

BRIEF REPORT

Relieving Symptoms of Meralgia Paresthetica Using Kinesio Taping: A Pilot Study

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ABSTRACT. Kalichman L, Vered E, Volchek L. Relieving symptoms of meralgia paresthetica using Kinesio taping: a pilot study. *Arch Phys Med Rehabil* 2010;91:1137-9.

Objective: To assess the effect of the novel Kinesio taping treatment approach on meralgia paresthetica (MP) symptoms.

Design: Repeated measurements, feasibility study of 1 intervention.

Setting: Referral private physical therapy clinic.

Participants: Men (n=6) and women (n=4) with clinically and electromyographically diagnosed MP.

Intervention: Application of Kinesio tape, twice a week for 4 weeks (8 treatment sessions in total).

Main Outcome Measures: Visual analog scale (VAS) of MP symptoms (pain/burning sensation/paresthesia), VAS global quality of life (QOL), and the longest and broadest parts of the symptom area were measured.

Results: All outcome measures significantly improved after 4 weeks of treatment. Mean VAS QOL \pm SD decreased from 69.0 \pm 23.4 to 35.3 \pm 25.2 ($t=4.3$; $P=.002$). Mean VAS of MP symptoms \pm SD decreased from 60.5 \pm 20.8 to 31.4 \pm 26.6 ($t=5.9$; $P>.001$). Length and width of affected area decreased from 25.5 \pm 5.5 to 13.7 \pm 6.7 ($t=5.1$; $P>.001$) and 15.3 \pm 2.1 to 7.4 \pm 4.3 ($t=5.3$; $P>.001$), respectively.

Conclusions: Kinesio taping can be used in the treatment of MP. Future randomized placebo-controlled trials should be designed with patients and assessors blind to the type of intervention.

Key Words: Feasibility studies; Rehabilitation.

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MERALGIA PARESTHETICA symptoms include numbness, paresthesias, and pain in the anterolateral thigh resulting from either entrapment neuropathy or neuroma of the lateral femoral cutaneous nerve.¹ MP can occur in any age group but is most frequently reported in middle-age persons² and is generally regarded as uncommon. The incidence rate of MP reported in Holland in 2004³ was 4.3 per 10,000 persons. Jones⁴ reported an MP diagnosis in 6.7% to 35% of patients referred for leg discomfort. There is no consensus about sex predominance,⁵ but in 1 study evaluating 150 MP cases, a higher incidence was reported in men.⁶ MP has typically shown a preponderance in

obese patients⁷ or patients with diabetes⁸ as well as in pregnant women.⁹

The most common treatments for MP^{2,10,11} are (1) a wait and see policy; (2) NSAIDs; (3) nonspecific physiotherapy treatment that includes hot or cold packs, electric stimulation (transcutaneous electrical nerve stimulation, interferential current), and ultrasound in the lateral part of inguinal ligament; (4) injection of lidocaine to block the lateral femoral cutaneous nerve temporarily; (5) injection of corticosteroids; and (6) surgical decompression of the lateral femoral cutaneous nerve. For most patients, this condition is self-limiting, and with education, patients learn to tolerate symptoms and modify activity, thus avoiding surgery or other aggressive treatments. Treated conservatively, about 85% of patients were pain-free within 4 to 6 months.¹⁰ However, in more than 15% of patients, MP will become chronic or will have to be treated surgically. Moreover, even in patients with a benign course of MP, pain or paresthesias can be very severe and can affect QOL significantly. MP treatment in Israel today does not include physical therapy and usually consists of a wait and see policy, oral NSAIDs, and steroid injections.¹¹ New conservative, noninvasive, nonpharmacologic treatments for MP are needed, especially in treating patients with contraindications for NSAID, steroids, or surgery.

Kinesio taping is a treatment method used by physical and occupational therapists, athletic trainers, and other health care providers to improve symptoms associated with musculoskeletal disorders. KT differs from the traditional white athletic tape because it is elastic and can be stretched to 140% of its original length before being applied to the skin. It subsequently provides a constant pulling (shear) force to the skin, unlike traditional athletic tape. The mechanism by which KT application influences different tissues and functions is still unknown. According to Kenzo Kase, the creator of the Kinesio taping, an application of KT can improve blood and lymph circulation and decrease pain through the restoration of superficial and deep fascia function.¹² Further studies are necessary to confirm this statement. However, recently published studies have already demonstrated that KT applications improve neck¹³ and low trunk¹⁴ range of motion and increase bioelectric activity of the vastus medialis¹⁵ and lower trapezius muscle.¹⁶

Because applying KT may affect the fascia around the lateral femoral cutaneous nerve, it is a potentially effective method for relieving symptoms in patients with MP. The aim of this pilot feasibility study was to assess the effect of the novel Kinesio taping approach on MP symptoms. Positive results of this study will allow further, more compelling, research.

