

Alcohol neurolysis of lateral femoral cutaneous nerve for recurrent meralgia paresthetica

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Summary

Meralgia paresthetica is an entrapment mononeuropathy of lateral femoral cutaneous nerve, which results in localized area of paresthesia and numbness on the anterolateral aspect of the thigh. We describe the use of alcohol neurolysis of lateral femoral cutaneous nerve in a 74-year-old female who presented with paresthesia over antero-lateral aspect of her left thigh, which was consistent with meralgia paresthetica. Diagnostic block with local anaesthetic confirmed the diagnosis but only achieved temporary pain relief. Alcohol neurolysis was then offered and patient responded well with no complication. The patient experienced prolonged pain relief at 6-month follow-up, with return of ability to ambulate and perform daily activity. Alcohol neurolysis of lateral femoral cutaneous nerve is safe, effective and able to provide sustained pain relief for recurrent meralgia paresthetica.

Key words: Alcohol neurolysis; lateral femoral cutaneous nerve; meralgia paresthetica.

Introduction

Meralgia paresthetica (MP), a neurological disorder of lateral femoral cutaneous nerve (LFCN), which is characterized by a localized area of paresthesia and numbness on the anterolateral aspect of the affected thigh. It is a form of focal entrapment neuropathy of LFCN as it passes through the inguinal ligament.^[1] There are many aetiologies for this disorder and these aetiologies are broadly divided into spontaneous onset (idiopathic, metabolic or mechanical) and iatrogenic (surgery).^[2] Although MP usually follows a benign course and will respond well to conservative management, sometimes surgical management is required to provide symptomatic relief.^[3]

No study has yet been reported in the use of alcohol neurolysis of LFCN for recurrent MP. Herein, we report a case of an elderly female patient who had frequent recurrence of symptoms of MP despite

nerve blocks with local anaesthetics. She achieved prolonged pain relief after alcohol neurolysis of LFCN with no complications.

Case Report

A 74-year-old female presented to our pain clinic with five months history of pain and numbness over anterolateral aspect of her left thigh. Her past medical and surgical histories were unremarkable. She had no history of fall or trauma to her back or lower limbs. Her height was 155 cm and her weight was 45 kg, with body mass index of 18.73. She expressed her level of pain as being 8 to 9 on a visual analogue scale (VAS), with 0 describing no pain, 10 describing worst possible pain. The pain was aggravated by movement of the affected limb, especially extension of hip joint. Her ambulation was affected, especially while descending staircase due to severe pain. Anti-neuropathic, anti-depressant

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and anti-inflammatory drugs provided minimal pain relief.

Clinical examination revealed no erythema, joint or limb deformity, or palpable mass. Sensory examination showed decreased sensation and loss of sharp (pin-prick) sensation over distribution of right lateral femoral cutaneous nerve.

Knee and ankle reflexes were normal and symmetrical. The flexor and extensor muscles of the proximal and distal lower extremities showed normal strength. Radiographic imaging of pelvic and hip revealed no abnormalities. All these clinical findings were suggestive of right MP and we further confirmed the diagnosis with LFCN block.

Ultrasound-guided diagnostic nerve block with bupivacaine 0.25% gave patient excellent pain relief, which lasted for a week. As clinical presentations and diagnostic block suggestive of MP, no somatosensory evoked potential and nerve conductive test was performed. The block was repeated at two weeks; with triamsinolone 40 mg. During the course of treatment, patient also participated in physiotherapy. However, pain relief only lasted three weeks. Due to logistic constrain, patient was given option of alcohol neurolysis for a longer lasting pain relief. The procedure was performed in the operation theatre. The patient was placed in the supine position with right lower limb slightly externally rotated. Electrocardiography, pulse oximeter and non-invasive blood pressure were monitored and intravenous access was obtained. The area between the umbilicus and right mid-thigh was cleaned and draped. The procedure was performed under guidance of GE Logiq e portable ultrasound and a linear 5-13 MHz ultrasound transducer, in an aseptic manner. A systemic anatomical scan medial and inferior to the anterior superior iliac spine was performed. The fascia lata, fascia iliaca and the LFCN located in between the two fascias and sartorius were identified. Lignocaine 1% was infiltrated around the puncture site medial to the ultrasound transducer. A 22G Stimuplex D Plus 120 mm (Stimuplex D Plus, B. Braun, Melsungen AG, Germany) needle was used with in-plane technique. The needle was advanced until it reached the plane between the fascia lata and iliaca, where the LFCN is visualized as a small hy-

poechoic structure. The location of needle tip was further confirmed with nerve stimulation at 0.42 mA current at 2 Hz. Patient experienced a reproducible concomitant pain. After negative pressure aspiration, 1 ml of normal saline was used to hydrodissect the plane between the two fascias. A total volume of 5 ml was then injected (2.5 ml of bupivacaine 0.5% along with 2.5 ml of ethanol 90%). Minimal pain was experienced during injection and the patient had greater than 50% pain relief 15 minutes later. Six month after neurolysis, VAS of the patient remained at 1 to 2 and she regained her daily activity.

