**LETTERS TO THE EDITOR**

**Mouse-directed computers and ulnar sensory neuropathy**

While computers can be affected by "viruses", their users may be prone to pressure neuropathy. We recently examined two patients who presented with an isolated ulnar palmar-cutaneous-branch sensory neuropathy resulting from daily use of a mouse-directed personal computer (PC).

Both males, aged 23 (patient 1) and 34 (patient 2), presented with a two week and one month history, respectively, of paresthesia in the ulnar region of the right hand. Physical examination demonstrated sensory loss in the area of the palmar cutaneous branch of the right ulnar nerve. No weakness or atrophy was observed in these otherwise healthy young men.

Sensory nerve conduction studies of the palmar-cutaneous-branch of the right ulnar nerve revealed a 0.7 and 0.6 ms-longer latency compared with the left, in the first and second patient, respectively. The amplitude of the sensory action potential in the first patient was 12 μV at the affected side compared with 19 μV at the contralateral unaffected nerve. In the second patient these values were 14 μV and 21 μV, respectively.

The dorsal cutaneous branch of the right ulnar nerve was normal in both patients, as well as needle electromyography and motor conduction studies of both median and ulnar nerves. Clinical and electrophysiological findings suggested an isolated right ulnar palmar-cutaneous-branch sensory neuropathy. After they abandoned the use of this steering device, recovery occurred progressively. Sensory nerve conduction studies of this sensory branch of the ulnar nerve were within normal limits six months later.

Both patients were using their PC for almost one year and had no predisposing factors for ulnar nerve damage. Their history clearly indicated that the region proximal to the wrist crease of the right arm was intermittently compressed while using the mouse (figure). The palmar sensory branch of the ulnar nerve arises proximal to the wrist crease and supplies sensory innervation to the proximal ulnar aspect of the palm. The deep palmar (motor) branch of the ulnar nerve can be damaged by recurrent pressure. However, lesion of the palmar sensory branch is very uncommon, especially when occurring from an occupational nature. This type of neuropathy should be recognised in patients using mouse-directed computers and can simply be prevented by using the keyboard. In addition, this case is not reported to discourage the use of this type of steering device, but to limit its use when any sensory disturbance occurs in the proximal ulnar aspect of the palm.

**DIRK DELEU**

Department of Neurology, University Hospital AZ-VUB, Laarbeeklaan, Brussels, Belgium.

Correspondence to: Dr Deleu, Department of Neurology, University Hospital AZ-VUB, Laarbeeklaan 101, 1090 Brussels, Belgium.

---


---

**Figure**  Showing how the region proximal to the wrist crease of the right arm was chronically intermittently compressed while using the mouse.
The symptoms may be seen when she was admitted with a cough lasting a week, double vision and difficulty raising her eyelids for four days. On examination she had bilateral lower motor neuron facial weakness, bilateral loss of abduction of the eyes and restriction of upgaze, and a bilateral bulbar palsy. The pupil size and responses were normal. She had moderate proximal weakness of the right upper and lower limbs and all reflexes apart from the right ankle jerk were absent. By the third hospital day she developed complete ophthalmoplegia, complete bilateral palsy and weakness in all four limbs but distal and left upper limb proximal strength were relatively preserved.

Investigations showed a leukocyte count of 9.6 × 10^9/L. Cerebrospinal fluid on the seventh hospital day contained protein 2-27 g/L, with no cells. A cranial CT scan was normal. A mouse injection test of the patient's serum for botulinum toxin was negative. Stool culture for Clostridium botulinum was negative.

Upper limb nerve conduction studies showed the following (table): a) Reduction of resting CMAP amplitude; b) Motor conduction velocity below 80% of the lower limit of normal values.  

### Table: Repetitive stimulation and nerve conduction studies

<table>
<thead>
<tr>
<th>Day No</th>
<th>Repetitive stimulation test</th>
<th>Nerve conduction study</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CMAP (mV)</td>
<td>CMAP (mV)</td>
</tr>
<tr>
<td>2-6 (L)</td>
<td>2-0 (R)</td>
<td>3-6 (L)</td>
</tr>
<tr>
<td>3</td>
<td>2-6 (L)</td>
<td>2-0 (L)</td>
</tr>
</tbody>
</table>

*Amplitude of CMAP. (L) = left, (R) = right.

CMAP = compound muscle action potential amplitude.

NCV = forearm motor nerve conduction velocity.

SAP = orthodromic sensory action potential amplitude recorded at wrist.

RU = right ulnar, RM = right median, LU = left ulnar, LM = left median.

NE = no CMAP elicited on stimulation at elbow.

Normal values: Motor conduction velocity: Median = 47-72 m/s, Ulnar = 51-76 m/s.

CMAP amplitude: Median = 2-6-9-7 mV; Ulnar = 3-7-11-6 mV.

Distal motor latency: Median = 1.8-2.8 ms; Ulnar = 1.1-2.2 ms.

Sensory action potential: Median = 7-36 µV; Ulnar = 7-22 µV.

F wave latency: Median = 16-2-19-8 ms; Ulnar = 15-8-18-0 ms.

Values 20% above or below the limits of normal shown in bold.
Oedema associated with the interruption of preganglionic sympathetic tract.

T Yokota and H Tanabe

doi: 10.1136/jnnp.55.3.232-a