh along with “intermittent and less intense” symptoms on the corresponding region of his right thigh. He reported that his characteristic paresthesia progressed to an intense “burning” sensation following direct pressure to the inguinal regions, about 1.0 cm medial to the anterior superior iliac spine (ASIS) landmark. He explained how engaging in recreational aerial yoga activities also flared this burning pain when the suspension straps placed pressure on his superior thigh and inguinal regions. His paresthesia was also worsened while lying supine or with hip extension activities, but relieved while in a seated position. He denied any symptoms in the posterior thigh regions, lower legs, or feet. He also explained that his low back “stiffness” was isolated to the axial lumbosacral region, and he attributed this to a recent increase in time spent sitting over the previous months, since he was nearing the end of his Ph.D. program and had been busy preparing his dissertation defense. Outcome measures were also collected during the telehealth consult by

displaying the questionnaires on the screen and recording the patient’s verbal responses (Table 1). Baseline outcome measures included the PEG-3 Pain Screening tool,¹⁵ the range of his pain experience at its “best” and “worst” on a Numerical Pain Rating scale, a Patient Specific Functional Scale¹⁶, and the Self-Completed Leeds Assessment of Neuropathic Symptoms and Signs (S-LANSS) questionnaire was also used to help evaluate the potentially neuropathic nature of this patient’s thigh pain^{17,18}. Near the end of the virtual chiropractic consult, the diagnosis of meralgia paresthetica was communicated and he was scheduled for an in-person follow-up.

Table 1.

Baseline outcome measures from the initial chiropractic consultation

PEG Questionnaire	
Average pain intensity	6/10
Interference with enjoyment of life	5/10
Interference with general activity	1/10
PEG score (mean of all 3 categories)	4/10
Range of Pain (via NPRS)	
Pain at its best	2/10
Pain at its worst	8/10
PSFS	
Aerial yoga	2/10
Sleep	4/10
S-LANSS Neuropathic Pain Questionnaire	
score	21/24

PEG; an outcome measure whereas the title is an acronym emerging from its components: pain intensity (P), interference with enjoyment of life (E), and interference with general activity (G), scores range from 0-10, higher scores are more severe.

NPRS; Numerical Pain Rating Scale, 0 = “no pain” and 10 = “worst pain imaginable”.

PSFS; Patient Specific Functional Scale, 0 = “unable to perform” and 10 = “Able to perform at the same level as before injury or problem”

S-LANSS; Self-Completed Leeds Assessment of Neuropathic Symptoms and Signs, higher scores suggest pain of neuropathic origin.

A physical exam was performed at the first in-person appointment and included the anterolateral thigh and lumbosacral regions. No changes in tissue appearance or

evidence of inflammation were visualized, his gait was normal, hip ranges of motion were normal, and a mild reduction of lumbar extension range of motion was observed while standing. Deep palpation applied to the soft tissues of the anterior pelvic regions, approximately 1.0 cm medial to each ASIS, reproduced his characteristic anterolateral thigh pain and paresthesia. Sensory testing also revealed a mild reduction in light touch on each anterolateral thigh, corresponding to the sensory distribution of the lateral femoral cutaneous nerve (Figure 2). The remainder of the lower extremity neurological exam was within normal limits, including patellar and Achilles tendon reflexes, bilateral negative femoral nerve tension tests, and bilateral negative straight leg raise tests. He describes his low back pain as being isolated to the axial lumbosacral junction and the associated lower lumbar paraspinal musculature. He denied any tenderness with palpation or percussion of the lumbosacral or lateral hip regions but did have a mild increase in low back pain during the lumbar extension-rotation test (i.e., Kemp test). No directional preferences were found to centralize or peripheralize his low back pain complaint. After completion of the physical exam, it was determined that no special studies were needed. The differential diagnosis of an upper lumbar disc disorder was ruled out and the clinical diagnosis of meralgia paresthetica was made along with a diagnosis of low back pain, likely of facetogenic nature.¹⁹

