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Meralgia Paresthetica: A Case Report, Considering A Multi-Factorial Etiology

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Abstract

Many patients' factors can contribute to peripheral neuropathy seen in the clinical practice, these factors include, obesity, diabetes mellitus, hypothyroidism, lead poisoning, shingles, vitamin deficiency, acquired immune deficiency syndrome (AIDS), and direct trauma (2). Early identification of the involved factors facilitates an early diagnosis and effective management which are essential in reducing pain and improving patient's function (1). We describe a case report where a 44-years old gentleman presented with persistent right anterolateral thigh pain for 6 years duration, who was diagnosed afterwards with lateral femoral cutaneous nerve entrapment known as Meralgia Paresthetica (MP), however the patient had multiple factors that will be explored that could have contributed to his presentation one of these factors is hypothyroidism.

Although hypothyroidism is known cause of neuropathy, to our knowledge there is only one case report of hypothyroidism and MP in the literature in which the patient symptoms completely resolved after correction of the thyroid function. This article presents and discuss a case of (MP) and hypothyroidism, existing with other factors that could be contributing to the patient presentation and delayed diagnosis, indicating the importance of acknowledging the possibility of multifactorial etiology in the management of this condition.

We concluded that, as the incidence of MP is more common than often reported in the literature, hence clinicians should have a high index of suspicion in any patient with anterolateral thigh symptoms especially in the presence of multiple risk factors which could exist simultaneously in the same patients, emphasizing that the first-line of therapy is to treat and/or to prevent any existing contributory factors, followed by a proper management to terminate patients suffering and facilitate the resumption of full functional activities.

Keywords: Neuropathy, lateral femoral cutaneous nerve, Meralgia Paresthetica, hypothyroidism.

Introduction

Entrapment neuropathies are commonly encountered in clinical practice, early diagnosis and effective management are essential in reducing pain and improving patient's function (1). Many patients' factors can contribute to peripheral neuropathy including obesity, diabetes mellitus, hypothyroidism, lead poisoning, shingles, vitamin deficiency, acquired immune deficiency syndrome (AIDS), and direct trauma (2). Although hypothyroidism is known to cause neuropathy (3), to our knowledge there is only one case that is reported in the literature with lateral femoral cutaneous nerve (LFCN) entrapment secondary to hypothyroidism in which the patient symptoms resolved after correction of the thyroid function (4).

The article presents and discuss a case of right lateral femoral cutaneous nerve (LFCN) entrapment known as Meralgia Paresthetica (MP) presented after treatment with radioactive iodine for thyrotoxicosis and development of hypothyroidism, however the patient has multiple factors that will be explored that could be contributing to his presentation indicating the importance of acknowledging the possibility of multifactorial etiology in the management of the condition.

Case presentation

A 44-year-old gentleman, right handed, working as an office clerk, presented to our pain clinic as a referral from neurology department with a chief complaint of right anterolateral thigh pain for 6 years duration, he described his pain as tingling, pins and needles like with numbness, the pain is on and off in nature increases in severity with prolonged sitting, he gave a pain score of 7-8 out of ten. in a numerical rating scale, 0 is no pain and 10 is the worst possible pain.

He stated that his pain started after 4 months of receiving radioactive iodine therapy for thyrotoxicosis that failed to respond to conventional therapy.

The patient gave history of back pain without radiation to the lower limbs for two years with no history of trauma, for which he had a spine MRI with contrast that revealed mild disc bulge at L5 S1 nerve roots, the patient declined any weakness or sphincter dysfunction, the patient was diagnosed afterwards to have developed hypothyroidism, and was started on replacement therapy. Upon presentation to the pain clinic the patient declined any history of fatigue, constipation, cold intolerance, hair loss, and hoarseness.

His thyroid function was within normal limit; free T3 2.32 (1.72-3.54) Picograms per millilitre (pg/ml), free T4 0.91 (0.70-1.48) nanograms per deciliter (ng/dL), TSH 4.9152 (0.35-4.94) micro-international units per milliliter (ulU/ml). His vitamin B12 level was within normal limits 485 (187-883) pg/ml, and his fasting blood sugar and glycosylated haemoglobin were normal as well.