List of Abbreviations

EMG	electromyography
KT	Kinesio tape
MP	meralgia paresthetica
NSAIDs	nonsteroidal anti-inflammatory drugs
QOL	quality of life
VAS	visual analog scale

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METHODS

Design

Repeated measurements, feasibility study of 1 intervention was performed.

The study population included subjects with pain or a burning sensation in the lateral aspect of the thigh who were diagnosed with MP by a board-certified neurologist (L.V.). The clinical diagnosis was confirmed by an EMG test performed by the same neurologist. Inclusion criteria were self-reported pain, burning sensation, or paresthesias over the upper and lateral area of the thigh; signs of MP in an EMG study (amplitude of the lateral cutaneous nerve of thigh potential $<10\mu\text{V}$, latency $>3.5\text{ms}$, the normal needle examination of the thigh muscles), with symptoms lasting for at least 6 weeks; age >18 years; and no evidence of other specific diseases of the musculoskeletal system after a physical examination (eg, normal strength, no atrophy of thigh muscles, preserved knee jerk). Exclusion criteria were prior surgical treatment of the affected thigh region, known rheumatic diseases or diseases of neuromuscular transmission, morbid obesity, participation in other clinical studies, plans to leave the area during the 12-week study period, self-reported pregnancy, and a local or systemic infection.

Thirteen patients with MP were asked to participate in the study. Ten agreed and signed an informed consent form.

Evaluation Methods

Four parameters were measured before the first treatment and 4 weeks later. First, MP symptoms (pain/burning sensation/paresthesia) were evaluated using a 100-mm VAS ranging from 0, no symptoms at all, to 100, intolerable symptoms. Second, the influence of MP on global QOL was evaluated using a 100-mm VAS ranging from 0, no influence on QOL, to 100, very low QOL. This method has good validity, excellent reliability, and good anchor-based responsiveness.¹⁷ In addition, a symptom area was marked, and its longest and broadest parts were measured (fig 1A).

Intervention

All procedures were performed by an experienced research physiotherapist who was also a KT practitioner (L.K.). KT was applied twice a week for 4 weeks (8 sessions in total) in a referral private physical therapy clinic. No other medical treatment (eg, NSAID) or physiotherapy procedures were given. Patients were instructed to remove the tape if symptoms became aggravated. If the tape did aggravate the symptoms, the tape was applied again using a modified technique. We decided a priori that if the procedure aggravated the symptoms once again, KT procedures would be discontinued. However, no recurrent aggravation was reported.

Participants were asked to remove hair from the inguinal area and lateral side of the hip. Two strips of tape were applied (see fig 1B). The first was a Y-shaped strip anchored approximately 2cm above the lateral end of the inguinal ligament with 2 tails on 2 sides of the symptom area. We applied 50% to 75% of the tape tension in a mechanical correction technique. The second strip was I-shaped (approximately 10–12cm length) running along the inguinal ligament with a tension-on-base technique of 15% to 25% in a space correction technique, anchored on the lateral side of the anterior superior iliac spine. A detailed description of these techniques can be found in the Kinesio taping manual.¹² Five basic corrections of the Kinesio taping technique differ by direction and strength of tape tension: mechanical, fascia, space, ligament/tendon, and functional corrections. According to Kase,¹² mechanical correction

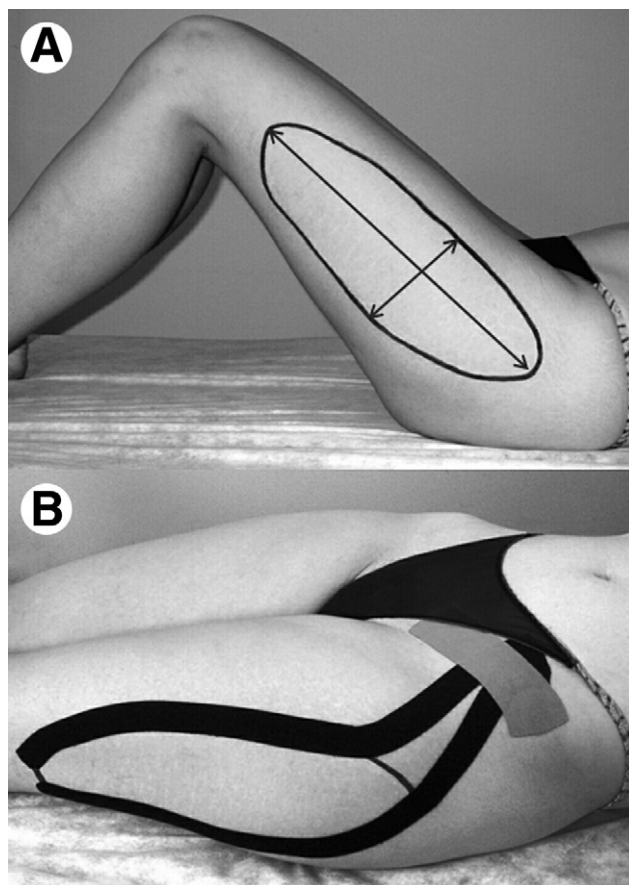


Fig 1. A, Symptom area. Arrows indicate the longest and broadest parts of symptom area measured as outcomes. B, A Kinesio tape application.

uses inward pressure to provide positional stimuli through the skin to assist with joint stability or postural alignment. The space correction method involves decreasing pressure over a target area of pain, inflammation, and edema to relieve symptoms.