Treatment began at his first in-person appointment and included a combination of patient education, self-care recommendations, at home exercises, lumbosacral spinal manipulation, and various forms of soft-tissue therapy. Patient education involved reassurance that this condition is often self-limiting,²⁰ we reviewed the course of the lateral femoral cutaneous nerve, and we outlined common causes of irritation known to provoke his condition. Self-care recommendations included prioritizing stress management techniques, ensuring proper sleep, eating a healthy diet, and maintaining regular physical activity; these recommendations were based off the main pillars of Lifestyle Medicine.²¹ The recommended home exercise program focused on lumbopelvic mobility and conditioning activities outlined in Table 2 and Figure 3. These exercises were demonstrated at the first in-person treatment session and provided to the patient via email using the Home Exercise Program Builder (MedBridge, Bellevue, WA). Spinal manipulative therapy (SMT) involved a

lumbosacral high-velocity, low-amplitude technique performed in a side-lying position (Figure 4).²² Soft-tissue therapies were directed toward the superior portions of the rectus femoris, sartorius, and tensor fasciae latae musculature as well as the iliotibial tract (i.e., IT band); these included pin-and-stretch (Figure 5), VibraCussor massager (IMPACT Inc., Salem, OR) and a TigerTail muscle rolling stick (Tiger Tail USA, Kent, WA) (Figure 6).

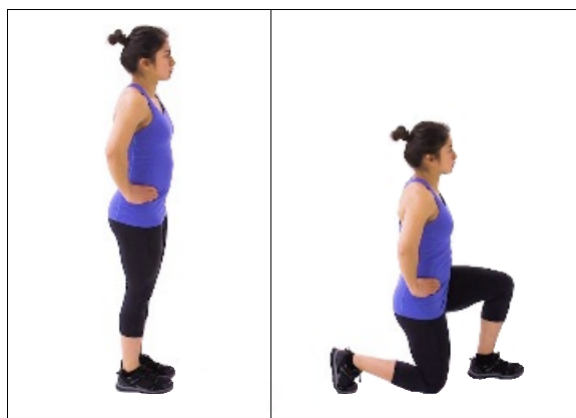
Table 2.
Recommended home exercise program

HEP Activities*	Instructions
Standard lunge	15-20 repetitions with each leg
Walking forward lunge	15-20 repetitions with each leg
Lateral lunge	10 repetitions with each leg
Cobra pose	6-8 repetitions with gradually increasing extension
Supine bridge	20 repetitions with slow movements
Side plank with clam	3-10 repetitions with each leg
Supine quadriceps stretch with a stretch strap	Hold for 15-30 seconds
Lateral shifts on wall	10-20 repetition in each direction

HEP; home exercise program

*The patient was instructed to perform each of these activities at least four times per day and no more than once every waking hour. He was also instructed to stop performing any activities that caused his pain to flare or if he experienced progressive worsening of his neurologic symptoms.

Figure 3.
Recommended home exercises



A. Standard lunge



B. Lateral lunge



C. Cobra pose



D. Supine bridge



E. Side plank with clam



F. Supine quadriceps stretch (with Strap)



Figure 4.
Lumbosacral spinal manipulative therapy technique (this image is for demonstration purposes and does not include the patient involved in this report).

In-person treatments consisted of a series of four total treatments over a period of eight-weeks. During the first treatment, he denied any adverse events or pain flares throughout care. At his second appointment, he described a reduction of his pain from his characteristic intense numbness and burning sensations to a sensation akin to a “mild sunburn.” He reported regularly engaging with his recommended self-care and home exercises and explained that he had also incorporated his own hip mobility activ-

ities and began walking 20 to 30 minutes, each day. At his third appointment, he reported continued improvement, continuation with his self-care and exercise routine, and was happy to report that he had successfully defended his Ph.D. dissertation and had also secured a job in his chosen field. At the fourth treatment, he explained that his pain was “pretty much gone” and only had minor discomfort when pressing firmly near his ASIS regions. We discussed releasing him from his scheduled episode of care, but he



A. Starting position



B. Ending position

Figure 5.

Pin and stretch technique used in this case (these images are for demonstration purposes and do not include the patient involved in this report).

expressed a preference to schedule one additional video telehealth appointment to ensure his symptoms did not return. At this video telehealth follow-up, one month later, he reported sustained improvement, while explaining that he had been “feeling great” and his bilateral thigh pain and paresthesia was now “gone.” When asked about his



Figure 6.