His medical history is significant for hypertension on Valsartan 80 mg BID, and hypothyroidism on L-Thyroxin 125 micrograms once daily. There was no history of diabetes

mellitus, or any metabolic disorders. He did not have any previous surgery, and he declined any history of allergy. The patient was started on Gabapentin by the neurologist with no benefit, then he was shifted to Carbamazepine (Tegretol), gradually up to 200 mg, vitamin B complex, and Lidocaine patch 5% with little benefit**.** He had Nerve Conduction Study (NCS), which showed absence of sensory response of the right lateral femoral cutaneous nerve (LFCN), which confirmed the diagnosis of Meralgia Paresthetica (MP), so he was referred to the pain clinic for further management.

On examination, he is a middle-aged gentleman, with normal gait, does not use any assistive device to walk, his weight is 102 Kilograms (Kg), height of 179 centimeters (Cm), and body mass index (BMI) of 31.8, which indicates obesity. Localized examination showed no skin changes, there is dysethesia in the anterolateral aspect of the right thigh and tenderness about two centimeter medial to the right anterior superior iliac spine (ASIS) upon percussion it elicited tingling in the anterolateral aspect of the right thigh, leg extension increased his pain, his straight leg raises (SLR) test was negative, and Flexion, ABduction, and External Rotation (FABER)'s test was negative. He has mild decreased sensation over the anterolateral aspect of the right thigh, however his motor power and the deep tendon reflexes were intact. The examination of the left side was unremarkable.

The patient was booked for right LFCN block under ultrasound guidance, the block was performed under complete aseptic technique, using GE Logiq e ultrasound machine and the 4 – 12 linear transducers, after visualization of the LFCN between the tensor fasciae lata and the Sartorius muscle. A 22 G, 50 mm (Echoplex+) needle was used, and inserted in plan with the ultrasound transducer, then a total 6 ml of xylocaine 1.5 % and 20 milligram of Triamcinolone was injected, and sterile dressing was applied.

The patient confirmed an immediate pain relief at the anterolateral aspects of the right thigh, after which he was observed for 30 minutes for any signs of local anesthetic toxicity or any adverse events. He was prescribed Celecoxib 200 mg on as needed basis and advised to continue the Lidocaine patch.

Follow up appointment in three weeks' time patient reported complete pain relief, he stopped all his medications. Additionally, the patient was advised to lose weight through consultation to a nutritionist and incorporating exercise activities.

The patient was seen in multiple follow up visits after the injection, up to one year he managed to lose 10 kilograms of weight, incorporated stretching and moving every two hours while at duty and was free of any MP symptoms.

Discussion

Meralgia Paresthetica (MP) was described by Bernhardt in 1878, and then the term was adopted by Roth in 1878, to describe a disorder caused by entrapment or damage to the lateral femoral cutaneous nerve (LFCN) as it passes underneath or through the inguinal ligament, characterized by tingling, numbness, or burning pain in the anterolateral aspect of the thigh. It most commonly occurs on one side, but in 20% of cases it appears bilaterally (5, 6).

Although most cases of LFCN entrapments (meralgia paresthetica) are idiopathic, different risk factors has been identified that might increases the risk of MP including, obesity**,** diabetes mellitus, prolonged leaning of the thigh against a bench or table, and direct pressure or trauma (6).

Hypothyroidism, one of the most common endocrine disorders, that has neurological manifestations, causing both mono and polyneuropathies (3, 7), however the exact mechanism is not fully understood, and with the most commonly involved nerves are the sural and median nerves [8], but to our knowledge there is only one unilateral meralgia parethetica case in hypothyroid patient who showed an immediate improvement of MP symptoms upon correction of the thyroid hormones (4).