Discussion

Meralgia paresthetica is a mononeuropathy of LFCN, commonly presents as paresthesia over the antero-lateral part of thigh. It is a form of entrapment neuropathy, where focal entrapment of this nerve occurs as it passes through the inguinal ligament.^[1] MP has many aetiologies, broadly categorized into spontaneous and iatrogenic. Spontaneous MP occurs in the absence of any prior surgical procedure while the iatrogenic form is associated with surgical procedures.^[2] In our case, this patient was having spontaneous MP and the most likely explanation for the symptoms was compression of the LFCN by tendinous formations of low extensibility, such as the inguinal ligament and the fascia lata secondary to aging.

The presentation of MP is typical and consistent, in which paresthesia and numbness was felt over the distribution of LFCN.^[2] Activities that stretch the nerve (e.g. standing) aggravate the symptoms and vice versa.^[4] Our patient experienced pain when she walks and descends the stair case, which requires extension of the hip and stretching the nerve. Her pain was relief when she was sitting and not ambulating. Patients with MP usually do not have other neurological, urogenital and gastrointestinal symptoms and signs. The diagnosis of MP is clinical and can be further confirmed by nerve block with local anaesthetics with or without steroid.^[5] We did not subject our patient to nerve conductive test or somato-sensory evoked potential test due to her typical presentations and further confirmed by good response to diagnostic nerve block. However, the

duration of pain relief was not long lasting, neither with local anaesthetics nor corticosteroid. As there was some logistic issues for this patient to come for further treatment and follow-up with our pain clinic and in the absence of radio-frequency generator, patient was consented for alcohol neurolysis. Patient understood the possibility of prolonged numbness over the distribution of LFCN post neurolysis.

Most cases of MP follow favourable courses and 85% recover with conservative management.^[6] Treatment of the underlying condition, if known, should be prioritized. When pain is the main concern, oral medications, e.g. tricyclic antidepressants, antiarrhythmics and anticonvulsants can be prescribed to treat neuropathic pain.^[7] Further symptoms can be alleviated by local infiltration of the LFCN with local anaesthetic, with or without corticosteroids.^[8,9] Pulsed radiofrequency treatment of LFCN is still in the infancy stage as of date. Only case reports on the efficacy of this modality are available although the results are encouraging.^[10] When all modalities fail, spinal cord stimulation can be an option but it is only done in a specialist pain centre.^[11] Surgical treatment should only be reserved for the extreme form of MP which recalcitrant to all other treatments.^[12]

Prior to the introduction of radiofrequency ablation, alcohol neurolysis is a popular technique to treat spasticity^[13] and chronic pain, especially cancer pain.^[14] Ethanol has been used extensively for neurolytic procedures in concentrations from 5% to 95%. At low concentrations (5% to 10%), alcohol acts as a local anesthetic by decreasing sodium and potassium conductance; at higher concentrations, it non-selectively denatures proteins and injures cell by precipitating and dehydrating protoplasm.^[15]

For our patient, with the successful diagnostic block, we were confident that the LFCN was the main pain generator. With the availability of ultrasound as an accurate tool in performing neurolytic block,^[9] the risk of damage to adjacent tissue could be minimized. With a single treatment of alcohol neurolysis of LFCN, this patient had obtained greater than 50% pain relief which sustained for six months. She was able to cease all the oral analgesia and ambulate freely almost immediately after neurolysis. She has

no sensory loss upon examination during follow-up one month later. In the present of radiofrequency generator, it is recommended pulsed radiofrequency on the LFCN should be performed.

In conclusion, this case reported herein provides evidence that alcohol neurolysis of the LFCN is a safe and effective method of treatment of recurrent MP, with pain relief lasting at least 6 months. Prolonged follow-up is required to determine the actual duration of pain relief.

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