Soft-tissue roller applied to the vastus lateralis iliotibial tract region (this image is for demonstration purposes and does not include the patient involved in this report).

response to pressure near the ASIS region, he explained that “If I push hard on that area, it causes a minor tingling for a few seconds” but denied any pain or burning sensations. We agreed to release him from his scheduled trial of care but allowed him the option to schedule a follow-up as-needed, if his condition returned. Outcome measures were then collected during this video telehealth appointment (Table 3) and he reported that his condition was feeling “a great deal better” on the Patient's Global Impression of Change (PGIC) scale.²³ We also discussed submitting his case for publication and he provided enthusiastic consent and promptly signed and returned an emailed consent form.

Discussion

Meralgia paresthetica is an entrapment neuropathy involving the lateral femoral cutaneous nerve²⁴, which some say is “probably underrecognized”²⁵ at a reported incidence of 4.3 per 10,000 person years⁴. Meralgia paresthetica typically causes neuropathic pain on the anterolateral region of a single thigh, but has been reported to occur bilaterally in 10-20% of cases.^{14,26,27} Uniquely, the famous psychoanalyst Sigmund Freud was credited as the first to report a case of bilateral meralgia paresthetica and dis-

Table 3.
Follow-up outcomes measures from the final appointment

PEG Questionnaire	
Average pain intensity	0/10
Interference with enjoyment of life	0/10
Interference with general activity	0/10
PEG score (mean of all 3 categories)	0/10
Range of Pain (via NPRS)	
Pain at its best	0/10
Pain at its worst	“0.5”/10
PSFS	
Aerial yoga	“9.5”/10
Sleep	10/10
PGIC Scale	
“A great deal better, and a considerable improvement that has made all the difference.”	7

NPRS; Numerical Pain Rating Scale, 0 = “no pain” and 10 = “worst pain imaginable”.

PSFS; Patient Specific Functional Scale, scores range from 0-10, lower scores are more severe.

PGIC; Patient’s Global Impression of Change score, scores range from 1-7 with a 1 = “No change (or condition has got worse)” to a 7 = “A great deal better, and a considerable improvement that has made all the difference.”

closed that he wrote the case about himself.^{26,28} Cases of bilateral meralgia paresthetica are uncommon in the literature and we are not aware of any other reports or bilateral cases treated with chiropractic or other conservative management strategies.

Diagnosing patients with meralgia paresthetica may be a challenge for a variety of reasons. Meralgia paresthetica is a neurological disorder lacking objective or confirmatory diagnostic tests. This condition is identified as a “clinical diagnosis,” wherein the clinician is required to recognize the features of meralgia paresthetica, consider alternative explanations, and determine that this diagnosis is the best explanation for the patient’s presentation.¹ Unfortunately, the features of meralgia paresthetica are not uniformly recognized, and this under recognition has been thought to contribute to overlooked diagnosis.⁴ We reviewed the literature for clinical exam procedures that may assist in the diagnosis of meralgia paresthetica and

identified the pelvic compression test²⁹, the Tinel sign near the ASIS³⁰, and a side lying neurodynamic test³¹. While these orthopedic tests have been described, there is little in the way of evidence to quantify their clinical utility and clinicians should use them only as an adjunct to the neurologic exam when evaluating patients suspected of having meralgia paresthetica.

Differential diagnoses to consider when evaluating someone suspected of having meralgia paresthetica should include conditions that produce pain or sensory abnormalities in the anterolateral thigh region. A variety of other pathologies may produce sensory abnormalities in a distribution that mimics meralgia paresthetica. Reports of misdiagnoses confused to be meralgia paresthetica include: lung cancer metastasis to the iliac crest³², uterine fibroids³³, avulsion fracture of the ASIS^{34,35}, appendicitis³⁶, and hypothyroidism³⁷. Radiculopathy emerging from upper lumbar disc herniations have also been confused with meralgia paresthetica and should be considered within the list of differential diagnoses when evaluating someone suspected of having meralgia paresthetica.³⁸⁻⁴⁰ Other musculoskeletal conditions reported to cause lateral thigh pain may also be considered, and include: greater trochanteric pain syndrome, trochanteric bursitis, and various femoroacetabular joint pathologies. Clinicians should also stay mindful that referred pain patterns involving the lateral thigh region are common in patients with chronic low back pain involving the lumbar facet joints, sacroiliac joints, and/or lumbar discs.⁴¹ It is important to emphasize that patients demonstrating motor dysfunction, abnormal reflex tests, or sensory abnormality extending beyond the region supplied by the LFCN (Figure 2) should be further worked-up for other pathologies, as meralgia paresthetica does not manifest with such features.¹ While special studies are not required to establish the diagnosis of meralgia paresthetica, diagnostic ultrasound, MRI, or CT may be useful if soft-tissue or bony lesions are believed to be contributing to a patient’s presentation. Electrodiagnostic testing may also be used¹, but these may be technically difficult due to reported variations in the course of the LFCN^{3,42}. If clinical suspicion of serious pathology is sufficiently low, or there is an absence of severe or progressive symptoms, special studies may be delayed until a trial of conservative care has occurred.¹³

