

STROKE

A unique phantom limb

Researchers in Switzerland have described a unique phantom limb in a 64-year-old woman who experienced a stroke.

The limb appeared from the elbow of the patient's paralyzed left arm on the fourth day after a subcortical capsulolenticular hemorrhage. "The limb was experienced only when the patient 'decided' to trigger it, making this a rare, possibly unique example of an intentional motor phantom limb syndrome," explains lead author Asaid Khateb (Geneva University Hospitals, Switzerland).

Phantom limbs are common phenomena in amputees, but an extra phantom limb is rarely experienced by patients with stroke-related neurological damage. The phantom limb in this case was not only intentionally triggered and terminated, but its presence was regarded critically by the patient. She

could see the activated limb as a thinner and milky white version of a real arm and was surprised that it did not appear in a mirror. The patient reported that she was able to scratch her head with the phantom hand to physically relieve an itch, indicating that she felt sensation both in the phantom limb and in the part of the body being touched.

An MRI investigation revealed that intentional movement of the phantom limb by the patient caused measurable activation of premotor and motor areas in the brain, together with relevant areas of the visual and sensory cortices. "This [finding] confirmed the multimodal dimension of the phantom limb and the reliability of the patient's description," says Khateb.

Kathryn Senior

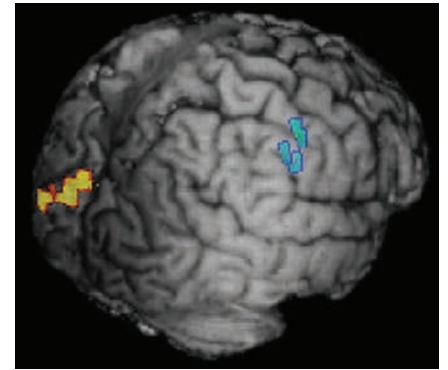


Figure 1 | MRI subtraction analysis in the brain of a stroke patient with a supernumerary phantom limb. The left visual areas (yellow–red) and the right somatosensory area (blue–green) were active when the patient scratched her left cheek with her phantom hand.

Original article Khateb, A. *et al.* Seeing the phantom: a functional MRI study of a supernumerary phantom limb. *Ann. Neurol.* doi:10.1002/ana.21647