

Painful Legs and Moving Toes

Subjects: Sport Sciences

Contributor: Songjin Ri

Painful Legs and Moving Toes syndrome (PLMT) is a rare neurological movement disorder characterized by involuntary and irregular movements of one or more toes, often together, with moderate to severe diffuse pain at the foot and leg. It can appear on one or both sides and in the upper limbs as well as lower limbs. The etiology of PLMT is still unclear; therefore, the main symptoms of PLMT, including pain in limbs as well as involuntary movements of toes, can be treated only symptomatically, and the outcomes are often unsatisfactory. Central or peripheral nerve injuries have been assumed to be the possible causes of irregular involuntary movements, often accompanied by chronic pain; however, its etiology is unknown in most cases. The management of PLMT is very difficult because of its rare prevalence and obscure pathogenesis, and there have been no clear guidelines for the treatment of PLMT. Oral medications (e.g., GABAergic agents, benzodiazepines, antiepileptics, antidepressants, atypical antipsychotics, beta-blockers, corticosteroids, cannabis, calcitonin, and analgesics) and several therapeutic interventions (e.g., local botulinum neurotoxin-A injection, spinal cord stimulation, anesthetic, and surgical interventions) have been recommended, based on individual experiences from several cases. Its etiology, pathogenesis, and effective treatments should be further discussed.

Keywords: painful legs ; moving toes ; PLMT ; pain ; movement disorder ; involuntary ; botulinum ; pregabalin ; spinal stimulation

Painful Legs and Moving Toes syndrome (PLMT), one of the spinal-generated movement disorders ^[1], is a rare movement disorder with involuntary irregular flexion/extension of one or more toes, which is often accompanied with pain felt deeply in the foot and leg. It therefore reduces the quality of life as well as activities in social community and the workplace ^{[2][3]}. PLMT was firstly reported as a pain syndrome in the feet or lower limbs with spontaneous movements of the toes by Spillane and colleagues in 1971 ^[2]; since then, PLMT has been described in case or cases series reports rarely ^{[4][5][6][7][8][9][10][11][12][13]}. Until now, about 130 cases with PLMT have been reported, according to our literature search on PubMed and other public open-access databases (screening on 31 October 2021) and patients' ages ranged from 11 to 86 ^{[13][14][15]}. The definition of PLMT has expanded to the upper limbs (painful hands and moving fingers) ^{[7][8][11][12][16]}. It has been also called "painful limbs and moving extremities" involving more than toes or fingers, e.g., feet or hands and limbs ^{[8][12][17]}. The affected locations have extended from toes or fingers proximally to ipsilateral foot or hands and limbs, as well as contralateral limbs in some cases, and possibly from the lower limb to the upper ^[16]. Several atypical cases with painful movement disorder have been reported ^{[9][10][18][19][20][21]}. One case with PLMT extended to the tongue, called "painful moving tongue", but detailed information was not available ^[22].

References

1. Termsarasab, P.; Thammongkolchai, T.; Frucht, S.J. Spinal-generated movement disorders: A clinical review. *J. Clin. Mov. Disord.* 2015, 2, 18.
2. Spillane, J.D.; Nathan, P.W.; Kelly, R.E.; Marsden, C.D. Painful legs and moving toes. *Brain* 1971, 94, 541–556.
3. Rossi, F.H.; Liu, W.; Geigel, E.; Castaneda, S.; Rossi, E.M.; Schnack, K. Painful legs and moving toes syndrome responsive to pregabalin. *J. Postgrad. Med.* 2015, 61, 116–119.
4. Okamoto, S.; Takegami, T.; Mano, T. Peculiar involuntary movement of the toes associated with discomfort of the foot, a case of so-called "painful legs and moving toes". *Rinsho Shinkeigaku* 1974, 14, 829–834. (In Japanese)
5. Nathan, P.W. Painful legs and moving toes: Evidence on the site of the lesion. *J. Neurol. Neurosurg. Psychiatry* 1978, 41, 934–939.
6. Schott, G.D. Painful legs and moving toes: The role of trauma. *J. Neurol. Neurosurg. Psychiatry* 1981, 44, 344–346.
7. Verhagen, W.I.; Horstink, M.W.; Notermans, S.L. Painful arm and moving fingers. *J. Neurol. Neurosurg. Psychiatry* 1985, 48, 384–385.
8. Funakawa, I.; Mano, Y.; Takayanagi, T. Painful hand and moving fingers. A case report. *J. Neurol.* 1987, 234, 342–343.

9. Walters, A.S.; Hening, W.A.; Shah, S.K.; Chokroverty, S. Painless legs and moving toes: A syndrome related to painful legs and moving toes? *Mov. Disord.* 1993, 8, 377–379.
10. Dressler, D.; Thompson, P.D.; Gledhill, R.F.; Marsden, C.D. The syndrome of painful legs and moving toes. *Mov. Disord.* 1994, 9, 13–21.
11. Supiot, F.; Gazagnes, M.D.; Blecic, S.A.; Zegers de Beyl, D. Painful arm and moving fingers: Clinical features of four new cases. *Mov. Disord.* 2002, 17, 616–618.
12. Papapetropoulos, S.; Singer, C. Painless legs moving toes in a patient with Wilson's disease. *Mov. Disord.* 2006, 21, 579–580.
13. Hassan, A.; Mateen, F.J.; Coon, E.A.; Ahlskog, J.E. Painful legs and moving toes syndrome: A 76-patient case series. *Arch. Neurol.* 2012, 69, 1032–1038.
14. Fan, Y.Y.; Xu, Y.; Gao, X.G. Spontaneous aching pain and peculiar involuntary movements: A case report of painful legs and moving toes and review of the literature. *Case Rep. Med.* 2014, 2014, 581402.
15. Reich, S.G. Painful legs and moving toes. *Handb. Clin. Neurol.* 2011, 100, 375–383.
16. Ebersbach, G.; Schelosky, L.; Schenkel, A.; Scholz, U.; Poewe, W. Unilateral painful legs and moving toes syndrome with moving fingers--evidence for distinct oscillators. *Mov. Disord.* 1998, 13, 965–968.
17. Mosek, A.; Rabey, J.M.; Kushnir, M.; Korczyn, A.D. Painful calf, moving foot. *Mov. Disord.* 1996, 11, 339–340.
18. Dziewas, R.; Kuhlenbäumer, G.; Okegwo, A.; Lüdemann, P. Painless legs and moving toes in a mother and her daughter. *Mov. Disord.* 2003, 18, 718–722.
19. Singer, C.; Papapetropoulos, S. A case of painless arms/moving fingers responsive to botulinum toxin injections. *Parkinsonism Relat. Disord.* 2007, 13, 55–56.
20. Alrawashdeh, O. Painless legs and moving toes syndrome associated with a sacral Tarlov cyst: A case report. *J. Med. Case Rep.* 2016, 10, 52.
21. Bermejo, P.E.; Zabala, J.A. Painless legs and moving toes" syndrome due to spinal cord compression. *Eur. Spine J.* 2008, 17 (Suppl. S2), S294–S295.
22. Schwingenschuh, P.; Bhatia, K.P. Painful moving tongue in a patient with the painful legs moving toes syndrome. *Mov. Disord.* 2008, 23, 1324–1325.