Treatment recommendations for meralgia paresthetica suggest conservative approaches as an appropriate initial

management strategy, combined with advice to avoid causes of external compressive forces near the inguinal region.^{1,13} It is reported that the majority of patients with this conditions will respond to conservative measures⁷, but there is considerable variability in what constitutes conservative care; forms of conservative care reported in the literature have included: reassurance of a favorable natural history, physiotherapy, manual therapies, acupuncture, non-steroidal anti-inflammatory medications, and even corticosteroid or anesthetic injections (i.e., nerve blocks)^{1,13,31,43}. We reviewed the literature and identified three case reports describing chiropractic treatment for patients with meralgia paresthetica.⁴⁴⁻⁴⁶ The first report was published in 1982 and involved a heel lift, electrotherapy to the lumbar musculature, and prone lumbar spinal manipulation “two to three times per week” for approximately five weeks, which resulted in a complete resolution of the patient’s right-sided meralgia paresthetica pain.⁴⁴ The next report was published in 2006 and involved Active Release Technique (ART®) applied to a restricted sacroiliac joint as well as the iliopsoas and quadratus lumborum musculature, post-isometric relaxation stretching of the iliopsoas musculature, and lumbopelvic home exercises to encourage mobility and flexibility.⁴⁵ This approach resulted in 90% improvement of the patient’s right-sided meralgia paresthetica symptoms following six treatments over a six-week period. The third report was published in 2012 and involved a form of applied kinesiology referred to as “injury recall technique” that applied manual forces to the rectus femoris musculature, sacroiliac spinal manipulation, prone pelvic blocking, and transverse friction massage to the region of the inguinal ligament and iliopsoas musculature.⁴⁶ This approach resulted in a 95% improvement in the patient’s right-sided meralgia paresthetica symptoms following three treatments over a two-week period. These three case reports describe a high amount of variability in the methods used by chiropractors to manage meralgia paresthetica. Our hope is that this report will provide additional insight as to how chiropractors, or other conservative care providers, may address the work-up and treatment of patients with meralgia paresthetica.

Limitations

The nature of a case report comes with many limitations. Treatment was provided in an outpatient setting and a

wide variety of uncontrolled factors may have influenced the patient’s clinical features. The results of this case should also be considered in the context of the reportedly favorable natural history of meralgia paresthetica and in the context of the regression to the mean phenomenon, whereas unusual observations (e.g., high pain levels) are likely to be followed by less extreme observations. We would also like to emphasize the non-specific effects that manual therapy may have on an individual’s experience of pain.⁴⁷ Additionally, chronic pain is a complex biopsychosocial phenomenon; this patient’s pain experience and recovery likely involved factors that were unable to be captured in this report. One such factor that may have influenced his recovery is that he was defending a Ph.D. thesis, which likely increased his levels of stress or anxiety, and then accepted a job in his new career field near the end of this trail of care, which likely reduced his stress and anxiety. Ignoring the role that such psychosocial factors may have on his chronic pain experience would be short-sighted.⁴⁸

Summary

This case describes a short course of chiropractic care for the management of a U.S. Veteran suffering from persistent bilateral meralgia paresthetica. In this case, treatment consisted of a combination of video telehealth visits, in-person manual therapies, a home exercise program, and self-care recommendations. Treatment was associated with a sustained resolution of this patient’s bilateral meralgia paresthetica symptoms and a return to his normal work and recreational activities.

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