

## CASE REPORT

**Hoffmann–Tinel sign and entrapment neuropathy**K. Ishizuka , T. Uehara, D. Yokokawa , K. Noda and M. Ikusaka

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**Learning point for clinicians**

Identification of Hoffmann–Tinel sign at the site of nerve injury is essential in physical examination, and nerve conduction studies can confirm the distribution of nerve injury. Also, it is important to note that sitting on a toilet seat for more than 4 h could cause entrapment neuropathy.

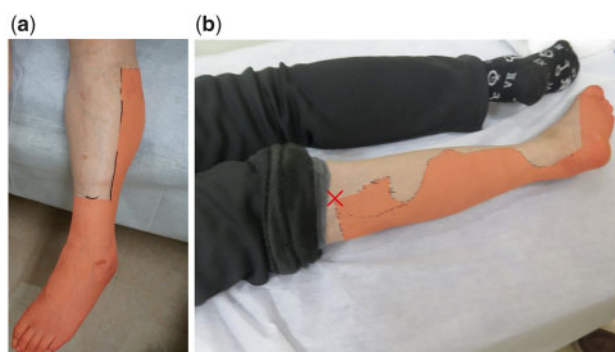
**Case report**

We report the case of a 75-year-old woman with acute and prolonged left leg weakness and pain. Six weeks before presentation, her daughter noticed her confusional state; at that time, she was sitting on a toilet seat for at least 4 h. She was transported to a nearby hospital where the tentative diagnosis of

pyelonephritis was made because her purulent urine and blood culture that revealed *Escherichia coli*. Although her general condition improved with the administration of intravenous antibiotics, she developed the pain and weakness of the left lower leg that were prolonged for 6 weeks and, therefore, she was referred to our outpatient clinic. Her medical history was only remarkable for rheumatoid arthritis for which she was on 5 mg/day of oral prednisolone. Neurological examination showed that she could not perform left ankle dorsiflexion and plantar flexion. Dysesthesia and severe loss of all sensations were observed in the leg (Figure 1a). The patellar tendon reflex was normal, but the left achilles tendon reflex was absent. When we tapped the marked point with a cross, radiating pain was observed in the colored area shown in Figure 1b.

Based on the prolonged unique posture at onset, we considered toilet seat syndrome, i.e. distal sciatic nerve entrapment neuropathy caused by the use of a toilet seat.<sup>1</sup> Muscle weakness of ankle dorsiflexion and sensory loss of the lateral side of the lower leg were due to common peroneal neuropathy. In addition, muscle weakness of ankle plantar flexion and sensory loss of the dorsal surface of the lower leg and its plantar aspect were due to tibial neuropathy. The radiating pain evoked by tapping (Figure 1b) is Hoffmann–Tinel sign, and it is compatible with entrapment neuropathy. Nerve conduction study demonstrated no response by either the common peroneal nerve or tibial nerve. After 6 months of rehabilitation, the patient was able to walk independently with an ankle-supporting device, and the pain reduced considerably.

Anatomical understanding of the lower leg is important. The sciatic nerve divides into the common peroneal nerve and tibial nerve just above the popliteal fossa. The common peroneal nerve divides into the superficial and deep peroneal nerves just above the fibular head. The superficial peroneal nerve is involved in sensory distribution to the lateral aspect of the lower two-thirds of the leg and the dorsum of the foot, with the exception of the first web space. In contrast, the deep peroneal



**Figure 1.** (a) Anterior and lateral sides of the left lower leg: decreased total sensation was observed in the colored area. (b) Left posterior lower leg: the radiating pain was evoked when we tapped the marked point with a cross (Hoffmann–Tinel sign).

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nerve controls dorsal flexion and is involved in sensory distribution to the first web space. The tibial nerve controls the plantar flexion of the ankle as well as the sensation of the plantar aspect of the foot and the posterolateral lower leg and foot in sural distribution. Identification of Hoffmann–Tinel sign at the site of nerve injury is essential in physical examination, and nerve conduction studies can confirm the distribution of nerve injury. It is important to note that sitting on a toilet seat for more than 4 h could cause entrapment neuropathy, as in reported in lithotomy position.<sup>2</sup>

*Conflict of interest.* None declared.

## References

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2. Sajid MS, Shakir AJ, Khatri K, Baig MK. Lithotomy-related neurovascular complications in the lower limbs after colorectal surgery. *Colorectal Dis* 2011; **13**:1203–13.