In our patient different factors were involved that might have contributed to development of meralgia parethetica including, hypothyroidism, obesity, and the possibility of direct pressure from prolonged sitting and leaning in his office job as the patient stated his job might imply sitting for 6 – 8 hours/day. As MP has been reported in mimicking lumbar radiculopathy (6, 9, 10), this was excluded as a cause of his pain since the LFCN is a branch of the lumbar plexus emerging from the L2 and L3 nerve roots which correspond to the anterolateral aspect of the thigh, however his MRI showed L5 S1 disc bulge with no corresponding signs and symptoms.

Moreover, our patients declined any signs or symptoms of hypothyroidism upon presentation to the clinic including, cold intolerance, fatigue, constipation, hair loss, and hoarseness, he has normal thyroid function, normal vitamin B12 level, and normal blood sugar profile, however continued to suffer from MP symptoms, which might lead to consideration of other involved mechanisms and factors such as obesity and prolonged direct pressure.

The diagnosis of MP, is often delayed as the condition is rarely considered, and is frequently mistaken for other disorders (5,6,11), unfortunately when the diagnosis and treatment is delayed or missed, this can lead to significant disability and suffering by the patient, and unnecessary investigations and tests (5, 12). The diagnosis of MP is mainly clinical (6, 13), which allude to the importance that clinicians should consider the possibility of MP whenever the patient reports anterolateral thigh symptoms such as pain, burning, tingling, numbness, paresthesia or dysesthesia (2, 4-6), especially in the presence of any risk factors such as DM, obesity, or hypothyroidism (2, 14). Also, the relief of pain or symptoms, after the injection of local anaesthetic could serve as a helpful diagnostic entity (6, 15, 16).

Other investigations such as Plain X-ray, CT or MRI of the lumbar spines could be performed to exclude other possible etiologies such as disc herniation or pelvic lesions (6). Additionally, blood tests must be considered including, vitamin B12 levels, blood sugar profile, and thyroid function testing, as MP has been associated with hypothyroidism (4, 6). If the diagnosis is still not confirmed electrophysiological tests are considered to confirm the diagnosis (17).

Treatment of Meralgia Paresthetica has been controversial (18), as evidence in the literature showed that most cases might recover spontaneously within 4–6 months of presentation (6, 19). However as first-line of therapy one should always consider to treat and/or to prevent any existing contributory factors, such as, life style modification, by weight reduction, not wearing tight

clothes or belts, avoid the prolonged leaning or bending and to consider frequent movement, and stretching intervals (6).

Williams and Trzil (20) reported resolution of symptoms in up to 90% with conservative management including, Non-steroidal anti-inflammatory drugs, physical therapy, and local steroid injection (11), however in case of persistent or intractable pain, other measures such as, radiofrequency nerve ablation has been reported of good benefit (21, 22), or surgical intervention including neurolysis, transposition and neurectomy could be considered (15, 16, 18).

Conclusion

We concluded that, the incidence of MP is more common than often reported in the literature, and clinicians should have high index of suspicion in any patient with anterolateral thigh symptoms especially in the presence of risk factors such as advancing age, obesity, diabetes, hypothyroidism, or direct pressure and trauma. Taking a through history and clinical exam, putting in mind that multiple factors could exist in the same patient simultaneously and must be tackled accordingly. Although most cases resolve spontaneously, a quick diagnosis that followed by a proper management including the elimination of risk factors cannot be over emphasized to terminate patients suffering and facilitate the resumption of full functional activities.

Clinician education about MP symptoms and signs especially in the primary care setting is recommended for early recognition and effective management.

Limitations

This is a single case report, future studies with more patients are required to investigate the mechanisms related to MP with hypothyroidism and to evaluate other risk factors that might contribute to MP, considering that an individual patient might have multiple factors at the same time and each one should be considered in the etiology until proven otherwise.

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Conflict of interest

The author declares no conflict of interest.

Ethical approval

The author certifies that, all investigations were conducted in accordance with ethical principles of research, and that case report is waived from the ethical approval by the institution as long as a written informed consent is obtained from the patient.

Consent to participate

A written informed consent was obtained from the patient for participation in this study, and for the publication of this case report.

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