Statistical Analysis

A repeated (dependent)–measures *t* test was used to evaluate the differences in studied parameters before and after the treatment.

RESULTS

Ten subjects (6 men and 4 women) participated in our study (table 1). Their mean age was 52 years (range, 27–71y). Their mean height was 168.3cm (range, 163–186cm), their mean weight was 80.8kg (range, 64–100kg), and their mean body mass index was 28.61 (range, 22.26–39.06). Mean duration of symptoms was 10.7 months (range, 2–36mo). In the EMG study, the range of amplitude of the lateral cutaneous nerve of thigh potential was 2.6 to 8.1 μV , and latency was 3.7 to 4.4 milliseconds.

All outcome measures significantly improved after 4 weeks of treatment. Mean VAS QOL \pm SD decreased from 69.4 ± 23.4 to 35.3 ± 25.2 ($t=4.3$; $P=.002$). Mean VAS MP symptoms \pm SD decreased from 58.6 ± 17.6 to 32.0 ± 24.8 ($t=5.8$; $P=.0003$). The length and width of the affected area decreased from 25.5 ± 5.5 to $13.0\pm 6.2\text{cm}$ ($t=5.6$; $P=.0003$) and from 15.3 ± 2.1 to $7.5\pm 4.2\text{cm}$ ($t=5.3$; $P=.0005$), respectively.

Table 1: Descriptive Statistics of the Studied Sample

No.	Age (y)	Sex	BMI (m/kg ²)	Duration* (mo)	VAS QOL I	VAS QOL II	VAS MP Symptoms I	VAS MP Symptoms II	Length [†] I (cm)	Length [†] II (cm)	Width [†] I (cm)	Width [†] II (cm)
1	63	F	30.79	9	95	29	45	22	22	12	17	5
2	55	M	25.95	36	100	22	54	10	29	16	14	4
3	47	F	33.03	3	71	60	63	40	20	14	15	9
4	71	F	39.06	24	80	70	75	73	33	24	19	9
5	27	M	25.00	2	64	54	70	54	15	9	13	13
6	57	M	22.26	2	19	0	20	0	31	0	16	0
7	39	M	27.40	18	80	38	77	36	26	13	14	10
8	47	M	29.41	3	47	0	50	6	25	11	13	3
9	65	M	28.04	6	73	60	75	61	30	18	18	12
10	49	F	25.22	4	65	20	57	18	24	13	14	10
Mean	52		28.62	10.7	69.4	35.3	58.6	32.0	25.5	13.0	15.3	7.5

Abbreviations: I, before treatment; II, after treatment; BMI, body mass index; F, female; M, male.

*Of symptoms.

†Of affected area.

Two participants with a relatively short duration of symptoms (2 and 3mo) reported full recovery after 4 weeks of treatment. One individual with relatively severe symptoms of MP (VAS QOL=100; VAS MP symptoms=54), lasting more than 36 months, reported being almost symptom-free (VAS MP symptoms=10) with a significantly improved QOL (VAS QOL=22). On the other hand, 4 participants reported a very modest change in their condition. No one complained of worsening MP symptoms.

DISCUSSION

Our pilot study showed that a 4-week application of KT significantly improved MP symptoms and QOL. Therefore, we believe that KT can be used to relieve MP symptoms. However, taking into account that (1) our results are preliminary, (2) not all patients showed significant improvement after KT, and (3) not all patients who improved after KT were symptom-free after the treatment, we suggest that, at the present stage, KT may be added to the routine complex treatment of MP.

No serious adverse effects were reported in the study. Two participants, both obese, complained of irritation in the inguinal area. During the next treatment session, tape was applied only on the symptom area without placing a strip on the inguinal area. Participants were advised to use topical steroid cream on irritated areas.

Study Limitations

First, there was no comparison group; therefore, we cannot rule out the placebo effect. On the other hand, 2 of 3 participants with symptoms for more than a year reported a significant improvement in symptoms and QOL. Second, outcomes were collected immediately after the end of the treatment period, and as a result, we did not assess the long-term effects. Third, the results were not assessed by a blind observer, which is a potential source for investigator's bias. Fourth, we used a single VAS scale to evaluate all MP symptoms. The validity of this method has as yet not been established.

CONCLUSIONS

In our pilot study, we provided initial evidential support for use of KT in the treatment of MP. Patients with chronic MP showed improvement in symptoms and QOL and reduction in the size of the symptom area after 4 weeks of KT application. We believe that this finding is important because other effective conservative treatments for MP are still lacking.

Future randomized placebo control trials should be designed with patients and assessors blind to the type of intervention in addition to more valid and reliable clinical measures.

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