

## Consistent severe motor weakness due to limb-kinetic and callosal apraxias in a patient with ICH

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### Objectives

We report on a stroke patient with chronic severe motor weakness due to combined limb kinetic and callosal apraxias following injury of the corticofugal tract (CFT) from the secondary motor area and corpus callosum (CC) fibers, diagnosed by diffusion tensor tractography (DTT).

### Case description

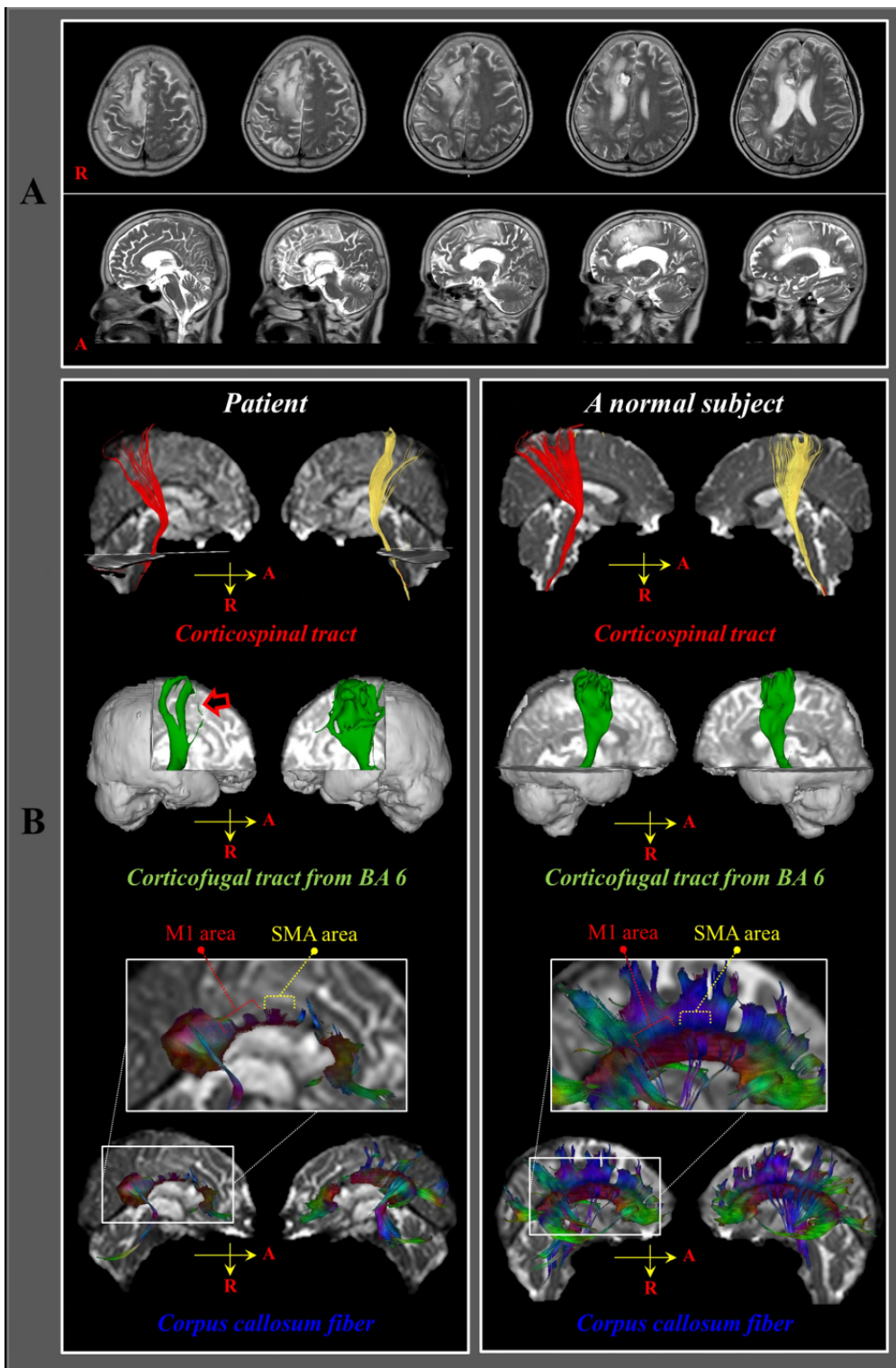
A 66-year old right-handed female underwent CT guided stereotactic drainage extraventricular drainage for intraventricular hemorrhage and coiling of the right unruptured middle communicating artery. She also underwent conservative management for an intracerebral hemorrhage in the right prefrontal cortex and CC. Three weeks after onset, she developed complete paralysis of the left upper and lower extremities. She underwent comprehensive rehabilitation including drugs for recovery of apraxia for two months. However, her left hemiplegia did not significantly improve, with mild recovery of the left lower extremity (the left upper extremity; 0, the left hip flexor; 0 -> 1, the left knee extensor; 0 -> 2-, and the left ankle dorsiflexor; 0 -> 2-). On 2-month DTT, the CFT from the secondary motor area showed narrowing and partial tearing in the right hemisphere. The integrity of the CST was preserved in both hemispheres. However, injuries of the CC fibers from the primary motor cortex and secondary motor area were observed in both hemispheres.

### Conclusions

Using DTT, injuries of the CFT from the secondary motor area and CC fibers were diagnosed in a stroke patient with consistent severe motor weakness due to limb-kinetic and callosal apraxias.

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**Fig 1. (A)** T2-wrighted MR images at three weeks after onset show intracerebral hemorrhage in the right prefrontal cortex and corpus callosum (arrows). **(B)** On two-month diffusion tensor tractography, the integrity of the corticospinal tract is preserved in both hemispheres. However, narrowing and partial tearing (arrow) is observed in the right corticofugal tract from the secondary motor area (SMA) compared with a normal subject (55-year old female). Injuries of the corpus callosum fibers from the primary sensori-motor cortex (SM1), SMA, and prefrontal cortex in both hemispheres are observed.